



TAUIL | CHEQUER

MAYER | BROWN

Brazil Energy Journal

BIOFUELS

Overview

Biofuels are in the spotlight for their key role in the global energy transition agenda. In the transportation sector, biofuels provide a low-carbon solution to the energy modals considered hard-to-abate, such as the petroleum-based fuels traditionally used for trucking, shipping and aviation. Biofuels are also used in power generation, in cogeneration plants and to power electricity generators.

The opportunities to produce biofuels are extensive due to their biomass-based derivation. "Biomass" is any organic matter with the potential to be converted to energy, encompassing a wide range of sources such as:



AGRICULTURAL CROPS

such as sugar cane, corn, palm oil, rapeseed and soybeans—and their waste



ALGAE AND MICRO-ALGAE



WOOD AND ITS WASTE



FOOD WASTE



ANIMAL MANURE



HUMAN WASTE FROM SEWAGE



Appeal in Brazil

With its land available for energy purposes and favorable climate, Brazil has been a pioneer in biofuel development and is one of the most promising producers of new forms of biofuel.

Aiming to reduce Brazil's dependence on imported oil, the country began its biofuel consumption with ethanol, particularly in the context of the National Ethanol Program ("*Proálcool*") in 1975.

Ethanol has continued to play an important role throughout the years; for example, in 2008, Brazil became the first country to use more ethanol than gasoline to fuel cars. Other initiatives have risen over time, including the National Program for the Production and Use of Biodiesel ("*PNPB*") in 2005 as well as the recent programs National Biofuels Policy ("*RenovaBio*") and Fuel of the Future ("*Combustível do Futuro*").

A surge of innovative solutions is changing the biofuels landscape, with the development of a wider range of products, such as Sustainable Aviation Fuels ("*SAF*") and biomass-derived e-fuels, including methanol and biogas.

Complementing its diverse renewable energy resources, Brazil also possesses expertise in biomass power generation. According to data provided by Brazil's National Electric Energy Agency ("*ANEEL*"), 634 centralized biomass power generation projects are in commercial operation in the country, which account for 8.76% of Brazil's energy matrix.

Brazil's historical legacy, ongoing initiatives, and promising future solidify its position as a key global player in biofuels development and demonstrate its commitment to the global energy transition agenda.



Legal Framework

Following a set of legislative changes that shaped the oil and gas legal framework in Brazil, Law No. 9,478/1997 (“Petroleum Law”) was enacted during an early stage of biofuels development.

In its original wording, the Petroleum Law referred to the use of alternative sources of energy in the implementation of public policies. In addition, the Petroleum Law instituted the National Energy Policy Council (“CNPE”), which was responsible for reviewing the energy matrix applied to the various regions of the country – considering both conventional and alternative sources.

Furthermore, the Petroleum Law established the Brazilian National Agency of Petroleum, Natural Gas and Biofuels (“ANP”), which then became responsible for the regulation of biofuels as well as the authorization and supervision of certain related activities.

As amended over the years, the Petroleum Law now provides for the following national energy policies goals particularly related to biofuels, in addition to other general objectives:

- Increasing the participation of biofuels in the energy matrix
- Ensuring the supply of biofuels throughout the national territory
- Incentivizing the generation of electric energy from biomass and byproducts of biofuel production
- Promoting the country's competitiveness in the international biofuel market
- Attracting investment in infrastructure for the transportation and storage of biofuels
- Fostering research and development related to renewable energy
- Mitigating the emissions of greenhouse gases and pollutants in the energy and transportation sectors, including through the use of biofuels

The activities related to biofuels are governed by specific regulations published by the ANP, which also establish obligations and requirements to be met by the regulated agents.

While the most conventional biofuels are ethanol (obtained from sugar cane) and biodiesel, biogas and SAF have the potential to increase the participation of bio-energy in the energy matrix. The main obligation and requirements under the applicable ANP resolutions in connection with these four biofuels are briefly described below.

Types of Biofuels

Ethanol

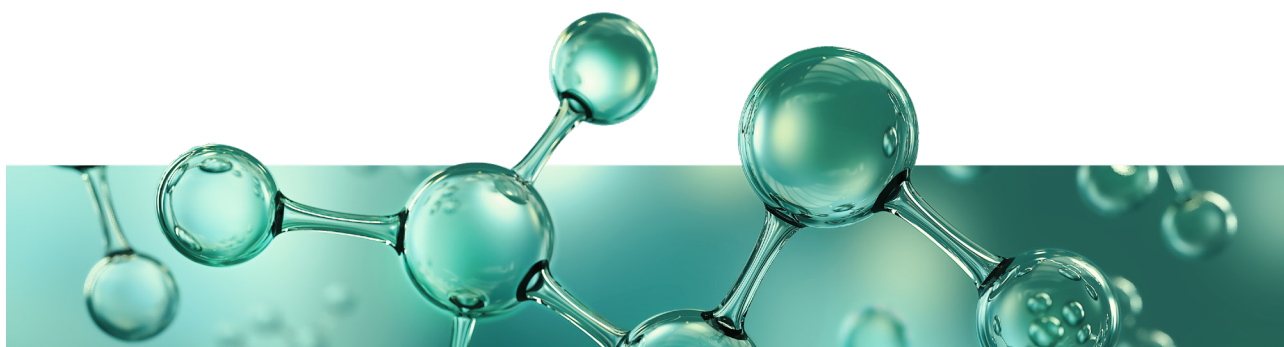
Ethanol is an alcohol produced mostly by the fermentation of sugars and used in internal combustion engines with spark ignition. With considerable large-scale use of this substance, Brazil was responsible for 27% of the world's ethanol production in 2021, the second largest producer of ethanol that year.

