Required Report: Required - Public Distribution **Date:** September 30, 2025

Report Number: BR2025-0030

Report Name: Biofuels Annual

Country: Brazil

Post: Brasilia

Report Category: Biofuels

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Report Highlights:

Brazil recently enacted the law known as Fuel of the Future, aiming at decarbonizing the transport sector through the use of sustainable fuels and the implementation of low carbon programs. The law proposes the integration between RenovaBio and other existing mobility decarbonization programs and establishes blend mandates and annual targets for reducing greenhouse gas emissions. Brazil's fuel ethanol market is second in size only to the U.S. market and the blend mandate increased from E27 to E30. The biodiesel industry remains robust and the blend mandate increased from B14 to B15. Currently, there is no commercial scale production of sustainable aviation fuel (SAF), renewable diesel, or cellulosic ethanol. However, investments are planned to supply the domestic demand for advanced fuels and comply with Brazil's international climate commitments.

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I. Executive Summary

In November 2024, Brazil updated its Nationally Determined Contribution (NDCs), establishing the target of reducing Brazil's net greenhouse gas emissions (GHG) between 59 percent and 67 percent by 2035, compared to 2005 levels.

To ensure the expansion of biofuels and strengthen their role as a tool to reduce GHG emissions in transport, the Brazilian government launched the National Biofuels Program, called RenovaBio, in December 2016. This modified the policy and regulatory framework for the use of biofuels. RenovaBio's goals are in line with the country's commitments under the Paris Agreement and other international environmental commitments.

In June 2025, ANP approved a new regulation for the certification of biofuels production under RenovaBio and updated regulation on biomass custody chain, certification of foreign producers, biomass eligibility criteria, among others. On August 18, 2025, ANP authorized for the first time a foreign producer to participate in RenovaBio and issue CBios. Copersucar SA received authorization for the import of anhydrous ethanol produced by Plymouth Energy LLC.

Brazil recently enacted the law known as Fuel of the Future, aiming at decarbonizing the transport sector through the use of sustainable fuels and the implementation of low carbon programs. The law proposes the integration between RenovaBio and other existing mobility decarbonization programs and establishes blend mandates and annual targets for reducing greenhouse gas emissions.

With 2024 consumption at 36 billion liters, Brazil´s ethanol market is second in size only to the U.S. market. Under updated legislation, the ethanol blend rate for Gasoline C can vary between 22 percent and 35 percent, set at 30 percent since August 1st, 2025.

Sugarcane is the primary feedstock for ethanol production in Brazil, followed by corn. Corn ethanol production has remained in a steep upward trajectory and is expected to compose approximately 24 percent of total ethanol production. Post forecasts total ethanol production in 2025 at 39.7 billion liters, with 30.1 billion liters of cane ethanol and 9.6 billion liters of corn ethanol. Cellulosic ethanol production still is incipient and is carried out by a single company. Investments in wheat ethanol are increasing, and the first wheat ethanol plant is planned to operate in 2026.

Brazilian ethanol imports increased from 59 million liters in calendar year 2023 to 194 million liters in 2024, even with an 18 percent ethanol import tariff in force since January 2024. Ethanol exports continue to lose competitiveness abroad and reached 1.9 billion in 2024, a decrease of 25 percent compared with the previous year. Post estimates total imports of ethanol for 2025 at 350 million liters and exports at 1.5 billion.

Brazil´s biodiesel industry remains robust. The biodiesel blend mandate into diesel increased from 14 percent to 15 percent on August 1st, 2025, and total production is forecast at 9.8 billion liters, an increase of 8 percent compared with 2024. In 2024, 72 percent of biodiesel produced originated from soy oil, followed by other fatty materials, tallow, other greasy material, used cooking oil and palm oil. Post forecasts biodiesel consumption at 9.7 billion liters, an 8 percent increase from 2024 (9.0 billion liters).

There is no commercial scale production of advanced fuels. According to public information and Post contacts, the oil and gas state-owned company Petrobras produces SAF and renewable diesel on a small scale. The company Acelen is preparing to produce renewable diesel and SAF in the new Mataripe refinery in Bahia. Petrobras is also investing in small scale maritime fuel (bunker) with 24 percent of biofuel content.

II. Policy and Programs

A. Renewable Energy and Greenhouse Gas Emissions

This report updates the "Brazilian Biofuels Annual Gain Report 2018", "Brazilian Biofuels Annual Gain Report 2019", and "Brazilian Biofuels Annual Gain Report 2020", and "Brazilian Biofuels Annual Gain Report 2021", and "Brazilian Biofuels Annual Gain Report 2023", and the "Brazilian Biofuels Annual Gain Report 2024" illustrating the legislative framework and the progress of the RenovaBio program.

Greenhouse Gas Emissions

Brazil committed to the multilateral effort agreed in the Paris Agreement to limit the global temperature rise to 1.5 degrees Celsius above pre-industrial levels. In November 2024, during the 29th Conference of the Parties (COP29), Brazil delivered the most updated Nationally Determined Contribution (NDCs), establishing the target of reducing Brazil's net greenhouse gas emissions (GHG). The target is between 59 percent and 67 percent by 2035, compared to 2005 levels, or the equivalent to reducing between 850 million and 1.05 billion tons of carbon dioxide equivalent (CO2eq) in absolute terms.

Brazil´s policy related to GHG emissions reduction is the National Plan on Climate Change, which was signed into law in 2009. The plan sets guidelines and targets to decrease GHG emissions through the reduction of the Amazon deforestation, expansion of the internal consumption of ethanol, doubling the size of planted forests, and expansion of electricity supply using biomass and cane bagasse, among others.

Brazil's NDCs are guided by the principles outlined in the country's Climate Plan, which prioritizes reducing greenhouse gas emissions and adapting to the impacts of climate change. The plan includes seven sectoral mitigation strategies and 16 adaptation strategies targeting key CO2-emitting sectors such as agriculture and livestock, land use and forests, energy, and transportation. Originally introduced in 2008, the Climate Plan is undergoing updates, with the latest version anticipated for release in 2025.

Brazil's NDCs also align with the country's 2050 climate neutrality target and encompass all sectors of its economy. These commitments are outlined in the Brazilian Ecological Transformation Plan, signed in August 2024, which integrates proposals for sustainability, economic growth, and environmental preservation.

Table 1
Brazilian Nationally Determined Contributions (NDCs)

Year presented	2005 GHG Levels (GtCO2e)	2035 target (GtCO2e)	Reduction compared to 2005 (%)
2016 (original)	2.10	1.20	-43%
2020	2.84	1.62	-43%
2022	2.56	1.28	-50%
2023	2.56	1.20	-53.1%
2024	2.56	1.51 to 1.71	-59% to 67%

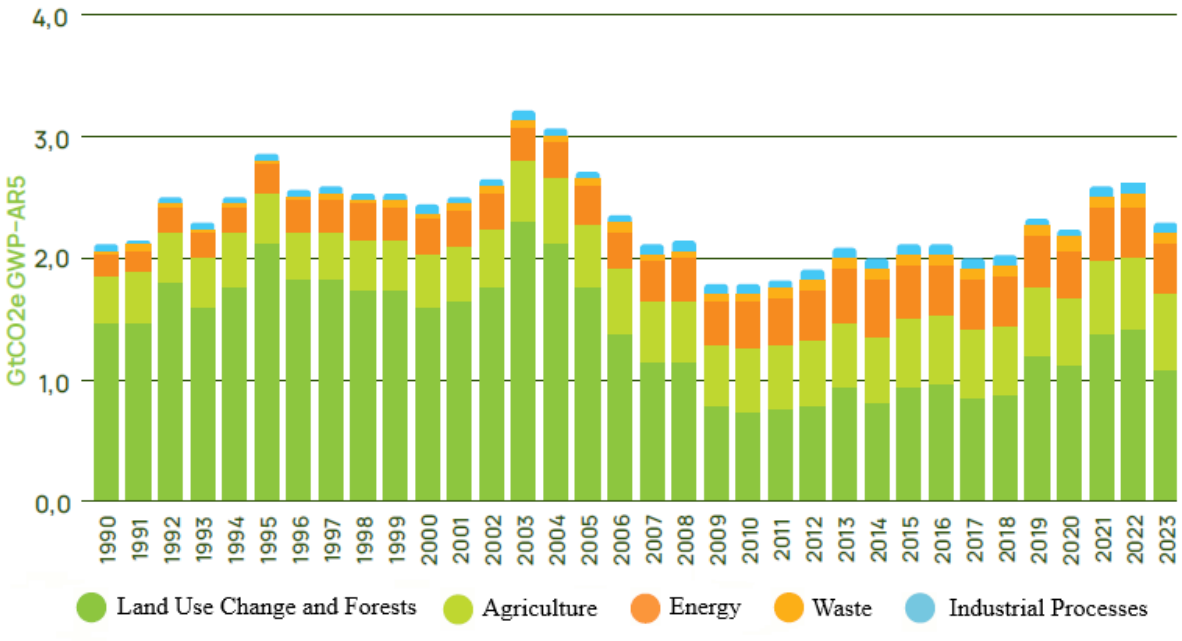
Source: Ministry of the Environment and Climate (MMA); Chart Post Brasilia

According to the Greenhouse Gas Emissions and Removals Estimating System (SEEG), Brazil emitted 2.3 billion tons of carbon dioxide equivalent (GtCO2e) of gross GHG emissions in 2023. The result is a reduction of 12 percent compared to 2022, when Brazil emitted 2.6 GtCO2e, and the largest reduction since 2009, when SEEG registered 1.77 GtCO2e, the lowest level since the beginning of the measurement period initiated in 1990. The reduction is the result of tougher government policies to combat deforestation, leading to a drop of 24 percent in the emissions caused by deforestation in the Amazon.

The sectors contributing to the largest percentage of emissions include changes in land use (46 percent of the total), followed by agriculture and livestock (27 percent), energy (18 percent), residues (4 percent) and industrial processes (4 percent). According to SEEG, agricultural activities account for 74 percent of Brazil's total greenhouse gas emissions. This figure includes emissions from deforestation and land-use changes for agricultural production, as well as direct emissions from the agricultural sector.

According to MapBiomas, 90 percent of the deforested area in the Amazon between 1985 to 2023 was primarily for the use of pastures, accounting for 77 percent of the deforested area in 2020.

Figure 1
Total Greenhouse Gas Emissions by Sector, 1990-2023



Source: Greenhouse Gas Emissions and Removals Estimating System (SEEG)

The energy sector includes GHG emissions from burning fossil fuels in activities related to transportation, industry, and electricity generation. In 2023, Brazil registered a record fossil fuel consumption in the transport sector. As a result, fuel production emitted 55.5 MtCO2e and the transport sector emitted 223.7 MtCO2e, according to the latest available information. The increase of the emissions in the transportation sector is directly linked to the Gross Domestic Product (GDP), which registered an increase of 2.9 percent in 2023 and 3.4 percent in 2024.

Table 2
Greenhouse Gas Emissions by Sector in 2023, in billion tons of carbon dioxide equivalent (GtCO2e)

Land Use Change and Forests	1,061,636,268
Agriculture	631,176,931
Energy	420,067,580
Waste	91,529,353
Industrial Processes	91,203,780

Source: Greenhouse Gas Emissions and Removals Estimating System (SEEG); Chart Post Brasilia

In 2024, Brazil supplied more than 88 percent of the electricity sector with renewable sources, including hydropower (44 percent), wind (14 percent), solar (7 percent), and biomass (6 percent). Electricity generated from diesel accounts for less than 1 percent of the total, mainly to supply remote regions and thermoelectric plants. The transport sector registered 25.7 percent of renewable content. According to

the Brazilian Sugarcane and Bioenergy Industry Association (UNICA), the circulation of flex-fuel vehicles in Brazil avoided the emissions of approximately 710 MtCO2e since 2003.

To ensure the expansion of biofuels and strengthen their role as a tool to reduce GHG emissions in transport, the Brazilian government launched the National Biofuels Program, called RenovaBio, in December 2016. This modified the policy and regulatory framework for the use of biofuels in the country. RenovaBio's goals are in line with the country's commitments under the Paris Agreement and other international environmental commitments.

Renewable Energy Policy Mandate and Certification

RenovaBio aims to ensure the supply of biofuels in the national fuel market, while promoting the sustainable expansion of biofuel production and integration into the country's energy matrix. The program emphasizes enhancing energy efficiency and reducing greenhouse gas emissions across production, commercialization, and use of biofuels, incorporating mechanisms such as life cycle assessments (LCA) to ensure environmental accountability.

RenovaBio is based on three main instruments: annual carbon intensity reduction targets (measured through carbon dioxide per megajoule - CO2/MJ), certification of biofuels marketed for GHG emission reduction, and decarbonization credits (CBios). RenovaBio provides the framework to certify biofuel production according to its GHG reduction efficiency and enables the sale and trade of decarbonization credits (CBios).

Each CBio represents one metric ton of CO2e not emitted by using biofuels instead of fossil fuels. This encourages the use of lower-emitting biofuels over higher-emitting options. By creating a market for CBios, RenovaBio recognizes the environmental benefits of biofuels, increases compensation for participating agents, and introduces a market-based tool.

The National Energy Policy Council (CNPE) sets the annual GHG emission targets, and the Oil and Gas Regulatory Agency (ANP) divides them into mandatory annual targets for fuel distributors in proportion to their participation in the fossil fuel market. The annual carbon intensity reduction targets drive the program for a minimum of ten years.

The Brazilian Agricultural Research Corporation (Embrapa) developed the methodology for calculating the carbon intensity of biofuels based on a life-cycle assessment compared to fossil fuels. The carbon emission of biofuels is measured in grams of CO2 equivalent per megajoule (gCO2/MJ). The calculation is based on the "well-to-wheels" approach, which includes all materials consumed by the production process, from the extraction, acquisition, production or transformation of the feedstock, its conversion to biofuel, to its combustion in the engine.

Each biofuel producer registered in RenovaBio receives an efficiency score (called Energy-Environment Efficiency Score - EEES) based on the life cycle analysis of the biofuel produced and inversely proportional to the carbon intensity of the biofuel. The score reflects each producer's individual contribution to mitigating a specific amount of greenhouse gas emissions compared to fossil fuels (in tons of CO2 equivalent).

In January 2023, ANP released version 8.1 of RenovaCalc, which consists of a database and a calculator for each type of biofuel. Each feedstock requires information on the production unit, eligibility requirements related to environmental compliance and proof of preservation of native forests, and data on the production process, including the agricultural, industrial, and distribution phases.

RenovaCalc uses information provided by biofuel producers related to the agricultural and industrial phase to generate the carbon intensity score. This score is subtracted from the corresponding fossil fuel score, resulting in the final EEES. The biofuels covered by RenovaBio are cellulosic ethanol, sugarcane and corn ethanol, biodiesel and HDRD, aviation biokerosene (HEFA-type SAF), and biomethane.

ANP certifies biofuel producers and importers through the EEES. The certification also takes into account the origin of the biomass. For biomass produced in Brazil, the certification only includes feedstocks produced in agricultural units registered with the Ministry of Agriculture and Livestock (MAPA) that comply with the environmental legislation and preserve native vegetation.

Producers and importers of biofuels seeking to participate in RenovaBio must engage inspection companies registered with the ANP for the certification of eligible volume and validation of the EEES. The certification of efficient biofuels production is valid for three years after ANP´s final approval and allows biofuel producers and importers to issue CBios.

In June 2025, ANP approved a new regulation for the certification of biofuels production or under RenovaBio. Resolution 984/2025 superseded Resolution 758/2018 and includes updated regulation on biomass custody chain, certification of foreign producers, biomass eligibility criteria, among others.

Resolution 984/2025 will require changes and improvement of the technical reports related to procedures for biofuels importers certification (Technical Report number 7), including changes in RenovaCalc methodology. On August 27, 2025, the ANP submitted the drafts of the updated versions of six technical reports for public consultation. The drafts are available for comments in Portuguese from August 27 to September 30, 2025.

1) Accreditation of inspection firms.
2) Procedures for certifying the production or imports of biofuels.
3) Guidelines for completing RenovaCalc.
4) Documentation for biofuel certification and foreign producer accreditation.
5) Procedures for annual monitoring and renewal of biofuel production certificates.
6) Procedures for implementing and verifying the chain of custody for grains and vegetable oils.

On August 18, 2025, ANP authorized the first foreign producer to participate in RenovaBio and issue CBios. ANP issued the first certificate of efficient biofuel production for a biofuel importer to Copersucar SA for the import of anhydrous ethanol produced by Plymouth Energy LLC, based in Merrill, Iowa (USA). The certification refers to Renovabio's imported first-generation fuel ethanol produced from corn.

The Energy-Environment Efficiency Score (EEES) attributed to Copersucar/Plymouth was 23.91 gCO2eq/MJm the lowest among all other agents certified under RenovaBio. The eligible volume is also the lowest, 0.87 percent.

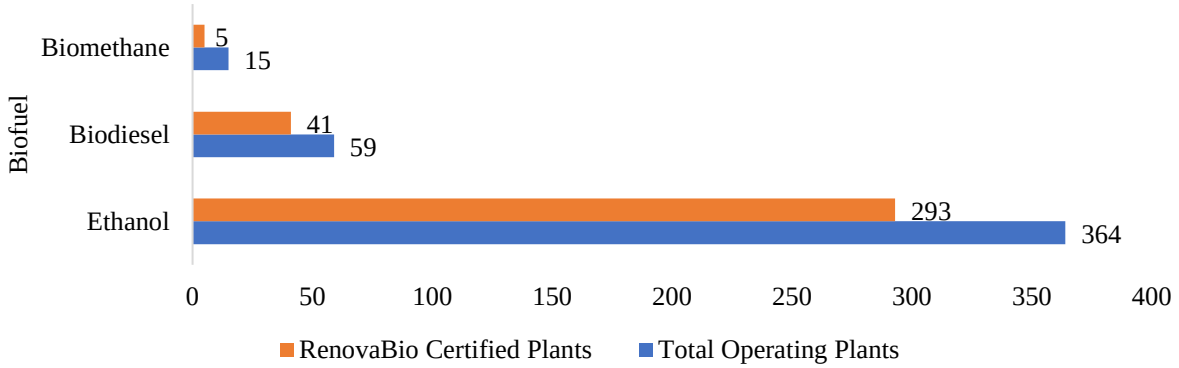
Certification for importers were provided in ANP regulations since 2018, but this was the first case received by the Agency, through a notice of certification contracting in January 2025. The inspection firm held a public consultation process from February 28 to March 30, 2025, and the final report of the certification process was delivered to ANP by the company on March 31, 2025.

On December 31, 2024, the federal government enacted Law 15,082/2024 allowing sugarcane producers to participate in CBios revenues, which was restricted to ethanol producing facilities. Cane producers should receive minimum instalments of 60 percent of CBios revenues received from the cane supplied to ethanol plants. Producers of other biofuel feedstocks can privately negotiate their revenues. The law also strengthens compliance with RenovaBio's GHG targets, which should be fulfilled by December 31st of each year. Non-compliance may constitute an environmental crime that is punishable by a fine.

RenovaBio's Milestones

As of September 25, 2025, ANP authorized 439 biofuels plants for operation. Of these, 339 were licensed under the RenovaBio program, including 293 ethanol units, 41 biodiesel plants, and 5 biomethane units. In total, 77 percent of the biofuel producing units in Brazil are certified to participate in the program and issue CBios.

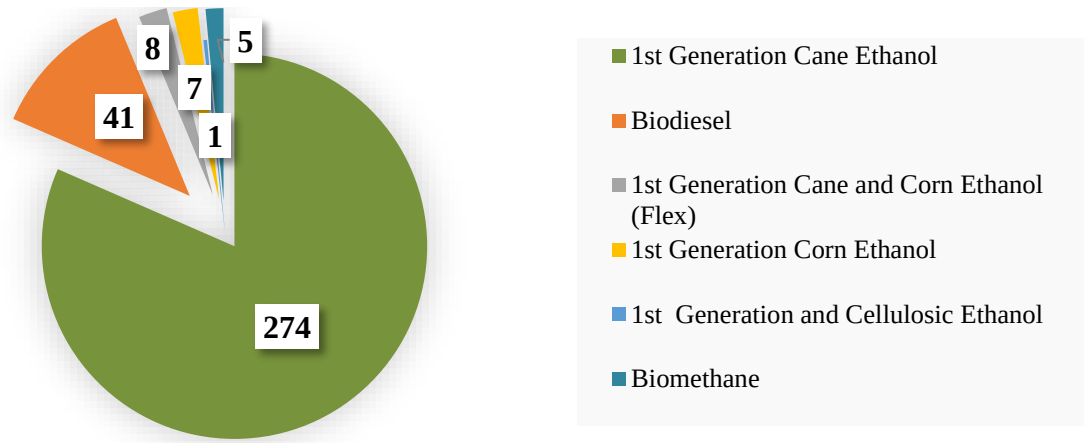
Figure 2
Biofuels Plants Certified under RenovaBio



Source: Oil and Gas Agency ; Chart Post Brasília

Regarding the routes certified, 81 percent correspond to first generation sugarcane ethanol (274 plants), 12 percent are biodiesel (41 plants), 2 percent are first- and second-generation sugarcane and corn ethanol plants (8), 2 percent first generation corn ethanol (7 plants), 1.4 percent biomethane (5 plants), and 0.3 percent first generation and cellulosic ethanol (1 plant).

Figure 3
RenovaBio's Certified Biofuels Routes

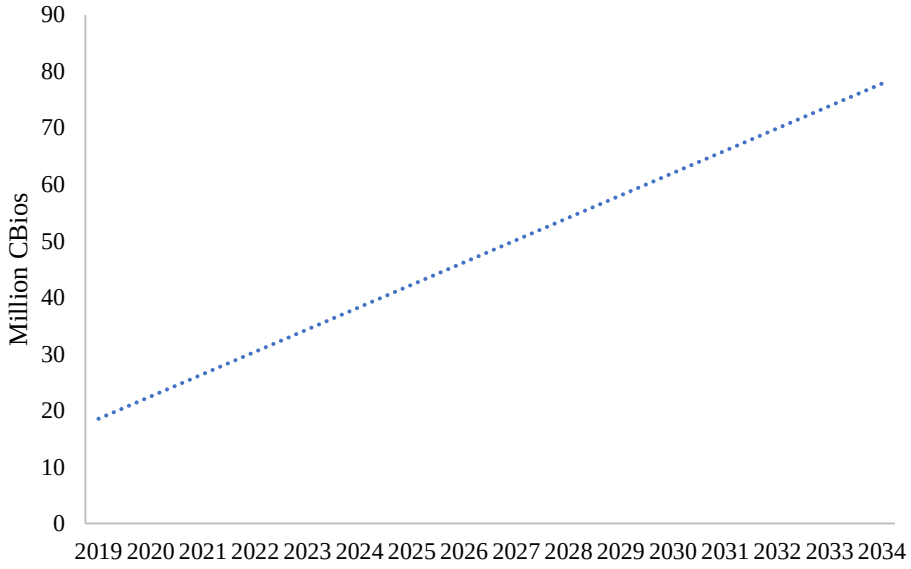


Source: Oil and Gas Agency ; Chart Post Brasília

On December 19, 2024, the CNPE published Resolution 14/2024 establishing the annual mandatory GHG reduction targets for fuel sales through CBios. ANP Resolution 794/2024 established the criteria for individualizing targets, which consists of calculating the market share of each fossil fuel distributor. The graph below shows the history of the targets set by the CNPE since 2019 and projected until 2034.

The target for the calendar year 2025 is 40.39 million CBios. Individual targets set for 2025 must be increased by the amount of CBios that the fuel distributor may not have achieved relative to its 2024 target. From January to September 24, 2025, the obligated parties retired 15.1 million CBios corresponding to 37 percent of the total target for 2025. The stock of CBios reached 14.7 million CBios, which added to the number of retired credits totaled 29.8 million Cbios, corresponding to 74 percent of the target.

Figure 4
Annual Target of Decarbonization Credits (Cbios) – million CBios



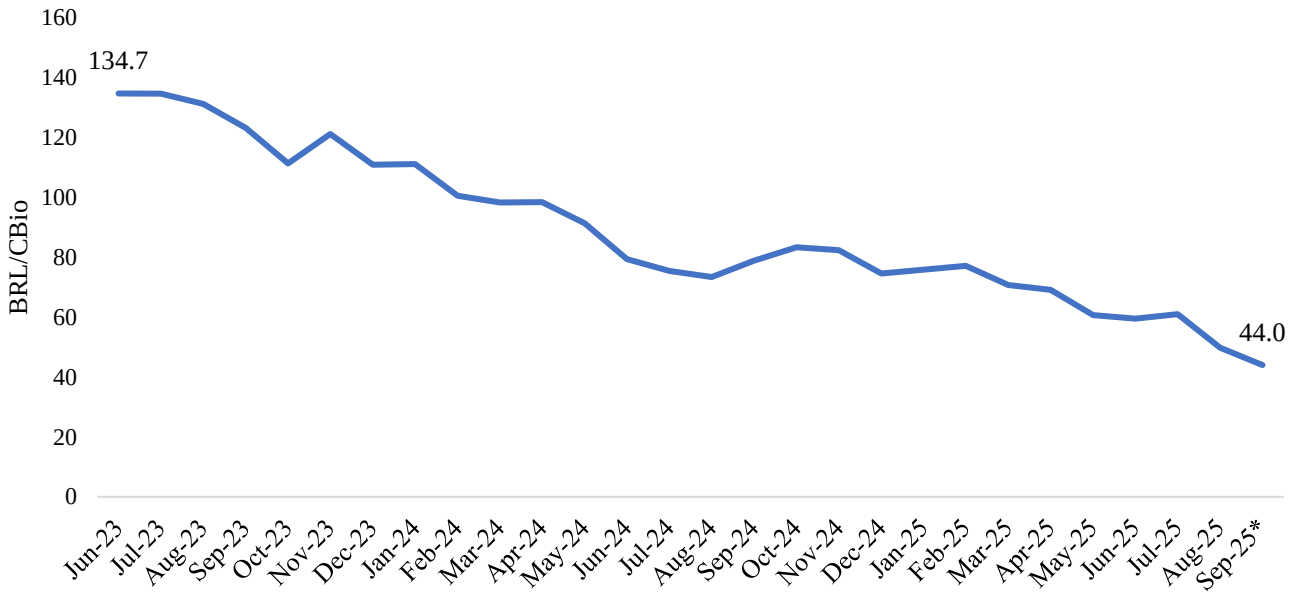
Source: National Council of Energy Policy (CNPE); Chart Post Brasilia

The legal certainty of the RenovaBio program is a concern for the sector. Court decisions that exempt fuel distributors from meeting decarbonization goals and the penalties associated with non-compliance with the goals have raised concerns about the program's effectiveness and ANP's ability to enforce sanctions.

On July 21, 2025, ANP published a list of obligated parties who failed to comply with the decarbonization targets and sanctioned with the prohibition to supply fuels and fines. However, as of August 13, 2025, of the 86 agents who were sanctioned, 49 had court orders to prevent their inclusion on the ANP list, and their names have not been made public.

This instability undermines market predictability and disrupts the pricing of CBios. As a comparison, the price of California's Low Carbon Fuel Standard was USD51.5 per ton of CO2e on September 24, 2025, and the price of CBio was USD 9.0, with Brazil`s currency rate at BRL5.34. Additionally, CBios prices are trending downward due to the rise in biofuel trading volumes following the increase in biodiesel and ethanol blends, which also elevated the trading volume of CBios.

Figure 5
Average Monthly Decarbonization Credit Price (CBIO) – June 2023 to September 24, 2025



*Source: Brazilian Stock Exchange Market (B3); Chart Post Brasilia *Refers to September 24,2025*

B. Policy and Program Mandates Aimed at Biofuels: Ethanol, Biodiesel, and Sustainable Aviation Fuel

Brazil recently enacted a law to incentivize the development and use of sustainable fuels through fixed blend mandates. Known as Fuel of the Future, the Law 14,993/2024 was enacted on October 8, 2024, aiming at incentivizing and promoting the decarbonization of the transport sector through the use of sustainable fuels and the implementation of low carbon programs.

The law proposes the integration between RenovaBio and other existing mobility decarbonization programs such as the Program for Green Mobility and Innovation (*Mover*), and the Brazilian Vehicle Labelling Program (*PBE Veicular*). The Ministry of Trade and Development (MDIC) is responsible for the Mover program, which aims to boost investments in energy efficiency for the Brazilian vehicles fleet and increase the demand for transport decarbonization.

The Mover program creates a specific lower federal tax (*IPI Verde*) for less pollutant vehicles. Mover offers companies approximately USD3.8 billion in financial credits between 2024 and 2028 for federal taxes abatement in exchange for investments in innovation and technology in the transport sector.

Brazil's National Institute for Metrology, Quality and Technology (Inmetro) is responsible for PBE Veicular, which is a program that evaluates the energy performance of vehicles and informs consumers about the energy efficiency and greenhouse gas emissions of each model, using the "well-to-wheel" methodology. In 2032, the methodology to analyze the fuel lifecycle will change to "cradle-to-grave".

Table 3
Fuel of the Future Main Targets and Projections for Biofuels Use

Biofuel	Quantification	Projection
Sustainable Aviation Fuel (SAF)	Minimum annual reduction in GHG emissions	1 percent from 2027. 1 percent increase annually from 2029, reaching 10 percent in 2037.
Renewable Diesel	Minimum volumetric mandatory blend	Limited to 3 percent. Voluntary blend above the permitted amount is allowed upon notification to the ANP
Biomethane[1]	Target for reducing GHG emissions in the natural gas sector	1 percent from 2026. Cannot exceed 10 percent of emissions reduction.
Biodiesel	Mandatory blend volume into diesel oil	15 percent in 2025. Annual 1 percent increase up to 20 percent in 2030. Subject to changes between 13 percent and 25 percent, if technically feasible.
Ethanol	Mandatory blend volume of anhydrous ethanol into gasoline C	Fixed at 27 percent. Subject to changes between 22 percent and 35 percent, if technically feasible.

Source: Energy Planning Company (EPE)

Following the approval of the Fuel of the Future law and other policies promoting biofuel use, demand for feedstocks like sugarcane and corn is expected to rise, along with increased demand for other inputs used in producing biodiesel fatty acid methyl ester (FAME).Total investment in the expansion of the biofuels sector between 2025 and 2035 is estimated at BRL110 billion, including greenfield projects for cellulosic ethanol, SAF, biomethane, corn and sugarcane ethanol, biodiesel and carbon capture.

According to the estimates of Energy Research Company (EPE), (the estimates from EPE defer from Posts estimates) the demand for sugarcane to process ethanol will grow from 330 million tons in 2025 to 384 million tons in 2035, with the total sugarcane produced totaling 665 million tons and 739 million tons, respectively. Sugarcane mills continue to invest in expanding ethanol production capacity to take advantage of the sector's potential, which also includes cogeneration, biomethane production, sustainable aviation fuels and renewable marine fuels.

Also, according to the estimates of Energy Research Company (EPE), Corn processing for ethanol production is projected to increase from 21 million tons in 2025 to 36 million tons by 2035. Similarly,

[1] According to ANP, there 14 plants authorized to produce biomethane with a nameplate capacity of 657,766 cubic meter per day (m^3/day). Brazil produced 81.5 million m^3 of biomethane in 2024. There are 25 plants in the process of authorization, which will add an additional 1.1 million m^3/day of industrial capacity. Production is expected to reach 7 million m^3 by 2029.

the production of distiller's dried grains with solubles (DDGs) is expected to rise from 4.5 million tons in 2025 to 7.7 million tons by 2035. Corn oil production is expected to increase from 400 thousand tons in 2025 to 700 thousand tons in 2035.

Total ethanol production is expected to increase from 37 million liters in 2025 (27 billion liters of sugarcane ethanol and 10 billion liters of corn ethanol) to 50.5 billion liters in 2035 (33 billion liters of sugarcane ethanol and 16 billion liters of corn ethanol). Large-scale production of cellulosic ethanol is expected to begin in 2032 and is estimated to reach 1 billion liters by 2035.

The market share of hydrous ethanol in flex-fuel vehicles could reach 52 percent in 2035, and is currently at 39 percent. By 2025, the demand for hydrous ethanol is expected to reach 22 billion liters and anhydrous ethanol is expected to be 13 billion liters; Non-energy use should reach 1 billion liters. By 2035, demand is expected to be 33.5 billion liters of hydrous, 12.7 billion liters of anhydrous, and maintaining 1 billion liters of ethanol for non-energy use. There will be additional demand for ethanol for domestic production of SAFs and for marine fuel, which could reach 1 billion liters in 2035. Total demand is expected to rise from 36 billion liters in 2025 and reach 48 billion liters in 2035.

In terms of the international market, EPE estimates that ethanol exports should rise from 1.2 billion liters in 2025 to 1.8 billion liters in 2035, with the main markets being the United States, the European Union, China, Japan and South Korea.

Regarding biodiesel production, EPE estimates the growth of biodiesel demand from 10 billion liters in 2025 to 14 billion liters in 2035, including biodiesel for the waterway sector and bunker. Considering the mandatory blending of biodiesel in diesel between 13 percent and 25 percent, EPE estimates that production can grow by 10.1 billion in 2025, with the blend from 14.7 percent, to 12.4 billion liters in 2035, considering the blend of 16 percent.

For marine biofuels (waterway and bunker), EPE estimates demand growth from 100 million liters in 2027 to 1.5 billion liters in 2035, with 1.1 billion liters for international navigation, considering the mandatory percentage of biodiesel at 20 percent.

Ethanol and the Gasoline Market

As of August 1st, 2025, anhydrous ethanol blended into gasoline C increased from 27 percent to 30 percent, and can vary up to 35 percent, upon ANP's approval. The last change in the ethanol blend mandate dated from March 2015. Gasoline C is the official term used for ethanol-blended gasoline, which uses anhydrous ethanol. The other fuel used in Brazil´s light-duty fleet is hydrous ethanol (E100).

The blend of ethanol to gasoline is regulated by Law 8,723/1993 and the Fuel of the Future Law, which establishes the mandatory percentage and allows for blend adjustments. ANP Resolution 907/2022 addresses hydrous and anhydrous ethanol fuel quality specifications.

The ethanol-use mandate went into effect in 1933, with a voluntary five percent ethanol blended into imported gasoline. In 1938, ethanol blending in gasoline became mandatory. The implementation of the

ProAlcool program in 1975 developed the ethanol industry and the first 100-percent ethanol vehicle produced in Brazil became operational in 1979.

Table 4
Anhydrous Ethanol Use Mandate

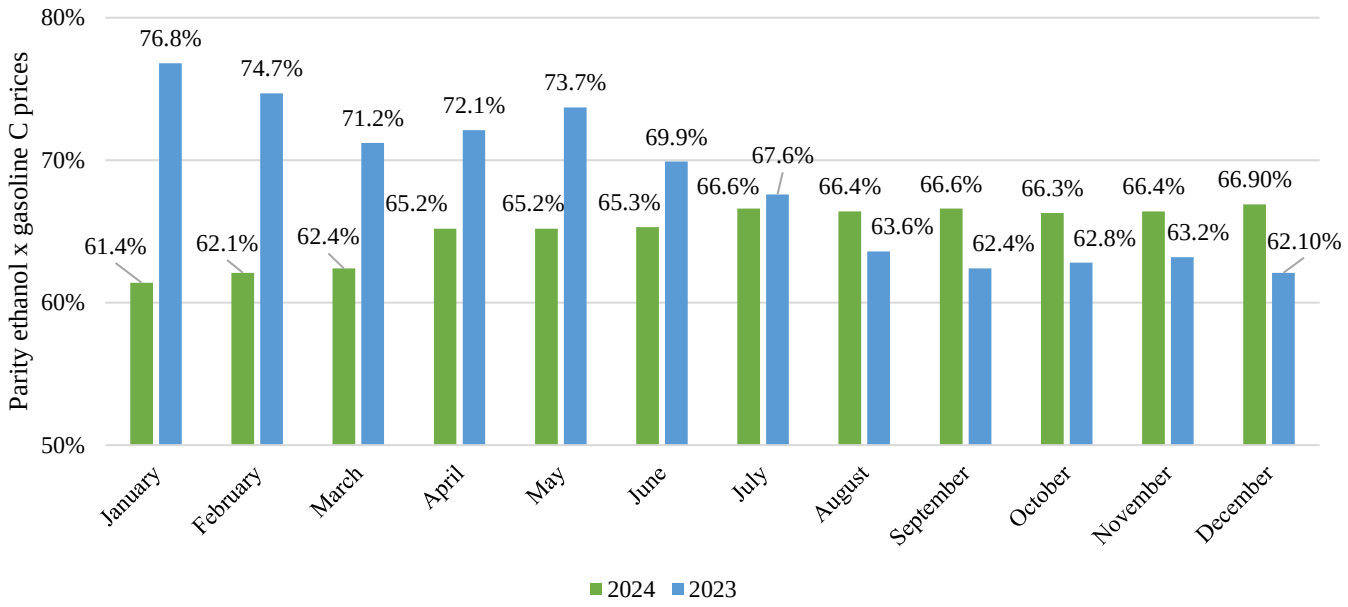
Year	Month	Mandate
2006	Jan-Feb	E25
	Mar-Oct	E20
	Nov-Dec	E23
2007	Jan-May	E23
	Jun-Dec	E25
2008	Jan-Dec	E25
2009	Jan-Dec	E25
2010	Jan	E25
	Feb-Apr	E20
	May-Dec	E25
2011	Jan-Sep	E25
	Oct-Dec	E20
2012	Jan-Dec	E20
2013	Jan-Apr	E20
	May-Dec	E25
2014	Jan-Dec	E25
2015	Jan-Mar 15th	E25
	Mar 16th-Dec	E27
2025	Jan-Jul	E27
	Aug 1st	E30

Source: Ministry of Mines and Energy (MME); Chart Post Brasilia

The consumption of gasoline C and hydrous fuel ethanol are usually negatively correlated given that most of the Brazilian light vehicle fleet is flex-fuel and consumers choose one or another fuel depending on the price parity. Consumers' decision to buy hydrous ethanol or gasoline C at the pump is mainly driven by the 70 percent ratio between hydrous ethanol and gasoline C prices.

Hydrous ethanol is more advantageous if the price ratio is below 70 percent, and gasoline C is more attractive if the price ratio is above 70. The calculation refers to the energy content of each fuel with ethanol's energy content 36 percent lower than pure fossil gasoline.

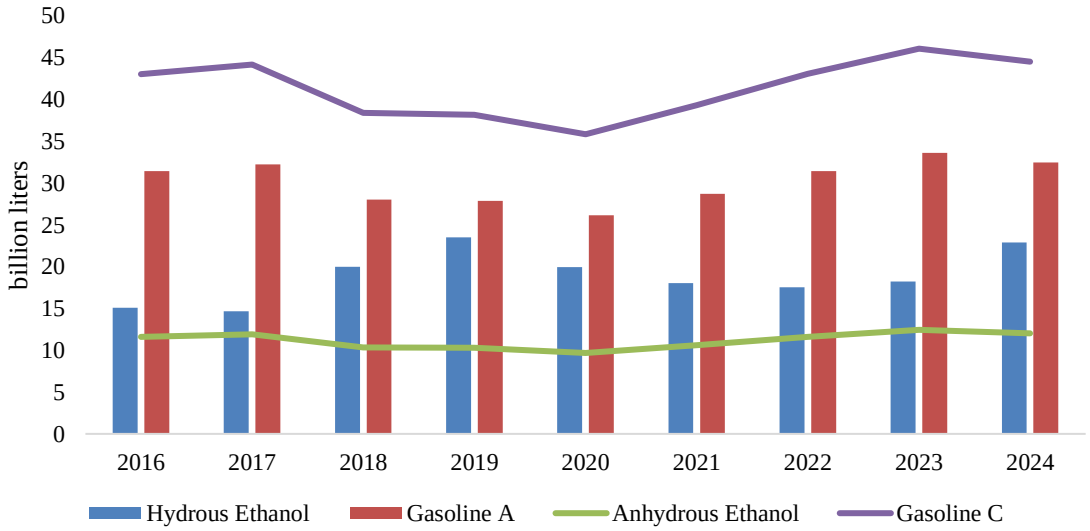
Figure 6
Parity Between Hydrous Ethanol and Gasoline C, in percentage



Source: Oil and Gas Agency, Chart Post Brasília

In 2024, total sales of gasoline C decreased 3.4 percent compared to 2023, reaching 44.5 billion liters. In contrast, sales of hydrous ethanol increased 26 percent, amounting to 22.9 billion liters. According to Luiz de Queiroz College of Agriculture (Esalq), the price parity between hydrous ethanol and gasoline C was advantageous for ethanol, stimulating the production of both cane and corn ethanol and favoring hydrous consumption, specially in the third and fourth quarters of 2024.

Figure 7
Sales of Gasoline and Ethanol, calendar year, in million liters



Source: Oil and Gas Agency; Chart Post Brasília

The size and composition of the Brazilian light vehicle fleet affect the opportunity for ethanol consumption depending on the ethanol/gasoline price ratio. According to the Ministry of Transportation, as of August 2025, Brazil has a total fleet of 127 million vehicles, from which 64 million are light-duty vehicles.

The table below shows the licensing of flex-fuel vehicles and hydrous-ethanol powered cars (light-duty vehicles), as reported by the Brazilian Association of Vehicle Manufacturers (ANFAVEA). Licensing of light-duty vehicles represented 74 percent of total vehicle sales between January and July 2025.

Table 5
Licensing of New Light-Duty Vehicles (units)

	2018	2019	2020	2021	2022	2023	2024	2025*
Ethanol and Flex Fuel	2,168,173	2,328,650	1,664,999	1,624,348	1,633,280	1,809,864	1,967,294	1,179,920
Gasolina	81,935	73,854	58,930	53,588	48,804	60,569	102,444	72,482
Diesel	221,26	251,222	211,145	264,185	226,783	215,889	240,460	160,678
Electric, Hybrid, Hybrid Plug-in	3,970	11,858	19,687	34,990	49,261	93,908	177,338	164,623

*Source: National Association of Vehicle Manufacturers (ANFAVEA) * January to August*

Biodiesel/Renewable Diesel and Diesel Markets

Biodiesel

On August 1st, 2025, biodiesel's blend mandate increased from 14 percent (B14) to 15 percent (B15). Law No. 13,033/2014 (updated by Fuel of the Future law) establishes the mandatory percentage of biodiesel blended in diesel oil sold to heavy-duty vehicles, for road and non-road purposes. According to the law, non-road refers to railroad transportation, cabotage and maritime transportation, equipment and vehicles for mineral extraction, agricultural machinery, and tractors.

The ANP is responsible for regulating and establishing minimum targets for biodiesel production and distribution in accordance with Resolution 987/2025. B15 is valid until February 2026, and according to the resolution, is then set to increase to B16.

The biodiesel blending mandate was changed several times, since the beginning of the mandate in 2008, due to allegations regarding the quality of biodiesel, and the lack of compliance with decarbonization goals by distributors, who cited high costs as a key challenge. After much pressure from biodiesel producers, on December 19, 2023, the National Energy Policy Council (CNPE) approved the anticipation of the 14 percent mandate (B14) of biodiesel blended in diesel to begin in March 2024. The

previous estimate was that B14 would come into effect in 2025.

CNPE also anticipated the 15 percent mandate (B15) to March 1, 2025, instead of March 2026. However, on February 18, 2025, CNPE postponed the implementation of B15 to August 2025 due to concerns about the high price of biodiesel feedstock relative to Brazil's food inflation. Since more than 70 percent of biodiesel is produced using soy oil, increasing the biodiesel blend may impact the prices of products such as meat, which uses soybeans for cattle feed.

ANP Resolution 857/2021 regulates the biodiesel market in Brazil and defines bimonthly contracting targets based on the volumes traded in the same two-month period of the previous year, considering the current mandatory blend content. ANP must adjust the contracting targets to the new mandate when the change is made with a minimum period of two months.

However, CNPE's decision to increase biodiesel blend was announced on June 25, 2025, and scheduled to begin on August 1, 2025. Due to the two-month timeframe required to establish contracting targets, these targets will only be implemented starting in the September-October period, with a content parameter of 15 percent. Agents who achieve the targets set based on the mandatory 14 percent content may contract the surplus required for the 15 percent blend from August onwards on the spot market or by entering into additional contracts.

Table 6
Biodiesel Use Mandate

Year	Mandate
2003	Optional
Jan-08	B2
Jul-08	B3
Jul-09	B4
Jan-10	B5
Aug-14	B6
Nov-14	B7
Mar-17	B8
Mar-18	B10
Sep-19	B11
Mar-20	B12
Sep-20	B10
Nov-20	B11
Jan-21	B12
Mar-21	B13
May-21	B10
Sep-21	B12
Nov-21	B10
Jan-22	B10
Apr-23	B12
Mar-24	B14
Aug-25	B15

Source: Oil and Gas Agency (ANP);

Law 11,097 of January 13, 2005, established the National Program for the Production and Use of Biodiesel (PNPB) and regulated the mandatory addition of a minimum percentage of biodiesel to diesel oil sold to consumers. The goal was to reach 5 percent (B5) blending by 2013, with a mandatory B2 blending beginning in 2008. As the Brazilian market matured, the CNPE gradually increased the percentage until reaching B5 in January 2010, three years before the date established by law.

Until 2021, biodiesel was sold in Brazil through public auctions, promoted by the ANP based on specific guidelines established by the Ministry of Mines and Energy. The auctions had the purpose of providing economic support to the biodiesel production chain and creating conditions for the gradual consolidation of the sector until it became competitive.

On December 30, 2020, the CNPE issued the Resolution No. 14 with guidelines to implement a new market model for biodiesel trading to replace the traditional public biodiesel auctions. The new biodiesel market model became effective on January 1, 2022. The model allows biodiesel producers and distributors to settle over-the-counter (OTC) contracts to guarantee 80 percent of the biodiesel supply for two months, using the same calendar as the public auctions. The remaining 20 percent can be traded on the spot market. Only fuel distributors with at least a 5 percent market share in any fuel in 2020 will be required to commit 80 percent of the volume traded to OTC contracts.

To include family farming in the biodiesel production chain, the Ministry of Agrarian Development (MDA) created the Social Fuel Seal in 2005, a certificate awarded to biodiesel producers that purchase a minimum percentage of raw materials from family farmers and provide technical assistance to farmers.

In October 2020, Decree 10,527 expanded the program and created the Social Biofuel Seal, establishing federal taxes PIS/Cofins reduction coefficients applicable to the production and sale of biodiesel, aiming at promoting the development of family farming through the inclusion of producers in the biodiesel and other biofuels chain and promoting oilseed and food production chains in the northern, northeastern and semi-arid regions.

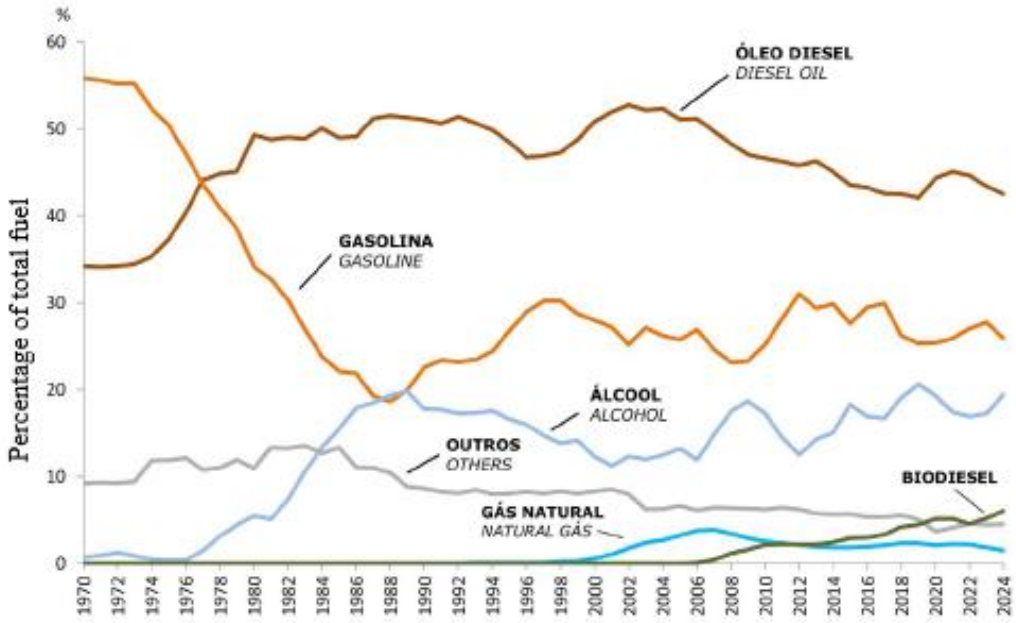
The legislation was updated in January 2024 as Decree 11,902, with new subsidies for family farming. Fuel distributors must purchase at least 80 percent of their biodiesel from producers registered in the Social Biofuel Seal. On June 28, 2024, the federal government published new rules allowing the purchase of other feedstock and products from family farmers for purposes unrelated to biodiesel production. The new text expands the family farm purchasing options for biodiesel producers seeking the seal.

According to the Ministry of Agrarian Development, 55,128 families participated in the Social Biofuel Seal in 2024, trading 2.7 million tons of biodiesel feedstock and collecting BRL6.2 billion.

Diesel Oil Market

In 2024, diesel accounted for 43 percent of total energy consumption in the transportation sector, followed by gasoline (26 percent), ethanol (19 percent), biodiesel (6 percent), kerosene (4 percent), fuel oil (1 percent) and other fuels (2 percent). Approximately 62 percent of cargo is transported through roads, 27 percent is carried through railroads, 3 percent via cabotage, 4 percent through waterways, and 4 percent through pipelines.

Figure 8
Transportation Sector Energy Consumption



Source: Brazilian Energy Balance, 2025

ANP Resolution 968/2024 provides the specifications and classifies the diesel oil produced and sold in Brazil for road use as Diesel A, without the addition of biodiesel, Diesel B, with the addition of biodiesel, and Diesel C, obtained from processes that involve the use of renewable and non-renewable raw materials concomitantly (co-processed diesel). Diesel A is not sold to consumers and is sent to distributors who are responsible for adding biodiesel according to the mandatory blend established by law. The types of Diesel A produced are:

- Diesel oil A: hydrocarbon fuel, produced from petroleum derivatives or other non-renewable raw materials, intended for vehicles or equipment equipped with diesel cycle engines. The subcategories of diesel A are:

    1. S10, C S10 and B S10: fuels with a sulphur content of up to 10 milligrams per kilo (mg/kg);
    2. S500 and B S500: fuels with a maximum sulphur content of 500 mg/kg.

There are two specific types of non-road diesel. Waterway diesel follows ANP´s Resolution 903/2022. The regulation prohibits the addition of biodiesel made from vegetable oil, animal tallow and waste to waterway fuels and provides that the agency will determine the mandatory addition of biodiesel to waterway fuels when the technical-operational conditions for the safe use of the mixture are established.

According to the Brazilian Energy Balance 2025 (BEN), 66 percent of the fuel used in waterway transportation is fuel oil and 34 percent is diesel oil. In 2024, Brazil produced 6.5 billion liters of marine fuel oil, a reduction of 46 percent compared to 2023 (9.5 billion liters).

The second diesel fuel for non-road use is used exclusively in vehicles and equipment used in rail transport, mineral extraction, and electricity generation, and is regulated by ANP Resolution 905/2022. This type of oil is categorized as non-road diesel A S1800, which is produced from processes used in oil refining and petrochemical raw material centers without the addition of biodiesel and with a maximum sulfur content of 1800mg/kg, sold to the distributor to compose non-road diesel oil.

There is also B S1800 non-road diesel oil, which is A S1800 diesel oil added to biodiesel at the level established by current legislation and intended for non-road uses. In 2024, Brazil produced 144 million liters of non-road S1800 diesel.

On August 2024, ANP created a working group to propose a schedule for discontinuing S500 diesel oil and S1800 diesel oil for non-road use and replacing them with low-sulfur S10 diesel oil. As of August 19, 2025, there was no public information about the outcome of the working group.

In 2024, Brazil produced 49 billion liters of diesel oil and imported 13 billion liters, totaling 62 billion liters. Total diesel pool (on-road and non-road diesel blended with biodiesel) reached 67.5 billion liters, a slight increase of 2.7 percent compared with the previous year (65.7 billion liters). From January to August of 2025, the United States was Brazil's second-largest diesel supplier, accounting for 38 percent of the total, behind Russia, which supplied 50 percent. During the same period in 2024, Russia supplied 30 percent, trailing the United Arab Emirates, which supplied 50 percent. Experts attribute the increase in diesel purchases from the U.S. to favorable prices and avoiding commercial sanctions.

Maritime Fuel (Bunker) Market

In Brazil, maritime transport is important for logistics infrastructure and is responsible for seven percent of cargo transport. The modes of waterway transport in Brazil are long-distance navigation, inland navigation, passenger transport, maritime support navigation and port support navigation.

The fuel supply of vessels relies on an infrastructure network that involves producers, distributors and traders of marine fuels, ports and waterway terminals. The ANP defines the specifications of waterway fuels and their marketing rules through Resolution 903/2022. The fuels used in vessels are classified into two categories:

1. Residual: they are produced from residual fractions of the refining, receiving the denomination of marine fuel oil, marine fuel, very low sulfur fuel oil, ultra-low sulfur fuel oil (bunker);
2. Distillates: are produced from the lighter fractions of the refining process, called marine diesel.

The International Maritime Organization (IMO) goal is to reduce the maritime industry's total GHG emissions by at least 20 percent by 2030, compared to 2008 levels. In addition, the adoption of zero- and near-zero GHG technologies, fuels or energy sources is expected to account for at least 5 percent of the energy used by shipping in 2030.

GHG emissions will be calculated from a well-to-wake perspective, including emissions related to the extraction, production, storage, transportation and bunkering of fuel, as well as emissions from the energy used on board ships.

However, the difficulty in implementing technical or operational measures is limited to application on new vessels, due to the difficulties or high costs of modernizing existing vessels. A key technological advancement being adopted on ships is the installation of dual-fuel engines, which facilitate the seamless use of drop-in biofuels alongside conventional fuels, enhancing operational flexibility and sustainability.

Brazil has not officially announced its plan to reduce GHG emissions in the maritime sector. However, the Energy Research Company developed scenarios indicating possibilities to reduce emissions in a range between 61 percent and 103 percent, depending on the type of navigation and the biofuel blended into bunker. In 2023, the maritime sector emitted 2.3 mtCO2 of GHG.

According to the Energy Research Company, Brazil could reach an 81 reduction in its waterway emissions by completely replacing fossil fuels with 80 percent biodiesel and/or renewable diesel and 20 percent ethanol in cabotage by 2045, and by combining these biofuels with hydrogen derivatives in international maritime freight until 2050. In 2024, Brazilian refineries produced 6.7 billion liters of bunker and 3.7 billion liters of marine diesel oil.

Topics related to IMO are addressed by the IMO Affairs Coordinating Commission (CCA-IMO), coordinated by the Brazilian Navy and composed of 13 ministries and a regulatory agency.

Renewable Diesel (Hydrogenation-Derived Renewable Diesel - HDRD)

The Fuel of the Future law establishes the National Renewable Diesel Program (PNDV), aiming at incentivizing research, production, commercialization and use of renewable diesel in Brazil. The National Energy Policy Council (CNPE) will establish annual minimum mandatory volume blend to diesel, limited to three percent. Voluntary blend above the limit is subject to ANP´s approval.

ANP's Resolution 842/2021 defines the specifications and quality control of renewable diesel. Under ANP's rules, renewable diesel can be produced from the following routes and feedstocks:

Table 07
Renewable Diesel Routes and Feedstocks

I - hydroprocessing of vegetable oil (fresh or residual), algae oil, microalgae oil, animal fat, and fatty acids from biomass, as well as bio-derived hydrocarbons from *Botryococcus braunii* microalgae
II - synthesis gas from biomass, via the Fischer-Tropsch process
III - fermentation of carbohydrates present in biomass
IV - oligomerization of ethyl alcohol (ethanol) or isobutyl alcohol (isobutanol)
V - catalytic hydrothermal cracking of vegetable oil (fresh or residual), algae oil, microalgae oil, animal fat, and biomass fatty acids

Source: Oil and Gas Agency (ANP); Chart Post Brasília

On August 11, 2025, ANP published Resolution 987/2025, updating Resolution 734/2018 regulating the production of biofuels and defining rules for the operation of biofuel plants. The updated legislation includes renewable diesel and sustainable aviation fuel (SAF) and was well received by the sector.

Sustainable Aviation Fuel and the Jet Fuel Market

In 2019, Brazil joined the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a global market-based scheme adopted by the International Civil Aviation Organization (ICAO) to reduce CO2 emissions in the civil aviation sector. In 2021, ANP officially authorized SAF to be used as jet fuel.

The Fuel of the Future Law established the National Sustainable Aviation Fuel Program (ProBioQAV) to incentivize research, development, and commercialization of sustainable aviation fuel. The ANP is responsible for establishing the total equivalent emissions per unit of energy, calculated in the well-to-burn cycle, for each SAF production technology route, to account for decarbonization compared to fossil aviation kerosene.

According to SEEG, Brazil's air transport emitted 9.9 million tons of CO2, and maritime fuel emitted 2.3 million tCO2 in 2023. ProBioQAV is not based on volumetric mandates, but on emissions reduction targets. Air operators are required to reduce GHG emissions in their domestic operations through the use of SAF, reducing a minimum percentage annually. To achieve the reduction, the demand of SAF is estimated at 1.1 billion liters of SAF by 2037.

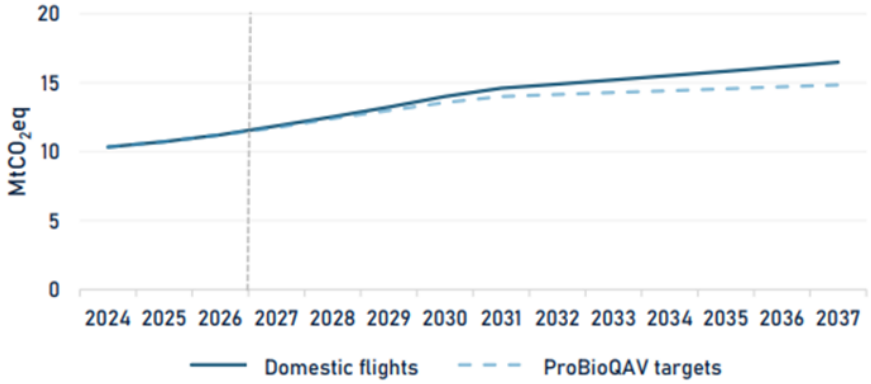
Table 8
Minimum Annual Percentage for GHG Reduction for Air Operators

2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
1%	1%	2%	3%	4%	5%	6%	7%	9%	9%	10%

Source: Brazilian Government

The basis for calculating the emission reduction obligations is the volume of emissions resulting from domestic operations carried out by the airline in the corresponding year, assuming all operations used fossil fuel. Brazil's Civil Aviation Agency (ANAC) will establish the methodology for calculating and verifying emissions reductions associated with the use of sustainable aviation fuel (SAF) and will supervise compliance with the obligations set forth in the Fuel of the Future Law. Alternative means for compliance may be accepted to meet the target, including a possible book and claim mechanism.

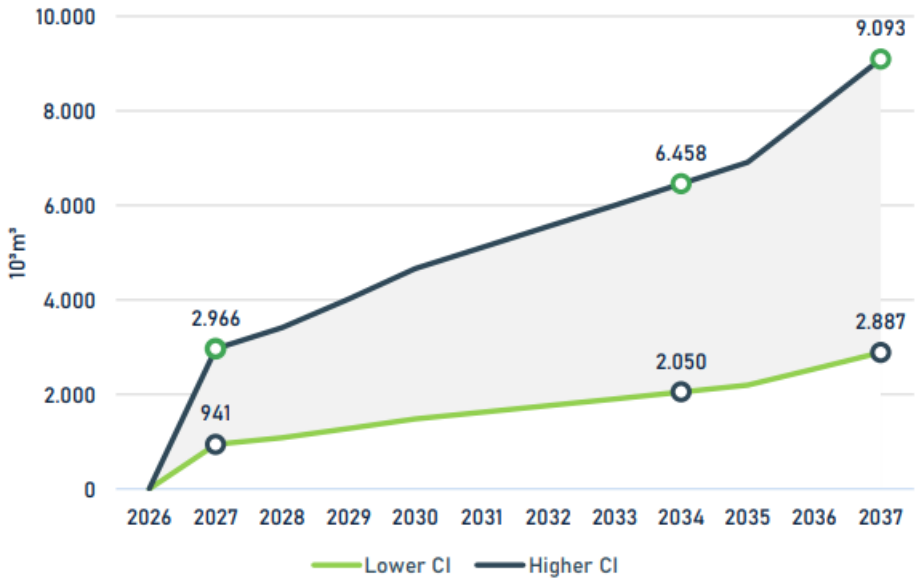
Figure 9
ProBioQAV Targets Implementation



Source: Energy Research Company (EPE)

According to EPE, the volumetric demand for SAF will vary according to the carbon intensity (CI) of the fuel produced, as established by the emission reduction targets of CORSIA and ProBioQAV.

Figure 10
SAF National Demand, in cubic meters (m³)



Source: Energy Research Company (EPE)

According to experts and Post contacts, higher taxes are one the main bottlenecks for the development of SAF producing plants in Brazil. The country has lower feedstock costs to produce biofuels domestically, but costs to produce sustainable fuels are higher due to taxes collected over the production chain and the technology complexity required.

Experts also cite the need for an exclusive Mercosur Common Nomenclature (NCM) for SAF, the importance of tax incentives to leverage the industry and greater clarity regarding the effects of the Tax Reform on SAF trade.

In 2024, the National Development Bank (BNDES) launched a call for proposals to finance SAF or maritime fuel (bunker) biorefinery projects. The bank received 76 proposals amounting to BRL167 billion in potential investments.

From the total, 43 proposals were exclusive for SAF production, reaching approximately 70 percent of the total (BRL120 billion), and the remaining were for maritime fuel. In November 2024, BNDES announced the selection of 43 proposals amounting to investments of BRL134 billion, including 25 proposals for SAF production (BRL99 billion) and 18 proposals for maritime fuel (BRL35 billion)[2].

[2] The list of the companies selected is available at here.

Jet Fuel Market

According to the Civil Aviation Agency (ANAC), in 2024, the Brazilian civil aviation sector registered 118 million passengers in domestic and international flights. Total jet fuel commercialized amounted to 7 billion liters, an increase of 6 percent compared to 2023 (6.5 billion liters). The Energy Research Company (EPE), anticipates that the demand for QAV will reach approximately 7.3 billion liters.

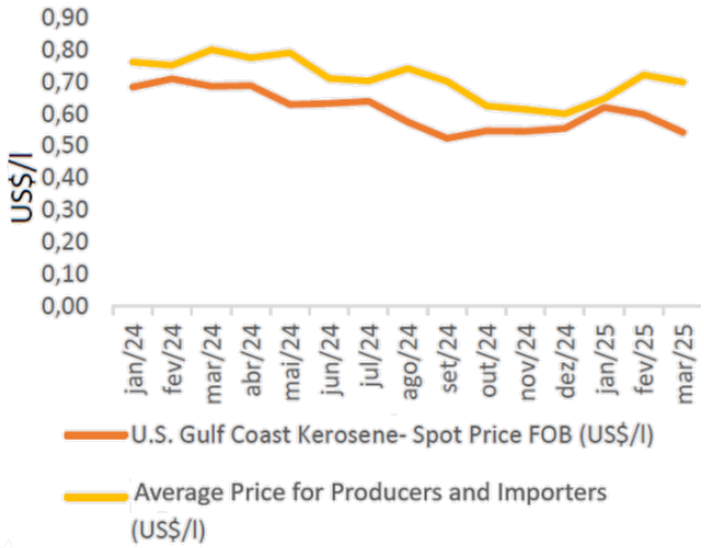
ANP is responsible for regulating and defining QAV specifications through Resolution 856/2021. The QAV production and commercialization in Brazil is characterized by national production, imports and market concentration in a few refineries and few distribution companies. QAV inland transportation logistics includes transportation on tankers, pipelines, and port infrastructure, which increases transportation costs and reduces competitiveness. In 2024, two groups controlled 96 percent of QAV production, while two companies controlled 80 percent of the QAV distribution market.

On average, costs with fuels and lubricants represent 30 percent of air carriers' total costs and about 57 percent of the costs are quoted in dollars and subject to currency fluctuations. About 99 percent of the jet fuel commercialized in Brazil is aviation kerosene (QAV) and 1 percent is aviation gasoline (GAV).

The price of aviation kerosene in Brazil follows the international price dynamics, specifically influenced by the U.S. Gulf prices, and by factors such as refining costs. There is a direct relationship between QAV and diesel oil, since both are derived from the same petroleum fractions during the refining process, which implies that their productions are competing. An increase in demand for one of them can reduce the availability of the other. Refineries adjust the production process according to market conditions to ensure adequate supply.

In 2024, there was a gradual reduction in the international price of aviation kerosene, following the drop in the price of Brent oil and the stabilization of the crack spread, which is the difference between the price of crude oil and aviation kerosene.

Figure 11
Price History Comparison of Brazil's Jet Fuel and U.S. Gulf, USD per liter

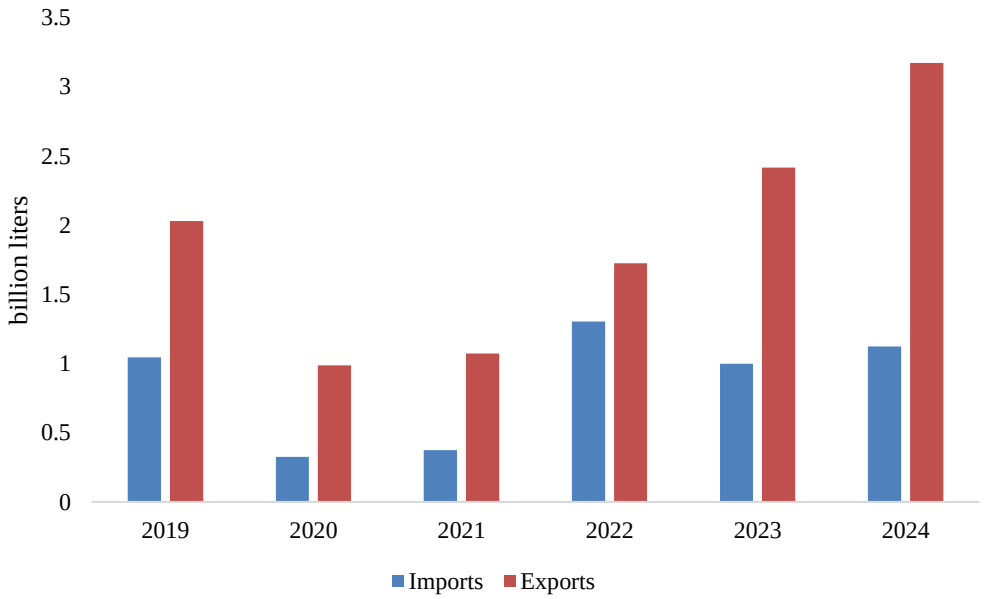


Source and Chart: Brazilian Oil and Gas Institute (IBP)

Brazil is not self-sufficient in the production of QAV. Between 2020 and 2024, the country imported an average of 24 percent diesel fuel consumption and 14 percent of apparent QAV consumption. Dependence on the foreign market makes the domestic sector more sensitive to fluctuations in international oil prices, QAV and the exchange rate. Brazil also imports crude oil, which is processed in domestic refineries and integrated to the national QAV offer.

In 2024, Brazil's largest QAV export markets were the United States (17 percent), followed by Portugal (9 percent), and France (5 percent). On the imports side, India was the main supplier (27 percent), followed by Kuwait (21 percent), and Nigeria (18 percent). The United States comes in fourth, with 13 percent of Brazil's total QAV imports.

Figure 12
Total Imports and Exports of QAV (HS Code 2710.19.11), in billions of liters



Source: Brazilian Secretariat of Foreign Trade data via Trade Data Monitor NOTE: Brazil's imports and exports of GAV are irrelevant and were not included in the trade statistics.

Financial Support Programs

Brazil has price freedom in all fuel and oil derivatives segments, including production, distribution and resale. There is no direct government intervention or setting of minimum or maximum prices. Service stations are free to set the final price and may pass on tax increases to consumers, but the ANP and consumer protection agencies monitor for possible pricing abuses.

Tax policy is driven by multiple goals which change over time, but the most common factors are to control inflation, adjust biofuels supply and demand, which can be impacted by sugar, gasoline and diesel prices, and changes in public sector budgets.

In December 2023, after four decades of debate, the Brazilian Congress approved the long-awaited tax reform aiming at reducing the complexity of the tax collection system and unifying several taxes into a Value Added Tax (VAT), divided into the Contribution on Goods and Services (CBS) for federal taxes and the Tax on Goods and Services (IBS) for state and municipal taxes. In addition to the CBS and IBS, the tax reform also created the Selective Tax, which is levied on products that are harmful to health or have a greater environmental impact.

Regarding the specific tax regime for fuels, the tax will be levied only once (monophasy) and at uniform rates (*ad rem*) throughout the national territory. The taxation will occur at a single moment at the beginning of the productive chain, usually when the product is imported or leaves the establishment of the first producer.

Before the reform, single-phase taxation was already applied to the state-level Tax on Operations related to the Circulation of Goods (ICMS), which was applied to gasoline and anhydrous ethanol fuel, diesel and biodiesel. The definition of the ad rem rate will be published through a joint act of the Ministry of Finance (for the CBS) and the Management Committee (for the IBS), based on a calculation methodology to be defined by these same bodies. The update of this rate will occur once a year.

The new system also addresses specific issues in the sector, such as the complexity in the distribution of ICMS revenue for biofuels, which is currently divided between the state of origin and the state of destination. With IBS and CBS, the collection will be fully directed to the state of destination (consumption), simplifying transfers and reducing litigation related to double taxation. The reform is also seen as an instrument in the fight against tax evasion and fraud.

For historical information on tax incentives on fuels and biofuels please refer to Biofuels Annual 2024.

Value-added Taxes on Fuels

As part of the regulation of the tax reform, starting on May 1, 2025, the tax change that equates the taxes on anhydrous and hydrous ethanol came into force, which now have the same value of PIS/Cofins, of BRL0.1920 per liter, under the monophasy regime. The measure entered the regime of collection of federal taxes in a single link of the chain, which will be concentrated in the producer.

Before the change, hydrous and anhydrous ethanol had different rates. Anhydrous ethanol was taxed at BRL0.1309 per liter, and hydrous ethanol was taxed at BRL0.2418, with BRL0.1309 for the producer link and BRL0.1109 for the distributor. As of May 1, 2025, there was an increase of approximately BRL0.06 per liter in the tax on anhydrous ethanol and a reduction of BRL0.05 per liter in the tax on hydrous ethanol.

The impact of the tax change on the price of gasoline is expected to be minimal, since anhydrous ethanol represents 30 percent of the blend. In practice, the increase in anhydrous taxation should generate an increase of one to two cents of Real per liter for the final consumer.

In the case of hydrous ethanol, the tax reduction may allow for greater competitiveness in relation to gasoline.

Sales tax/import duty relief and consumer tax credits on alternative engine vehicles

On July 10, 2025, the federal government published a decree that raises the rates of the Tax on Industrialized Products (IPI) for vehicles that emit more CO2, such as those equipped with exclusively fossil fuel engines and hybrids that are not flex fuel. Currently, the minimum tax rate for these vehicles is 5.27%.

The decree also creates the sustainable car modality, in which compact vehicles with high energy-environmental efficiency and manufactured in Brazil will have IPI zeroed. The decree comes into force in October, is valid until December 2026 and precedes the effects of the tax reform.

The new IPI calculation system starts with a base rate of 6.3 percent for passenger vehicles and 3.9 percent for light commercial vehicles, which may be increased or deducted, depending on the degree of environmental sustainability of the vehicle.

In addition to the criteria adopted based on the engine, energy efficiency, power, structural performance, and assistive driving technologies and the vehicle's recyclability will also be observed.

To be eligible for IPI exemption, the sustainable car must meet four requirements:

- Emit less than 83g of CO_2 per kilometer
- Contain more than 80% recyclable materials
- Be manufactured in Brazil (steps such as welding, painting, engine manufacturing and assembly)
- Fit into one of the compact car categories.

Table 9
IPI Tax Applied over Each Type of Vehicle, in percentage

Power source and propulsion technology	**Rate variation (percentage)**
Electric	-2.0
Rechargeable flex-fuel/ethanol hybrid	-2.0
Full flex-fuel/ethanol hybrid	-1.5
Mild flex-fuel/ethanol hybrid	-1.0
Ethanol	-0.5
Flex-fuel	0.0
Gasoline rechargeable hybrid	+2.0
Full hybrid gasoline	+3.0
Gasoline mild hybrid	+4.5
Diesel rechargeable hybrid	+3.0
Full diesel hybrid	+4.0
Diesel mild hybrid	+5.5
Gasoline	+6.5
Diesel	+12.0

Source: Ministry of Development, Industry, Trade and Services

Low-interest Credit Lines

The following programs directly or indirectly provide incentives and credit lines for biofuel production. Subsidized credit lines for the adoption of sustainable agricultural practices and the conversion of pasture and degraded land to cropland have the potential to expand land use for the planting of soybeans, corn, sugarcane, and other feedstocks potentially suitable to biofuel production.

1) Safra Plan (Crop Plan)

On July 1st, 2025, the Ministry of Agriculture and Livestock announced the 2025/26 Crop Plan. A total of R$516 billion will be released to finance agricultural and livestock programs, an increase of 29 percent compared to the resources available in the 2024/25 Crop Plan (R$400 billion).

There are no resources for biofuel producers, but medium and large farmers can access funding through programs that support specific areas, such as the Program to Finance Sustainable Agricultural Systems (RenovAgro), which can finance the planting of sugarcane, corn, soybean and other agricultural inputs.

2) National Development Bank (BNDES)

The Brazilian Development Bank (BNDES) is one of the most important financial institutions in Brazil. The bank offers several financial support mechanisms to Brazilian companies of all sizes, allowing investments in all sectors of the economy.

Between January 2023 and June 2025, BNDES approved BRL11.7 billion in financing for biofuels production, more than double of the amount available between 2018 and 2022 (BRL4.6 billion). Among the projects financed are the development of enzymes for cellulosic ethanol; synthetic seeds for sugarcane; the adaptation of exotic crops to the production of ethanol in Brazil; and new technologies for biomethane and biodiesel.

C. Trade Policy

Import Policy

1) Biodiesel

As of September 24, 2025, the ANP does not allow import of biodiesel except in "exceptional circumstances," which in practice means negligible. The ANP sets strict quality standards for biodiesel, which poses a challenge to biofuel imports. In addition to the technical criteria, the local market is concerned about the possibility of authorizing imports of biodiesel, which would both harm the workforce in the soybean chain and reduce the sector's contribution to GDP, according to industry sources.

The absence of an external market is partly explained by the internal supply capacity and the structure of the Brazilian biodiesel market, which is heavily regulated. In addition, there is internal pressure from biodiesel producers and associations to avoid imports, alleging possible price increases and potential risk to supply caused by problems in negotiations with biodiesel and diesel suppliers, contracting of collection logistics and regulatory obligations and contracts with the ANP, which would be unbalanced with the entry of imported biodiesel.

A previous attempt to allow biodiesel imports was adopted in 2023. In January of that year, ANP approved the import of biodiesel through ANP Resolution 857/2021, which was regulated in November 2023, through Resolution 962/2023, allowing the import of up to 20 percent of the national biodiesel demand, provided that it maintained the reserve of 80 percent of the biodiesel supply from national producers participating in the Social Biofuel Seal.

However, after pressure from domestic biodiesel producers, the CNPE suspended the ANP resolutions in December 2023 and created a working group to assess the effects of biodiesel imports on the market. In February 2025, the CNPE postponed the deadline for deciding on the biodiesel import permit by 180 days, and a decision on the matter is still pending.

2) Ethanol

The authority deciding on the tariff is the Chamber of Foreign Trade (Camex), an inter-agency collegiate responsible for foreign trade policy linked to the Ministry of Trade and Development (MDIC).

As of January 1, 2024, the ethanol import tariff is at 18 percent. Following a tariff rate quota (TRQ) first imposed in 2017 with an out of quota duty of 20 percent that was lowered to 18 percent in November 2021. The Brazilian federal government announced the reduction of the ethanol import tariff to zero effective from March 21, 2022, through December 31, 2022, which was subsequently extended until January 31, 2023.

From February 1, 2023, to December 31, 2023, the import tariff was 16 percent.

Table 10
Tariff Rate for Ethanol Imports to Brazil

Year	Import Tariff Rate (percent)	TRQ pro-rated duty-free quota NCM 2207.10.10 and NCM 2207.20.11
From January 1st, 2024	18	Not applicable
Feb 1st, 2023, to Dec. 31st, 2023	16	Not applicable
March 2022 to January 2023	Free Flow (zero tariff)	Not applicable
November 2021 to March 2022	18	In 2017, the duty-free quota was 150 million liters quarterly/600 million liters annually. From 2019 to 2022, the quota expanded to 750 million liters annually.
September 2017 to November 2021	20	
2011 to September 2017	Free flow (zero tariff)	Not applicable

Source: Foreign Trade Chamber; Chart Post Brasilia

Please refer to "Brazilian Biofuels Annual Gain Report 2017" and "Brazilian Biofuels Annual Gain Report 2020" and "Brazilian Biofuels Annual Gain Report 2021", "Brazilian Biofuels Annual Gain Report 2023" for historical information on the ethanol import tariff and duty-free tariff-rate quota (TRQ).

Export Policy

On August 13th, 2025, the Brazilian government announced the Brazil Sovereign Plan as response to the 10 percent reciprocal tariff and additional 40 percent *ad valorem* tariff imposed on Brazilian imported

goods by the United States. The plan provides a credit lifeline of 30 billion reais (USD5.5 billion) to support exporters, in addition to postponing tax charges, providing 5 billion reais in tax credits to small and medium size companies until the end of 2026, and expanding access to insurance against cancelled orders.

The plan also incentivizes public purchases of items that could not be exported to the United States, in addition to granting a one-year extension of tax credits for companies that import items to produce goods for exportation, also called drawback.

In addition to protection of Brazilian producers and the industry, the plan also proposes the expansion of trade engagement to expand markets and negotiate commercial agreements. According to the Brazilian government, there are ongoing negotiations with the United Arab Emirates, Canada, and dialogue with India and Vietnam.

It is uncertain whether biofuels producers will participate in the plan and the extent of the support.

International Cooperation

1) Japan

In March 2025, BNDES announced it had contracted a USD190 million loan with the Japan Bank for International Cooperation (JBIC), and other banking institutions to finance power transmission and biofuel projects to reduce greenhouse gas emissions.

The loan is part of the Global Action for Reconciling Economic Growth and Environmental Preservation (Green) initiative and BNDES already made five contributions to JBIC under Green since 2011, totaling USD950 million.

In addition to the loan, BNDES signed a memorandum of understanding with JBIC for cooperation between the two institutions in strategic sectors, such as mineral resources and sustainable energy. Sectors with potential projects include low-carbon hydrogen and derivatives such as green ammonia, sustainable aviation fuel (SAF), bioethanol and other forms of renewable energy, energy efficiency, energy transmission and distribution, green mobility, and the conservation of the Amazon Rainforest.

2) India

Brazil and India continue to expand integration in energy and minerals sectors. In September 2024, both countries published a joint statement aiming at deepening cooperation in sectors such as energy and mining. At the time, countries reiterated the role that the Global Biofuels Alliance (GBA) plays as a key component of the global energy transition.

The joint declaration highlighted that countries are well-positioned to collaborate on the production and use of Sustainable Aviation Fuels (SAF) by leveraging their existing ethanol and biodiesel production infrastructure, the growing aviation market, and their vast potential for feedstocks, including agricultural resources.

In February 2025, Petrobras signed a memorandum of understanding with the Indian company Oil and Natural Gas Corporation (ONGC), for collaboration in exploration and production of fuels, decarbonization, biofuels and new energies.

3) BRICS

BRICS currently consists of Brazil, Russia, India, China, South Africa, Saudi Arabia, Egypt, United Arab Emirates, Ethiopia, Indonesia and Iran. The group issues a joint statement in May 2025 advocating for the use of alternative fuels in the transportation sector as an essential part of the energy transition. The Joint Declaration also highlights the decarbonization of ports and maritime transport, and the promotion of sustainable aviation fuels.

III. Ethanol

Production, Supply and Distribution (PS&D)

Sugarcane is the primary feedstock for ethanol production in Brazil, followed by corn. Brazilian government agencies and trade sources do not separate ethanol use for fuel from other uses. All ethanol production figures are reported in hydrous and anhydrous volumes only. According to Post contacts, ethanol plants produce different specifications of hydrous and/or anhydrous, but do not distinguish between fuel and other uses.

Actual fuel and other uses (industrial and chemical, refined, and/or neutral) are determined at the end use. Although the production of sugarcane is officially described in marketing years (MY – April to March), this report considers the production of sugarcane, ethanol and other feedstock in calendar year, unless otherwise stated.

Table 11
Production, Supply and Distribution of Ethanol in Brazil

Ethanol Used as Fuel and Other Industrial Chemicals (Million Liters)										
Calendar Year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025f**
Beginning Stocks	7,452	7,225	8,120	9,571	10,677	10,940	9,961	8,505	9,527	8,879
Fuel Begin Stocks	6,985	7,945	7,969	9,364	10,497	11,674	9,805	7,586	8,114	6,663
Production	28,299	28,020	32,794	36,504	32,985	30,549	31,099	35,532	37,140	39,731
Fuel Production	27,639	25,494	30,769	34,407	30,897	27,049	27,600	32,358	33,794	37,500
>of which is cellulosic (a)	6	17	25	30	32	40	53	32	33	87
Imports	835	1,815	1,775	1,457	1,008	432	315	59	194	350
Fuel Imports	810	1,791	1,770	1,452	1,003	427	313	57	190	300
Exports	1,789	1,380	1,684	1,940	2,669	1,948	2,440	2,510	1,884	1,500
Fuel Exports	795	675	806	926	1,110	719	990	913	511	450
Consumption	27,572	27,560	31,434	34,915	31,061	30,012	30,430	32,059	36,098	38,800
Fuel Consumption	26,694	26,586	30,338	33,800	29,613	28,626	29,142	30,974	34,924	36,500
Ending Stocks	7,225	8,120	9,571	10,677	10,940	9,961	8,505	9,527	8,879	8,660
Fuel Ending Stocks	7,945	7,969	9,364	10,497	11,674	9,805	7,586	8,114	6,663	7,513
Refineries (Sugarcane-only) Producing Ethanol (Million Liters)										
Number of Refineries	373	361	363	358	352	350	349	349	326	328
Sugarcane Ethanol Production	24,145	23,582	28,019	31,126	25,412	23,338	23,328	25,758	25,848	26,195
Molasses Ethanol Producton	3,953	4,028	4,035	4,018	5,170	3,971	3,661	4,054	3,702	3,936
Nameplate Capacity	46,185	49,955	48,995	48,955	48,745	48,690	48,765	48,155	47,235	47,800
Total Ethanol Production	28,098	27,610	32,054	35,144	30,582	27,309	26,989	29,812	29,550	30,131
Capacity Use (%)	60.8%	55.3%	65.4%	71.8%	62.7%	56.1%	55.3%	61.9%	62.6%	63.0%
Refineries (Corn-only and Corn/Sugarcane Flex) Producing Ethanol (Million Liters)										
Number of Refineries	5	6	7	12	17	20	21	24	29	30
Nameplate Capacity	900	1,000	1,100	2,000	3,500	4,200	5,200	7,100	10,600	11,070
Total Ethanol Production	201	410	740	1,360	2,403	3,240	4,110	5,720	7,590	9,600
Capacity Use (%)	22.3%	41.0%	67.3%	68.0%	68.7%	77.1%	79.0%	80.6%	71.6%	86.7%
Refineries Producing Cellulosic Fuel Ethanol (Million Liters)										
Number of Refineries	3	3	3	3	3	3	2	1	2	2
Nameplate Capacity	127	127	127	127	127	75	75	82	112	110
Capacity Use (%)	4.7%	13.4%	19.7%	23.6%	25.2%	53.3%	70.7%	39.0%	29.5%	79.1%
Co-product Production (1,000 MT)										

Bagasse	109,456	106,903	125,349	129,060	110,770	96,765	99,143	110,856	107,176	109,956
DDGs	113	214	416.3	765.0	1,311	1,778	2,152	2,997	3,886	4,928
Corn Oil	8	14	28	51	87	119	143	200	259	329
Feedstock Use for Fuel Ethanol (1,000 MT)										
Sugarcane	321,930	314,420	368,674	379,587	325,793	284,604	291,597	326,047	315,223	323,400
Molasses	16,069	16,171	16,402	16,333	21,017	16,144	14,883	16,480	15,049	15,998
Corn	500	950	1,850	3,400	5,827	7,904	9,564	13,318	17,269	21,900
Bagasse for Cellulosic Fuel	0.087	0.246	0.362	0.435	0.464	0.580	0.768	0.464	0.478	1.261
Market Penetration (Million Liters)										
Fuel Ethanol Use	26,694	26,586	30,338	33,800	29,613	28,626	29,142	30,974	34,924	36,500
Hydrous Ethanol for Fuel	15,079	14,666	19,983	23,496	19,940	18,010	17,528	18,223	22,896	22,850
Anhydrous Ethanol in Gasoline C	11,615	11,920	10,355	10,304	9,673	10,616	11,614	12,441	12,028	13,650
Gasoline A (excludes anhydrous)	31,404	32,234	28,020	27,861	26,151	28,700	31,419	33,615	32,458	31,850
Gasoline C (includes anhydrous)	43,019	44,154	38,375	38,165	35,824	39,316	43,033	46,056	44,486	45,500
Gasoline C Blend Rate	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%	30.0%
Ethanol Blend Rate Overall	45.9%	45.2%	52.0%	54.8%	53.1%	49.9%	48.1%	48.2%	51.8%	53.4%

Note: See section VI: Notes on Statistical Data covering sources and certain calculations. f/ forecast Forecasts developed by USDA Brasilia. Note 1/ Post conducted a historical revision of the production, supply, and distribution to reflect updated data as reported by industry and official information. Please refer to Notes on Statistical Data for more information.

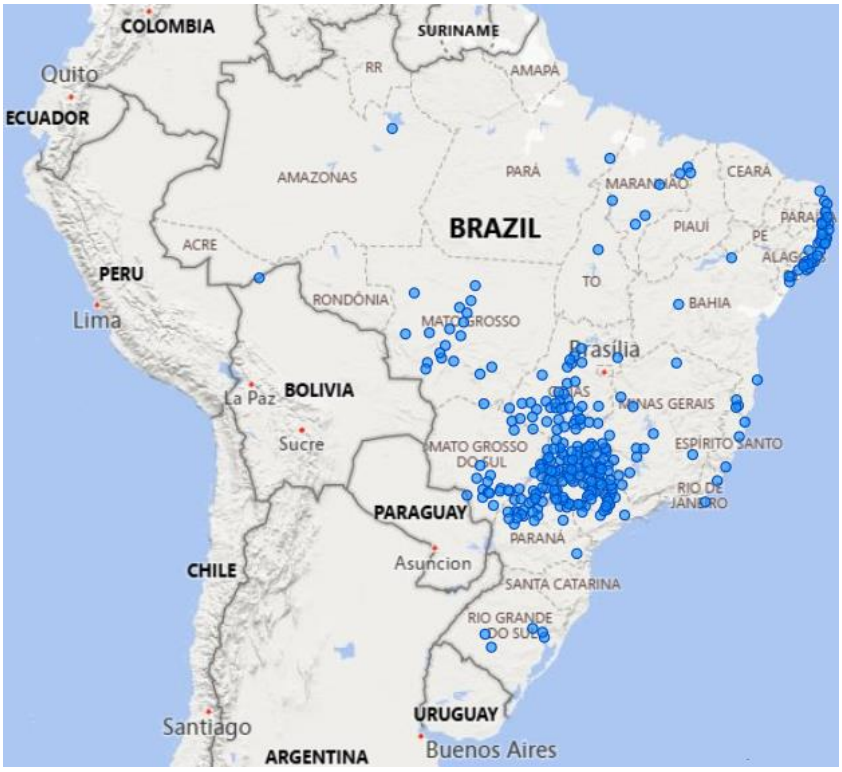
Production

Brazil remains as the world's second largest ethanol producer behind the United States. Approximately 76 percent of ethanol production is from sugarcane and 24 percent is from corn. Other feedstocks used include bagasse and cereals in smaller amounts.

The main sugarcane growing area is the Center-South, which comprises the states of São Paulo, Rio de Janeiro, Espírito Santo, Minas Gerais, Goiás, Mato Grosso and Mato Grosso do Sul. The North-Northeast region includes Bahia, Sergipe, Alagoas, Pernambuco, Paraíba, Rio Grande do Norte, Piauí, Maranhão, Tocantins, Pará, Acre, and Amazonas.

In 2024, Brazil registered 359 plants authorized to produce ethanol. Sao Paulo is the largest producing state, with 144 plants (40 percent), followed by Goiás with 44 plants (12 percent), and Minas Gerais, with 35 plants (10 percent). As of August 2025, Brazil had 363 licensed ethanol plants. Four new plants are located in the Midwest region: three in Mato Grosso and one in Mato Grosso do Sul.
Figure 13

Ethanol Producing Facilities, as of September 2025



Source: Oil and Gas Agency (ANP)

Sugarcane Ethanol

Post revised sugarcane production in MY2024/25 at 677 million metric tons (MMT). The Center-South region produced 621 MMT and the North-Northeast region produced 56 MMT. São Paulo is the largest sugarcane-producing state and accounted for 57.5 percent of crushing in the CS.

Throughout 2024, Brazil faced challenging weather conditions that affected sugarcane planting and harvest. Between October 2023 and August 2024, a significant drought impacted the main producing areas in the Center-South (CS) region. Sugarcane quality decreased due to water stress, particularly in São Paulo and Minas Gerais.

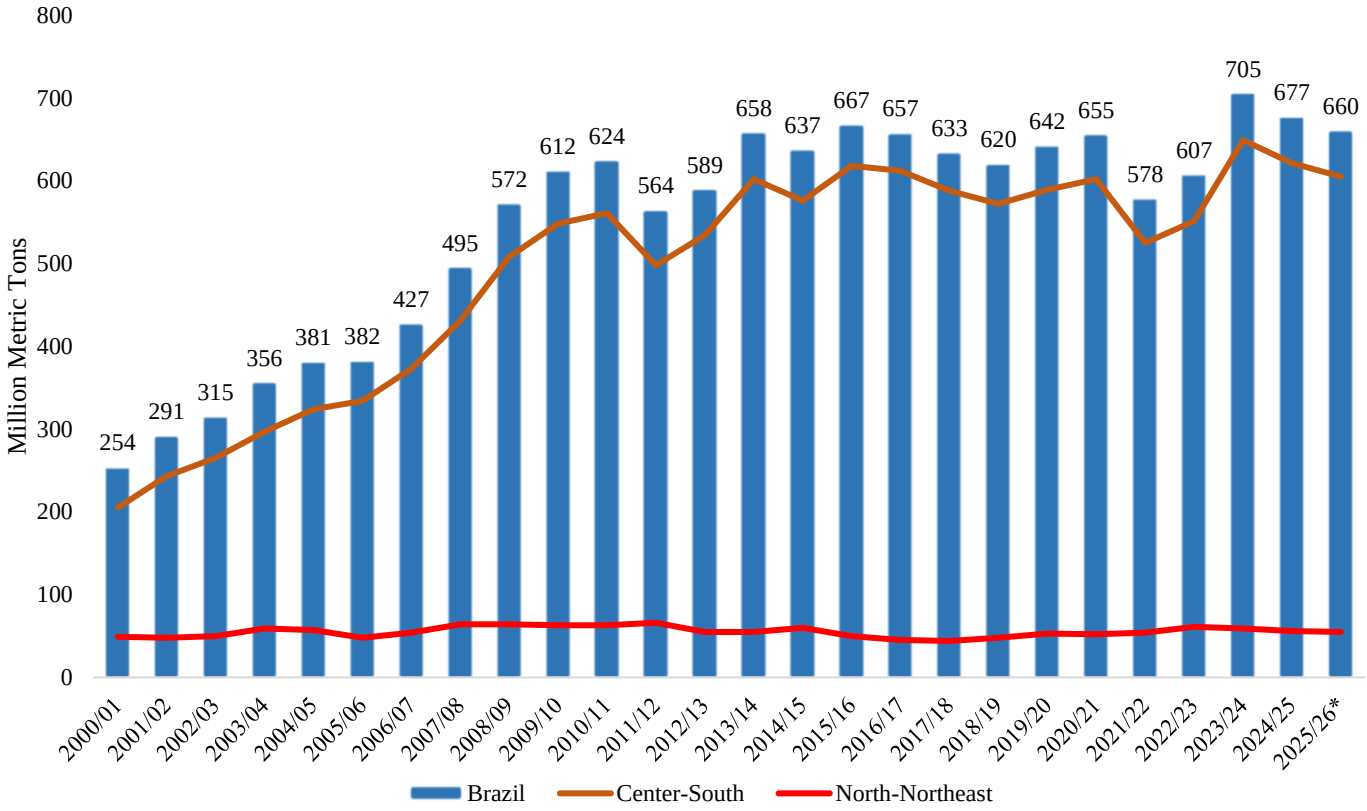
In addition to the drought, wildfires occurred across Brazil between August and October 2024. In sugarcane-producing region in the CS, the fires mostly affected areas that had already been harvested, which required sugarcane replanting and disrupted harvest planning for the MY 2025/26 crop year. Mills faced difficulties in maintaining the pace of planting year-round sugarcane throughout the dry period of 2024, which is having repercussions in 2025.

Due to the consequences of water scarcity on sugarcane productivity and lower yields, Post forecasts the sugarcane harvest for MY 2025/26 at 660 MMT. The CS is expected to produce 605 MMT and the NNE is expected to crush 55 MMT. The sugar-ethanol mix is favorable to sugar, with a forecast of 51 percent to sugar and 49 to ethanol. Sugar mills continue to favor sugar production due to attractive international prices.

As of September 2025, 332 sugarcane ethanol plants operate with a nameplate capacity estimated to be 47.8 billion liters per year. Cane ethanol production is forecast at 30.1 billion liters for 2025.

Between April 1 and September 16, cane ethanol production in the period totaled 19.4 billion liters, with 7.1 billion liters of anhydrous and 12.2 billion liters of hydrous.

Figure 14
Brazilian Sugarcane Production – marketing year (MY), in million metric tons



Source: National Supply Agency (Conab) and Ministry of Agriculture (MAPA); Chart Post Brasilia
**forecast*

Corn Ethanol

The strong growth and expansion of corn ethanol plants is related to the lower price of corn in the Brazilian market, higher ethanol prices for producers, and competitive prices for byproducts, especially distillers' dried grains (DDGs). Corn ethanol is crucial for maintaining domestic demand during the offseason for sugarcane (mid-November to March), when it accounts for around 70 percent of the total ethanol supply.

The 2024/25 corn crop (March-February) is forecast to yield 134 million tons of corn. The second-season crop, known as the "*safrinha"*, is primarily concentrated in the states of Mato Grosso (the largest *safrinha* producer), Mato Grosso do Sul, Goiás, and Paraná. Not coincidentally, most corn ethanol plants

are located in these states except Paraná. For more information on corn production, please refer to the Grain and Feed Report.

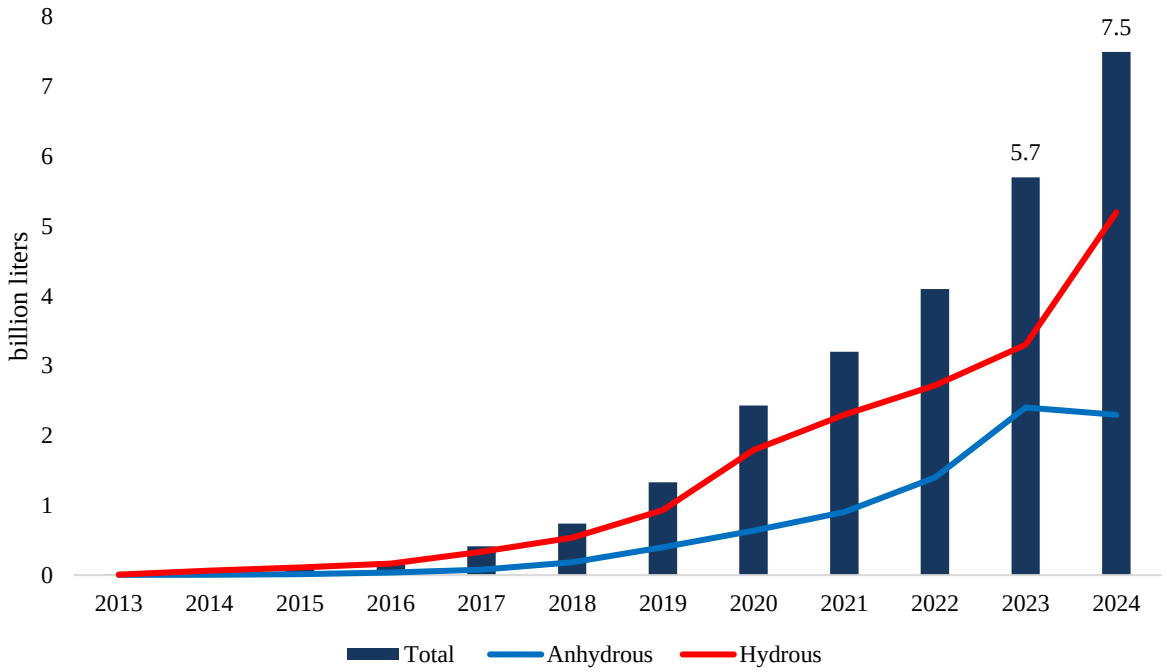
Figure 15
Location of Corn Ethanol Operating Plants, as of September 2025

Source: Oil and Gas Agency (ANP)

According to the ANP, 27 corn ethanol plants are authorized to operate in Brazil, and 16 more are under construction. If these projects are completed and authorized, they will produce an additional 2.96 billion liters of hydrous ethanol (8.112 m³/day) and 748 million liters of anhydrous ethanol (2.050 m³/day) by the end of 2026.

Post forecasts 2025 corn ethanol production at 9.6 billion liters or 24 percent of total ethanol production. Between April 1 and September 1, 2025, Brazil produced 1.4 billion liters of anhydrous corn ethanol and 2.5 billion liters of hydrous corn ethanol. During the same period of the previous harvest, production was 1 million liters of anhydrous ethanol and 2 billion liters of hydrous ethanol.

Figure 16
Corn Ethanol Production –in billion liters



Source: Ministry of Agriculture (MAPA)

Although the majority of corn ethanol plants are located near corn-producing regions, the north-northeast has two corn ethanol facilities.

In March 2025, Inpasa inaugurated a new corn and sorghum ethanol plant in the city of Balsas, Maranhão. The plant has a crushing capacity of two million tons of corn and sorghum per year. Between March 15 and July 15, 2025, the plant produced 288 million liters of anhydrous corn. In the state of Alagoas, the Pindorama mill produces ethanol from sugarcane and corn. Between February and July 2025, the plant produced 298 million liters of hydrous corn ethanol.

Cellulosic Ethanol

Brazilian cellulosic ethanol is produced primarily from sugarcane bagasse and is estimated to have a carbon footprint 30 percent lower than sugarcane first generation ethanol.

Since 2022, Raízen is the only large-scale producer of cellulosic ethanol in Brazil. By August 2025, the company registers 2 cellulosic ethanol plants in operation. The Bonfim plant located in Guariba (São Paulo) began operations in March 2024, with a production capacity of 83 million liters per year. Raízen's cellulosic ethanol has international sustainability certifications from Bonsucro and the International Sustainability and Carbon Certification (ISCC) program.

The second unit in operation is the Univale plant, located in Valparaíso (São Paulo), and began operations in April 2025, with an initial production of 28 million liters per year. Raízen's third cellulosic ethanol is located in Barra Bonita (São Paulo) and is waiting license to operate.

In January 2025, the company announced the closure of cellulosic ethanol production at the Costa Pinto plant in Piracicaba (São Paulo). The unit began operating in the 2014/15 harvest and had an industrial capacity of 30 million liters of cellulosic ethanol per year. The plant was a pioneer and will be used for testing.

Raízen has pre-signed contracts to export cellulosic ethanol to customers in Europe, the United States, and Asia. Raízen expects to produce approximately 87 million liters of cellulosic ethanol in 2025.

Wheat Ethanol

The state of Rio Grande do Sul will have two ethanol plants that use wheat and other cereals as feedstock.

The first wheat ethanol plant is expected to begin operating in early September 2025. Owned by CB Bioenergia, the plant is located in the city of Santiago. Initially, it will have the capacity to process 100 million tons of wheat per day and produce 12 million liters of hydrous ethanol per year. The genetically modified yeast, developed by the U.S-based company IFF, is expected to increase fermentation and expand yield by up to 4.5 percent.

The second wheat ethanol plant in the state belongs to the company Be8 and is expected to start operations in 2026. Located in the city of Passo Fundo, it will have a production capacity of 210 million liters of ethanol per year.

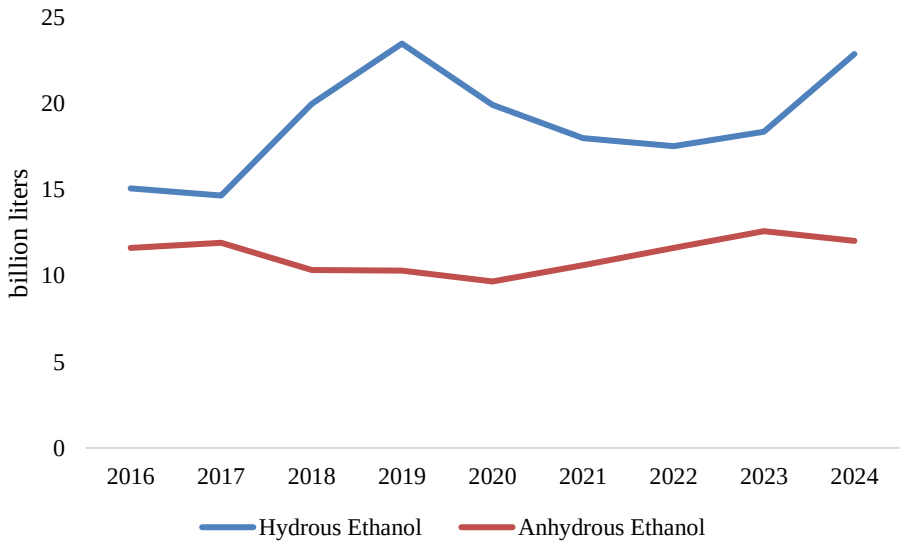
Rio Grande do Sul is the largest wheat-producing state in Brazil, with 49 percent of Brazil's total. For more information, please refer to Grain and Feed Annual.

Consumption

Despite adverse weather conditions and concerns regarding sugarcane production throughout the year, the consumption of hydrous ethanol in 2024 registered a record and surprised the market, mostly because of corn ethanol supply.

The rise in sales was due to the competitiveness of hydrous compared to gasoline C, which averaged 65.3 percent, the highest recorded since 2010, according to the Brazilian Sugarcane and Bioenergy Industry Association (UNICA).

Figure 17
Brazilian Ethanol Sales – Calendar Year, in billion liters



Source: Oil and Gas Agency (ANP)

For 2025, ethanol demand should remain high due to the increased ethanol blend in gasoline. The increased blend will require an additional 1.4 billion liters of anhydrous ethanol by the end of the marketing year. The increase in anhydrous demand, combined with the higher sugar mix resulting from favorable international sugar prices, will impact hydrous ethanol production and prices.

The calculations carried out by CEPEA show that between April 2024 and March 2025, the CEPEA/Esalq hydrous ethanol indicator averaged BRL2.6587/liter, an increase of 9.3 percent compared to the same previous period, in deflated terms. In the case of anhydrous ethanol (spot and contracts), the average was BRL3.0007/liter, an increase of 7.8 percent in the same comparison.

In 2023, the averages had been BRL2.4320/liter for hydrous ethanol and BRL2.7831/liter for anhydrous ethanol, also in real terms. According to CEPEA, the demand for hydrous ethanol grew in the last months of 2024, with the good competitive advantage for the consumer, a factor that supported prices between December 2024 and February 2025.

Between August 4 and 8, the CEPEA/ESALQ Index for hydrous ethanol closed at BRL 2.6296/liter (net of ICMS and PIS/Cofins), upping 0.22 percent compared to that in the previous period. As for the CEPEA/ESALQ Index for anhydrous closed at BRL 3.0580/liter, net of taxes (PIS/Cofins), for an increase of 1.95 percent in the same comparison.

According to MAPA, the total volume of ethanol held by CS mills at the end of July 2025 was 4.5 billion liters, which is down 32.4 percent from last year and the lowest volume for this period since the 2016/17 harvest.

On August 1, 2025, hydrous ethanol stocks totaled 2.6 billion liters, down 32.1 percent from the same period last year and the lowest level since the 2017/18 harvest. Anhydrous ethanol stocks decreased by 32.7 percent year-over-year, reaching 1.8 billion liters, the lowest level since the 2015/16 harvest. This reduction reflects the increased consumption of C gasoline, which remains more competitive and drives demand for anhydrous ethanol for blending.

According to the Ministry of Agriculture, the average annual production of ethanol for other uses is between 3 billion and 4 billion liters. While there is no publicly available information about its final uses, non-fuel ethanol is used in beverages, chemicals, and cleaning products.

Trade

Imports

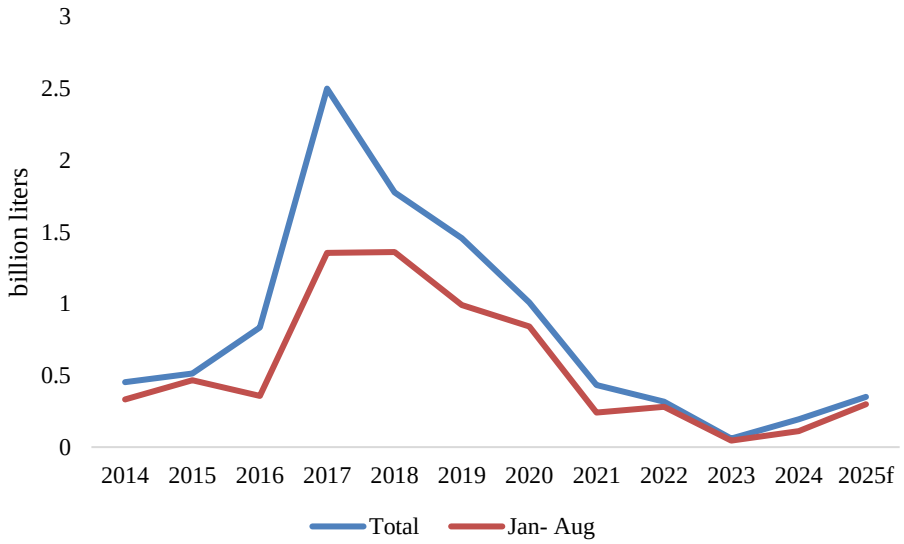
Post estimates total Brazilian ethanol imports for 2025 at 350 million liters, an 80 percent increase over 2024 imports (194 million liters). Since 2021, ethanol imports have decreased given the weak Real currency relative to the U.S. dollar, the import duty on U.S. ethanol and generally higher price of U.S. ethanol, in addition to investments in increasing sugarcane and ethanol productivity and expansion of Brazil´s corn ethanol production.

Notably, Brazilian ethanol imports surged by 226 percent in 2024, reaching 194 million liters, compared to 59 million liters in 2023. According to specialists, imports occur when there is a window of opportunity, such as when domestic demand is high and local production cannot meet market needs, particularly due to ethanol prices and logistics costs.

Experts project that the future price curves for hydrous ethanol contracts and the U.S. dollar on the Brazilian stock exchange, as well as ethanol prices on the Chicago Stock Exchange—adjusted for currency conversions and logistics costs—will create a favorable arbitrage window for imports through the Port of Suape (Pernambuco). This window is expected to approach breakeven between December 2025 and February 2026. The anticipated increase in ethanol imports in 2025 is supported by several factors, including reduced ethanol production caused by delays in crushing operations, lower agricultural productivity, higher sugar production, and sustained demand for hydrous ethanol.

Imported ethanol is mostly competitive in the North and Northeast regions because they are closer to United States ports, especially Houston, where the ethanol is shipped. Another factor favoring imports is the cost of U.S. ethanol, which is cheaper than Brazilian ethanol and arrives in the north and northeast regions 12 to 15 percent cheaper, according to specialists.

Figure 18
Brazilian Ethanol Imports, in billion liters



Source: Brazilian Secretariat of Foreign Trade data via Trade Data Monitor. Chart Post Brasilia. f refers to forecast

Table 12
Ethanol Imports from Selected Countries, HS 2207, in million liters

Country	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025*
United States	495,139	829,819	2,499,415	1,772,587	1,321,216	836,097	269,483	212,325	0.479	110,689	131,701
Paraguay	4,070	2,000	0	2,336	136,011	164,101	162,535	103,207	59,011	60,864	30,757
Others	13,671	2,806	864	409	375	172,626	243	324	123	23	44.7
Total Imports	**512,880**	**834,625**	**2,500,279**	**1,775,332**	**1,457,602**	**1,008,723**	**432,261**	**315,856**	**59,613**	**194,587**	**207,245**

Source: Brazilian Secretariat of Foreign Trade data via Trade Data Monitor
**2025 showing year-to-date data (January – August)*

Exports

Brazilian ethanol continues to have limited space globally, pressured by the expansion of supply from the United States and by more competitive prices. In addition, the lower ethanol production forecast for 2025 in the Center-South and firm domestic demand should disfavor exports in 2025.

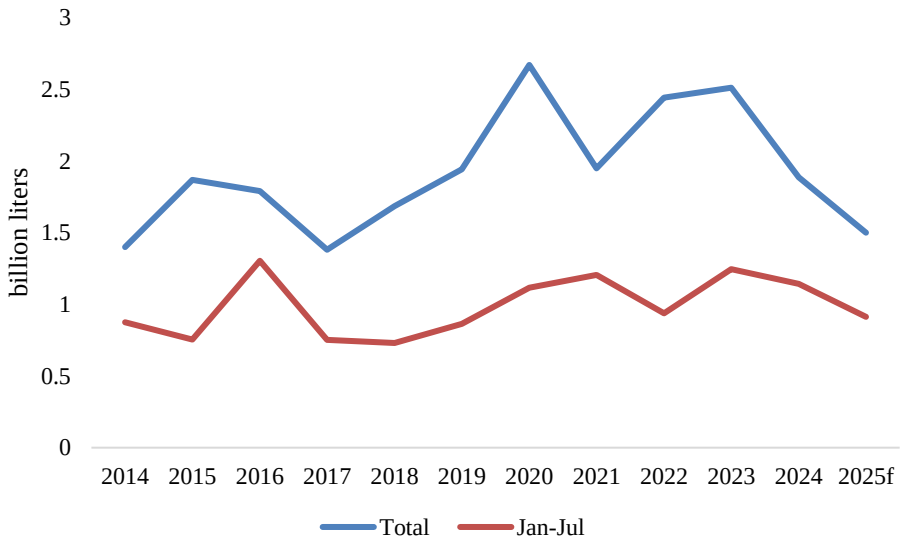
Brazilian ethanol exports reached 1.9 billion liters in 2024, a decrease of 25 percent compared to the previous year (2.5 billion liters). Major export destinations in 2024 were South Korea (43 percent), the United States (17 percent), and the Netherlands (8 percent), as reported by Trade Data Monitor based on the Brazilian Secretariat of Foreign Trade (Secex).

Post estimates total Brazilian exports for 2025 at 1.5 billion liters based on the current export pace as reported by the Secex. From January to August 2025, Brazil exported 1.1 billion liters, a reduction of 18 percent compared to the same period of 2024 (1.3 billion liters).

South Korea remains the primary export market for the Brazilian ethanol (43 percent), which is used in non-fuel applications, and a small amount is likely transshipped to Japan. The United States comes in second, with 23 percent, followed by the Netherlands (10 percent) as top three destinations of ethanol exports from Brazil in the January to August 2025 period.

Most of the ethanol shipped to the United States is consumed as fuel in California due to the favorable carbon intensity (CI) rating that Brazilian sugarcane ethanol receives under California's Low Carbon Fuel Standard (LCFS) and the state's carbon credit market. Further favoring Brazilian ethanol, the U.S. Environmental Protection Agency's (EPA) Renewable Fuel Standard (RFS) recognizes sugarcane ethanol as an advanced biofuel, and the Renewable Identification Number (RIN) for advanced biofuels (D5 RINs) has historically been valued at a significant premium over the conventional corn ethanol RIN (D6 RIN).

Figure 19
Brazilian Ethanol Exports, HS 2207, in billion liters



Source: Brazilian Secretariat of Foreign Trade data via Trade Data Monitor. Chart Post Brasilia. "f" refers to the forecast for total production.

Table 13
Brazilian Ethanol Exports, HS 2207, in millions of liters

Country	2020	2021	2022	2023	2024	2025 (Jan-Aug)
South Korea	915,900	778,440	739,542	820,261	774,816	458,823
Netherlands	274,152	118,384	710,866	588,101	152,677	116,046
United States	994,829	465,461	461,980	376,059	313,340	248,298
United Kingdom	58,456	18,366	105,780	17,849	20,845	48,000
Japan	36,843	77,175	88,243	42,047	64,114	0
Nigeria	7,191	79,730	52,988	96,365	110,760	44,345
Philippines	46,289	41,843	43,315	128,920	95,929	16,927
Ghana	34,851	41,269	43,150	46,387	43,216	37,059
India	71,722	70,497	31,475	71,880	62,568	41,325
Total	**2,668,972**	**1,948,181**	**2,439,885**	**2,510,369**	**1,884,195**	**1,065,351**

Source: Trade Data Monitor (TDM) and Brazilian Secretariat of Foreign Trade (Secex). NOTE: Numbers may not add due to rounding.

IV. Biodiesel

Table 14
Production, Supply and Distribution (PS&D)

Biodiesel (Million Liters)										
Calendar Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025f
Beginning Stocks	89	114	155	158	230	286	293	377	293	292
Production	3,819	4,291	5,386	5,978	6,489	6,814	6,423	7,544	9,021	9,750
Imports	0	0	0	0	0	1	9	3	16	0
Exports	0	0	0	0	3	7	48	113	76	85
Consumption	3,794	4,250	5,383	5,906	6,430	6,801	6,300	7,518	8,962	9,650
Ending Stocks	114	155	158	230	286	293	377	293	292	307
Production Capacity (Million Liters)										
Number of Biorefineries	49	49	52	52	49	55	58	61	58	58
Nameplate Capacity	8,997	8,997	9,548	9,548	10,581	12,822	13,661	14,650	15,092	15,092
Capacity Use (%)	42.4%	47.7%	56.4%	62.6%	61.3%	53.1%	47.0%	51.5%	59.8%	64.6%
Feedstock Use (1,000 MT)										
Soybean oil, crude	2,714	2,762	3,372	3,627	4,152	4,410	3,796	4,687	5,837	6,164
Tallow	553	563	685	652	552	502	489	423	565	574
Other Animal Fat	44	128	159	144	164	182	257	189	176	185
Used Cooking Oil	25	50	85	89	77	109	142	122	98	120
Palm Oil	15	33	67	111	153	155	126	172	63	71
Other	128	391	567	860	839	872	1,088	1,318	1,516	1,736
Market Penetration (Million Liters)										
Biodiesel, On-road use	3,041	3,382	4,254	4,664	5,060	5,408	5,057	6,024	7,184	8,200
Diesel A on road (excludes biodiesel)	40,403	40,131	39,585	40,446	40,031	43,821	45,514	46,191	46,430	47,800
Diesel Pool, On-road use !/	43,444	43,513	43,839	45,110	45,091	49,229	50,571	52,215	53,614	56,000
Blend Rate (%)	7.0%	7.8%	9.7%	10.3%	11.2%	11.0%	10.0%	11.5%	13.4%	14.6%
Diesel Pool 1/	54,352	54,971	55,419	56,982	57,080	61,725	63,085	65,713	67,538	69,500

Note: See section VI: Notes on Statistical Data covering sources and certain calculations. f/ forecast Forecasts developed by USDA Brasilia. Note 1/ Fuel pools are defined as fossil fuels plus all "bio-components" (biofuels) blended with fossil diesel. Note 2/ Other Feedstock Use includes other fatty material. Note 3/ Post has conducted a historical revision of the production, supply, and distribution to reflect updated data as reported by industry and official information. Please refer to Notes on Statistical Data for more information.

Production

In 2024, Brazil produced 9.0 billion liters of biodiesel, an increase of 20 percent compared to 2023 (7.6 billion liters). The biodiesel market remains restricted for trade, and production is forecast to reach 9.8 billion liters in 2025, influenced by a growing diesel pool and rising blend.

According to updated information reported by ANP, about 73 percent of the biodiesel production in 2024 originated from soybean oil and 16 percent is made from fatty material, which is material blended in tanks and by-products of biodiesel production. The remaining feedstock are tallow (6 percent), and other greasy material, including animal fat, used cooking oil, and palm oil (5 percent.)

The major producing regions are the South and Midwest, which responded to approximately 80 percent of total biodiesel production in 2024. The South region accounted for 41 percent of the total production, and the Midwest region accounted for 39 percent of the total.

The largest biodiesel producing state is Rio Grande do Sul, which produced 21 percent of the total biodiesel in 2024, with 9 biodiesel plants and a nameplate capacity of 3.6 billion liters per year, or approximately 40 percent of Brazil's total biodiesel nameplate capacity.

Figure 20
Biodiesel Operating Plants, as of September 2025

Source: Oil and Gas Agency (ANP)

Brazil registered 58 biodiesel plants operating in 2024. The center-western state of Mato Grosso has 17 plants, Goiás has 8 plants, and Mato Grosso do Sul has 3 plants. The Midwest region of Brazil is the largest producer of soybean and has sufficient feedstock for biodiesel production. According to ANP, the authorized nameplate capacity in 2024 was 15 billion liters, similar to the forecast for 2025.

Operating biodiesel plants in 2025 amount to 59 and cumulative biodiesel production from January through August 2025 reached 6.3 billion liters, an increase of 7 percent compared with the same period of 2024 (5.9 billion liters). Soybean oil accounted for 75 percent of the total feedstock, other fatty material accounted for 13 percent, and tallow accounted for 5 percent. The remaining seven percent came from greasy material and palm oil.

Market Prices

Brazil is the leading producer of soybeans, accounting for more than 40 percent of global soybean production and approximately 56 percent of global exports. For the marketing year 2024/25, soybean production is estimated at 169 million metric tons (MMT) and for MY 2025/26, the forecast is 173 MMT. Please refer to Oilseeds and Products Annual for more information.

Biodiesel is priced using soybean oil and feedstocks, such as tallow and other vegetable oils, whose prices typically track soybean oil. Feedstocks account for approximately 80 percent of the biodiesel production cost, whereas other inputs such as methanol and additives represent 10 percent of the total. Logistical costs comprise the remaining expenditures. Changes in international soybean oil prices, Brazil´s Real exchange rate, and plant operating costs have direct impacts on biodiesel production costs.

The increase in the biodiesel blend from B14 to B15 is expected to boost soybean oil demand by 150,000 tons between September and December 2025. The demand will increase soybean crushing by approximately 750,000 tons, yielding over 300 million liters of biodiesel.

Industry suggests that increasing the biodiesel blend could lower diesel and biodiesel prices, reduce reliance on oil imports, and exert a deflationary impact on food prices, particularly animal proteins, by boosting soybean crushing and bran production for animal feed.

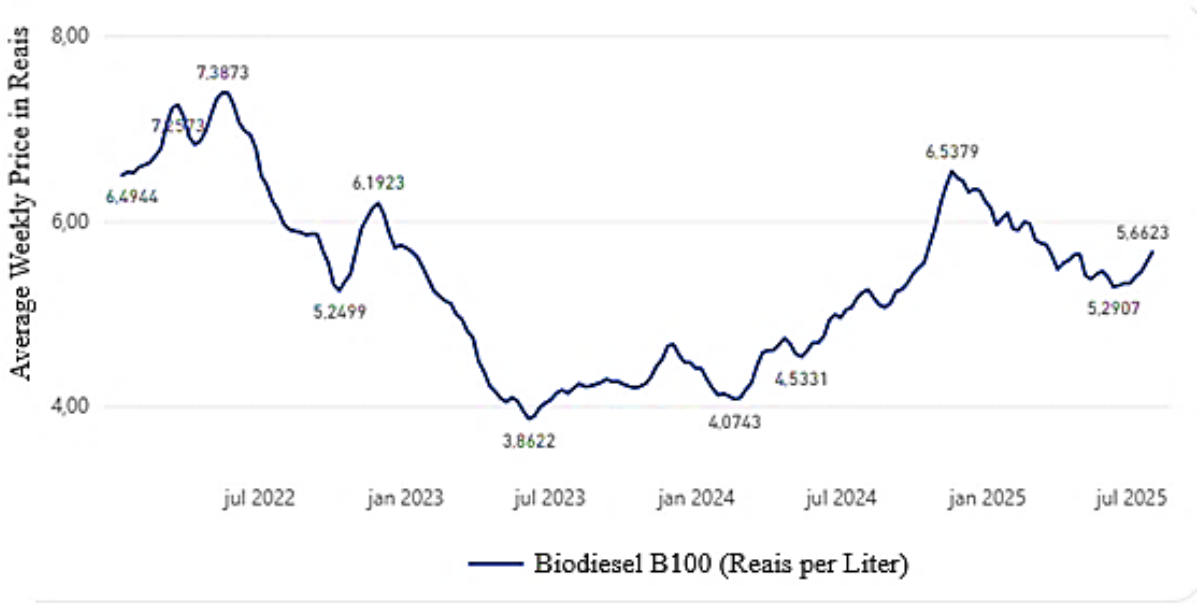
Consumption

Increased biodiesel production is supported by strong soybean harvests in Brazil and adequate supplies of several other feedstocks. The growth of the Brazilian economy, which is expected to end 2025 with a 2.5 percent increase in Gross Domestic Product (GDP), driven by demand for goods and services, requires more road freight transportation, demanding more diesel and, consequently, biodiesel.

Post forecasts biodiesel consumption in 2025 at 9.7 billion liters, an 8 percent increase from 2024 (9.0 billion liters). Total diesel pool, which includes biodiesel, reached 67.5 billion liters in 2024. For 2025, Post forecasts total diesel pool at 69.5 billion liters.

Biodiesel prices have fluctuated and registered a sharp increase throughout 2024, peaking at BRL6,537 on November 18, 2024, and gradual reduction in 2025, with lower inflation concerns and price stabilization.

Figure 21
Biodiesel Weekly Average Prices for Producers and Importers – in Reais per liter

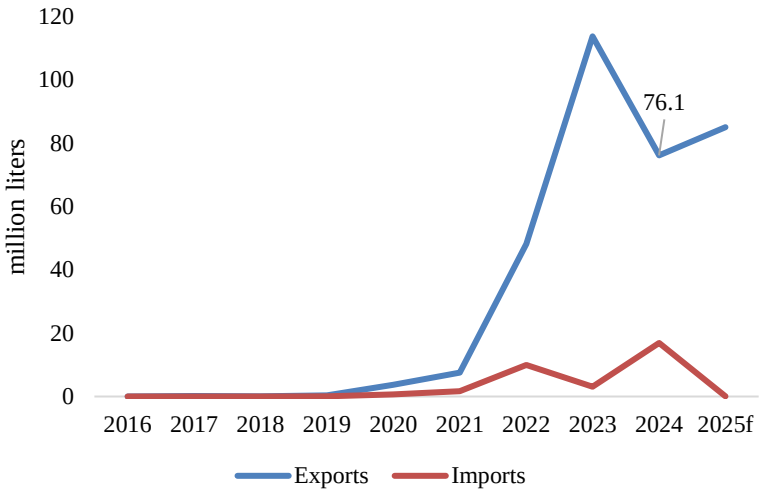


Source: [Oil and Gas Agency](#) (ANP)

Trade

Brazil imports and exports of biodiesel are negligible. However, it is possible to observe a sharp increase in exports from 2022 that is explained by the growing international demand for renewable fuels, boosted by strict climate policies and targets for GHG emissions. In 2024, Brazil exported 76 million liters and imported 16 million liters.

Figure 22
Brazilian Imports and Exports of Biodiesel – HS 3826.00, in million liters



Source: Brazilian Secretariat of Foreign Trade data via Trade Data Monitor; Chart Post Brasília. f: forecast

In 2024, the main export markets to Brazilian biodiesel were the Netherlands (47 percent), followed by Switzerland (46 percent), and Belgium, with 6 percent. On the imports, France supplied 99 percent of Brazil imports, followed by Germany, with 1 percent.

Low Carbon Oil/Fats Feedstock for Biofuels

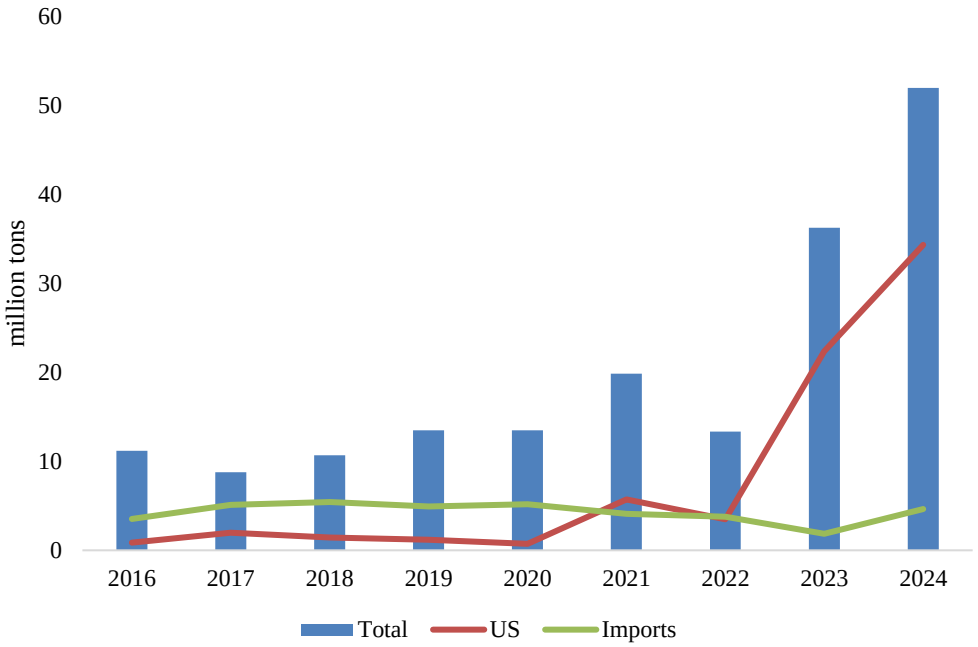
Used Cooking Oil

On June 20, 2024, the Ministry of Agriculture and Livestock (MAPA) announced the United States accepted the International Plant Health Certificate (IVHSC) for the export of used cooking oil (UCO) from Brazil to be used as biodiesel feedstock. To meet U.S. requirements, MAPA's Department of Inspection of Plant Origin Products (DIPOV) issues a certificate of traceability, identity and origin of the product based on audits of the self-control procedures of the storing and exporting facilities.

Brazil became a major exporter of UCO and tallow to the U.S, which is likely directed to U.S. biodiesel and renewable diesel production. In 2024, Brazil exported 52 million tons of UCO, from which 66 percent was shipped to the United States. Mexico was the second main destination, with 8 percent, and Chile came in third, with 6 percent.

Regarding imports, Brazil imported 4.6 million tons of UCO in 2024, and the majority originated from Argentina (78 percent), followed by Belgium (10 percent), and the United States (4 percent).

Figure 23
Brazilian Imports and Exports of Used Cooking Oil – HS 1518.00 – in million tons



Source: Brazilian Secretariat of Foreign Trade data via Trade Data Monitor; Chart Post Brasilia

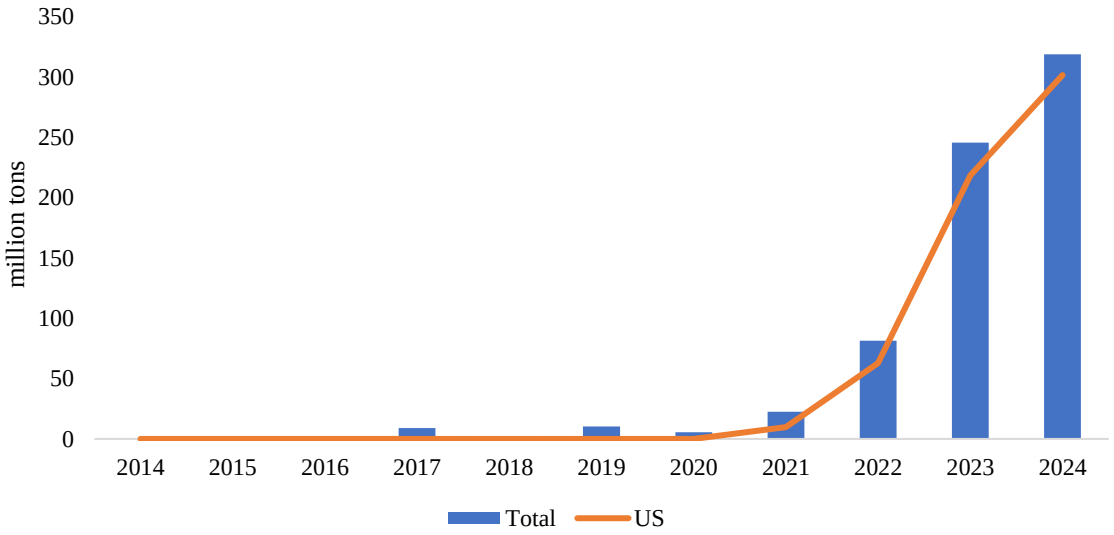
Tallow

Brazilian tallow sector follows the increase of livestock production. Tallow is used in a variety of products, from pet food to soaps. Tallow exports gained momentum from 2021, with rising international demand, mainly from the United States. Tallow exports were also stimulated by higher soybean oil prices abroad, in addition to environmental incentives related to the lower carbon footprint of tallow production.

In Brazil, soybean oil is a direct competitor of beef tallow. Record soybean harvests increase the availability of soybean oil, reduce the price and occupy more space in the composition of biodiesel, reducing the share of beef tallow. It is estimated that Brazil produced 1.5 billion tons of tallow in 2024.

Brazilian exports of tallow registered a record high in 2024, amounting to 318 million tons. The main destination for Brazil's tallow is the United States, with 94 percent of the total, followed by South Africa (1.5 percent), and People's Republic of China (1.2 percent). Experts project tallow exports at 400 million tons in 2025, an increase of 25 percent compared to 2024.

Figure 24
Brazilian Exports Tallow – HS 1502.10 – in million tons



Source: Brazilian Secretariat of Foreign Trade data via Trade Data Monitor; Chart Post Brasilia

V. Advanced Biofuels

Sustainable Aviation Fuel, Maritime Fuel and Renewable Diesel

There is currently no commercial-scale production of sustainable aviation fuel, bunker fuel or renewable diesel, which are all directly linked given their production in biorefineries.

Renewable Diesel and Sustainable Aviation Fuel

Projections from the Energy Research Company (EPE), expect a gradual increase of renewable diesel demand, starting at 1 percent in 2027 (700 million liters), 2 percent from 2030 (1.5 billion liters), and 3 percent from 2032 (2.4 billion liters.) According to public information and Post contacts, the oil and gas state-owned company Petrobras produces SAF and renewable diesel in small scale and Acelen is preparing to produce renewable diesel.

In July 2025, Petrobras announced the conclusion of a test to produce co-processed SAF in the Duque de Caxias refinery (REDUC), located in Rio de Janeiro. The test included blending up to 1.2 percent of corn oil into aviation fuel (QAV).

In August 2025, Petrobras announced the beginning of the contracting process to build the BioQAV and HDRD refinery located in Presidente Bernardes refinery (REPLAN) Cubatão (São Paulo), which foresees a processing capacity of 950,000 tons per year of raw feedstock of vegetable oils and animal fat, and a nameplate capacity of up to 16,000 barrels per day (bpd) of SAF and HDRD. The operations are estimated to begin in 2030.

Petrobras's second SAF project is located in Paulínia refinery (REPLAN) with capacity of 10,000 bpd for the SAF route Alcohol-to-jet (ATJ). The company is planning to launch SAF production at REPLAN by the end of 2025.

The company also produces Diesel R, a drop-in fuel co-processed with mineral diesel and vegetable oil containing a blend of renewable diesel that can range from 5 percent (Diesel R5) to 10 percent (Diesel R10). In December 2023, Petrobras announced a partnership with Honeywell UOP for the adoption of HEFA (Hydroprocessed Esters and Fat Acids) technology for both renewable diesel (HDRD) and SAF production (BioQAV), to be produced in Presidente Bernardes greenfield refinery, in Cubatão (São Paulo).

In 2024, the company announced the first small scale commercialization agreement to supply of Diesel R to the mining company Vale to be used in a cargo train with capacity for 214 tons. In addition, Petrobras also announced the commercialization of Diesel R5 starting in March 2024 through the President Bernardes refinery, in Cubatão (Sao Paulo). There is no information about the amount of Diesel R production.

Acelen announced investments to produce renewable diesel and sustainable aviation fuel from soybeans, corn, UCO and macaúba at the Mataripe refinery, located in Bahia. The macauba oil will come from forests planted in degraded areas recovered in Bahia and Minas Gerais, and from family farming programs.

The project is expected to begin production of renewable diesel in 2026 and Acelen initially expects to export the entire production. Honeywell also partnered with Acelen for the use of the Ecofinig technology for the production of renewable diesel and SAF.

Acelen publicly stated that the company has signed long term contracts for about 80 percent of the future SAF production. The customers are in the United States, Europe and Brazil.
Refinery Riograndense, based in Rio Grande do Sul, aims to produce 16,000 barrels per day of renewable diesel and SAF using the HEFA route. The plant is expected to be operational in 2028.

Maritime Fuel

On July 11, 2024, the ANP approved the commercialization of maritime fuel oil (bunker fuel) containing 24 percent biodiesel. It was the first authorization granted in Brazil for the commercialization of bunker fuel with renewable content for use in ships. The approval was granted to Petrobras.

Between September 2022 and January 2024, the company conducted tests on vessels using blends of biodiesel ranging from 10 percent to 24 percent. There were no issues with the engine function and other operating systems. The last test, at B24, confirmed a GHG reduction of about 19 percent compared to fuel with no renewable content.

Petrobras bunker fuel is called VLS (very low sulfur) B24 and has renewable content produced from a blend of 76 percent of mineral bunker oil and 24 percent biodiesel (fatty acid methyl ester – FAME). VLS24 is certified under the European Renewable Energy Directive (ISCC EU RED).

In February 2025, Petrobras, through the subsidiary in Singapore, and the mining company Vale announced a partnership to supply a vessel chartered by Vale with VLS B24 for testing. The product was formulated by Petrobras Singapore in its locally leased tanks, blending 76 percent of fossil fuel oil and 24 percent of used cooking oil purchased locally.

There is no publicly available information about the amount of VLS B24 production.

VI. Notes on Statistical Data

Energy Units

Toe > Ton of oil equivalent. One toe has the energy content of a metric ton of oil.
J > Joule is the energy exerted by the force of one newton acting to move an object through a distance of one meter.
Btu > British Thermal Unit is used unofficially in metric English-speaking countries to describe the heat value (energy content) of fuels used in the power, steam generation, heating and air conditioning industries. It is the amount of energy needed to heat one pound of water one degree Fahrenheit.

Fuel-to-Energy Conversion Rates (based on lower fuel heating values)

Energy Content		
Gasoline	43.10 MJ/kg	43.10 GJ/MT
Ethanol	26.90 MJ/kg	26.90 GJ/MT
Diesel	42.80 MJ/kg	42.80 GJ/MT
Biodiesel	37.50 MJ/kg	37.50 GJ/MT
Pure Veg. Oil	34.60 MJ/kg	34.60 GJ/MT

Liquid Fuel (mass) to Liters	
1 MT Gasoline	1,256
1 MT Ethanol	1,267
1 MT Diesel	930 to 1,195
1 MT Biodiesel	1,136
1 MT HDRD	1,282
1 MT SAF (HEFA-type)	1,250
1 m^3	1,000

Energy Unit Conversions				
	Tons of Oil Equivalent	Gigajoule	KiloWatt Hour	British Thermal Unit
1 Ton of Oil Equivalent	1	41.87	11,630.00	39,683,205.41
1 Gigajoule	0.024	1	277.78	947,817.08
1 Kilowatt Hour	0.000086	0.0036	1	3412.14
1 British Thermal Unit	0.000000025	0.00000106	0.000293	1

Source: Units and Conversions Fact Sheet, MIT Energy Club (Derek Supple), April 2007; Neste is the source for HDRD (note: energy content of HDRD can be slightly higher than 1 toe.).

Cubic Meter to Metric Tons	
1 m^3 Biodiesel	0.88

Ethanol

The beginning stocks for the Ethanol Used as Fuel and Other Industrial Chemicals table (excluding ethanol for beverages) are based on information from the Ministry of Agriculture, Livestock and Supply (MAPA) and reflect all stocks at the ethanol plants as of January 1, each year. Beginning Stocks for the ethanol "For Fuel Only" are estimated based on the historical average use of bioethanol for fuel/other uses.

Figures related to the sugarcane industry are reported in marketing years using original source data, then adjustments are made to convert from marketing to calendar years when necessary. As determined by the Brazilian government, the official Brazil marketing year for sugarcane, sugar, and ethanol production is April through March for the center-south producing states, and September through August for the north-northeast region.

MAPA provides ethanol production estimates for Fuel and Other Industrial Chemicals. Given that all Brazilian official publications and industry sources report production in hydrous and anhydrous ethanol only, production estimates "For Fuel Only" are taken as the difference between "production for all uses" minus estimates for "disappearance for other uses" (domestic consumption and exports).

Domestic consumption figures are based on information provided by the Oil, Natural Gas and Biofuels Regulatory Agency (ANP), Brazilian Sugarcane and Bioenergy Industry Association (UNICA), the Energy Research Company (EPE), and other Post contacts. ANP provides the industrial daily capacity for hydrous ethanol production from authorized plants and Post Brasilia multiplies that capacity by 215 days (the average annual duration for the sugarcane crushing) to derive annual production capacity for sugarcane ethanol. Corn ethanol nameplate capacity considers 330 days of operation also considering industrial daily capacity for hydrous ethanol production. EPE annually informs the number of operating sugarcane ethanol plants and Post reduces the total from corn ethanol flex plants.

There are no figures for ethanol exports/imports for fuel and/or other uses. Post estimated ethanol "for fuel" based on the type of ethanol that is usually imported by the destination, as reported by industry. The United States, Netherlands, Sweden, Japan, and Canada usually import most of the ethanol for fuel.

Trade figures are based on Trade Data Monitor (TDM), the official government trade data as compiled and reported by the Brazilian Secretariat of Foreign Trade (SECEX). SECEX breaks down ethanol trade into four categories, classified based on the Mercosur Common Nomenclature (NCM):

• **NCM 2207.10.10** – Undenatured ethylic alcohol with ethanol content equal to or over 80 percent with water content equal to or below 1 percent volume. Undenatured alcohol is defined as pure ethanol with no additives and is suitable for consumption.
• **NCM 2207.10.90** - Undenatured ethylic alcohol with ethanol content equal to or over 80 percent, others. Undenatured alcohol is defined as pure ethanol with no additives and suitable for consumption.
• **NCM 2207.20.11** - Denatured ethylic alcohol with any ethanol content and water content equal to or below 1 percent volume. Denatured alcohol is defined as ethanol with additives that make it poisonous and/or unpalatable, thus not suitable for human consumption. Denatured alcohol is used as a solvent and as fuel for spirit burners and camping stoves. Different additives like methanol are used to make it difficult to use distillation or other simple processes to reverse the denaturation.
• **NCM 2207.20.19** - Denatured ethylic alcohol with any ethanol content, others. Denatured alcohol is defined as ethanol with additives that make it poisonous and/or unpalatable, thus not suitable for human consumption. Denatured alcohol is used as a solvent and as fuel for spirit burners and camping stoves. Different additives like methanol are used to make it difficult to use distillation or other simple processes to reverse the denaturation.

There are no trade codes defining end use, not for use as fuel additive to gasoline or any other uses. Post estimated ethanol "for fuel" based on industry sources.

ANP is the primary source for sugarcane crushed for ethanol production. Feedstock use and co-product data are consistent with fuel ethanol production figures and based on the following conversion rates:

•1 metric ton of sugarcane = 75-82 liters of ethanol (average range based on sugar content)
•1 metric ton of molasses = 246 liters of ethanol
•1 metric ton of corn = 400- 440 liters of ethanol
•1 metric ton of sorghum = 430 liters of ethanol
•1 metric ton of bagasse = 69 liters of cellulosic ethanol
•1 metric ton of corn yields = 225 kg of Dried Distilled Grains (DDGs)
•1 metric ton of corn yields = 15 liters of corn oil
•1 metric ton of sugarcane = 340kg of bagasse

The ANP and other government agencies update sugarcane, ethanol, and feedstock data annually. Post thoroughly reviewed historical data and adjusted conversion rates to align with official figures and reflect improvements in industry efficiency. However, discrepancies may still arise due to rounding and variations in conversion rates used by Post, the industry, and the Brazilian government.

Biodiesel

Post revised biodiesel production, supply and distribution figures. Historical production numbers are based on data reported by the Energy Research Company (EPE) – base year 2024 and by ANP. Forecasts are based on projections for diesel consumption and the biodiesel mandate for the following year.

Consumption figures are based on petroleum diesel consumption reported by EPE and ANP and the mandatory blend of biodiesel in mineral diesel set by Brazilian. EPE provides the industrial daily capacity for biodiesel production from authorized plants.

Post revised the Production, Supply and Distribution (PS&D) table to reflect updated figures referring to production and consumption, based on data available in EPE and ANP data. Although EPE data is based on information provided by the ANP, the figures might differ and are constantly updated.

Trade figures are based on the Brazilian Secretariat of Foreign Trade (SECEX), as reported below:

• From 2006 through 2011 - **NCM 3824.90.29** – Other industrial fatty acid derivatives, mixtures and preparations containing fatty alcohols or carboxylic acids or their derivatives.
• As of 2012 – **NCM 3826.00.00** – Pure biodiesel (B100) and their blends above B30.
• As of 2012 – **NCM 2710.20** – Petroleum oils containing biodiesel up to and including 30% by volume. The following assumption was made: 1 metric ton of petroleum oils and oils obtained from bituminous minerals which fall under NCM 2710.20 is equivalent to 0.15 metric tons of pure biodiesel (B100).

The number of biorefineries, nameplate capacity and feedstock use are based on ANP's data and consistent with biodiesel production figures and industry reporting. Biodiesel's mass volume conversion rate is one metric ton = 1,136 liters, The following feedstock biodiesel conversion rates apply:

•1 metric ton of soy oil, crude = 1,113 liters of biodiesel
•1 metric ton of palm oil = 1,087 liters of biodiesel
•1 metric ton of animal fat/grease = 1,043 liters of biodiesel
•1 metric ton of used cooking oil = 1,043 liters of biodiesel
•1 metric ton of other fatty material = 1,043 liters of biodiesel

V. Appendix

Exchange Rate

Table 15
Exchange Rate (BRL/USD1.00 - official rate, last day of period)

	2018	2019	2020	2021	2022	2023	2024	2025*
January	3.16	3.65	4.25	5.48	5.36	5.10	4.95	5.83
February	3.24	3.74	4.50	5.53	5.14	5.21	4.98	5.84
March	3.32	3.90	5.20	5.70	4.74	5.08	4.99	5.74
April	3.48	3.94	5.43	5.40	4.92	5.00	5.17	5.60
May	3.74	3.94	5.43	5.23	4.73	5.09	5.24	5.70
June	3.86	3.83	5.48	5.00	5.24	4.82	5.55	5.45
July	3.75	3.76	5.20	5.12	5.19	4.74	5.66	5.60
August	4.14	4.14	5.47	5.14	5.18	4.92	5.65	5.42
September	4.00	4.16	5.64	5.44	5.41	5.00	5.44	5.42
October	3.72	4.00	5.77	5.64	5.26	5.05	5.77	
November	3.86	4.22	5.33	5.62	5.29	4.93	6.05	
December	3.87	4.03	5.20	5.58	5.78	4.84	6.19	

*Source: Brazilian Central Bank (BACEN) *Refers to September 24*

Attachments:

No Attachments