The product can be used as either (i) hydrous ethanol, which is marketed in the country as a finished fuel, or (ii) anhydrous ethanol, which is a blending component in the formation of gasoline C. According to Decree No. 11,629/2023, CNPE is responsible for defining the percentage of anhydrous ethanol permitted in gasoline C, currently between 18% and 27.5%.

The specification and marketing rules applicable to these two types of ethanol are mainly regulated by ANP Resolution No. 907/2022, which also establishes certain quality control requirements. For example, ANP Resolution No. 907/2022 provides that the distributor must regularly issue certain quality certificates and establishes that anhydrous ethanol must be dyed before having it delivered to the distributor.

ANP Resolution No. 946/2023, which revoked ANP Resolution No. 67/2011 and will enter into force on April 10, 2024, governs the supply of anhydrous ethanol by suppliers to distributors of liquid fuels, which may occur by means of a supply contract or a direct purchase regime. ANP Resolution No. 946/2023 establishes further requirements in connection with the volume of anhydrous ethanol to be acquired *vis-à-vis* the respective commercialization of gasoline C by the distributor.

The authorizations relating to the ethanol production activities are generally governed by ANP Resolution No. 734/2018. The resolution also sets forth a list of authorized agents from which a producer may purchase ethanol or to whom the producer may market the substance. Other ethanol suppliers, such as ethanol trading companies, ethanol importers and producer cooperatives, are regulated by ANP Resolution No. 944/2023, which revoked ANP Resolution No. 43/2009 and will enter into force on April 10, 2024.



Biodiesel

Under the applicable regulations, biodiesel is generally defined as a fuel composed of renewable organic lipids typically produced from the transesterification of fatty materials from animals or vegetables. Biodiesel was formally incorporated into the Brazilian energy matrix by Law No. 11,097/2005, which established the minimum percentage of biodiesel to be added to traditional diesel. This percentage has been successively amended by the CNPE and recently increased to 12% under CNPE Resolution No. 3/2023. The same CNPE Resolution has set a progressive increase: to 13% in April 2024, 14% in April 2025, and 15% in April 2026. More recently, CNPE Resolution No. 8/2023 brought forward these deadlines and the minimum percentage of biodiesel to be added will be increased to 14% in March 2024, and 15% in March 2025.

ANP Resolution No. 920/2023 governs biodiesel marketing, specification and quality control rules. The resolution contemplates requirements such as producer's obligation to add an antioxidant substance to the biodiesel, the submission of monthly reports to the ANP, and the producer's obligation to issue a quality certificate containing certain information.

Up to 2021, biodiesel was marketed by public auctions conducted by the ANP. However, ANP Resolution No. 857/2021, in light of CNPE Resolution No. 14/2020, replaced the auctions with a new model, under which the distributors purchase biodiesel directly from producers. The new model generally provides more flexible conditions, which are negotiated between the parties. In addition, regulations establish contracting targets to be met by producers and distributors, where a failure to comply with the targets may result in mandatory limitations on the marketed volume and restrictions to operate in the spot market.

Similarly to as it does with ethanol, ANP Resolution No. 734/2018 governs the authorizations for biodiesel production activities. The Resolution also sets forth a list of authorized agents from which a producer may purchase biodiesel or to whom the producer may market the substance.



Biogas and Biomethane

Biogas is obtained through the decomposition of organic matter by bacteria. Biomethane is derived from purifying biogas and has a higher methane component. Law No. 14,134/2021 (“New Gas Law”) and Decree No. 10,712/2021 established similar treatment for natural gas and equivalent gases, allowing the injection of biomethane into the transportation pipelines and its introduction into the natural gas market.

There are also incentives for the sector at the federal level: Decree No. 11,003/2022 institutes the Federal Strategy to Encourage the Sustainable Use of Biogas and Biomethane, while MMA Ordinance No. 71/2022, issued by the Ministry of Environment and Climate Change (“MMA”), promotes the sustainable use of biogas and biomethane by creating the National Program for the Reduction of Methane Emissions (“Metano Zero”). In addition, GM/MME Ordinance No. 37/2022 amended MME Ordinance No. 19/2021 to include investments in biomethane in the Special Regime of Incentives for Infrastructure Development (“REIDI”).

From a regulatory perspective, ANP Resolution No. 906/2022 establishes the specifications of biomethane from organic agroforestry and commercial products. Similarly, ANP Resolution No. 886/2022 establishes the specifications of biomethane from landfills and sewage treatment plants to be used for vehicles and at residential, industrial, and commercial facilities. Both resolutions provide that producers must carry out the required analysis and issue a quality certificate on a daily basis.

As with ethanol and biodiesel, ANP Resolution No. 734/2018 also sets forth a list of authorized agents to whom a producer may market biomethane.



Sustainable Aviation Fuel ("SAF")

SAF is an alternative to the traditional aviation kerosene C ("QAV-C") and is obtained from renewable resources such as vegetable oils, biomass, animal fat and residual gases. SAF may be produced from several routes, including vegetable oil hydrotreatment, sugar fermentation, Fisher-Tropsch of coal or biomass, and alcohol oligomerization.

ANP Resolution No. 856/2021 provides for the specifications of fossil kerosene, alternative kerosene, and aviation kerosene C as well as quality control requirements to be met by agents. In addition to certain quality control requirements and reports, the resolution also establishes the maximum alternative kerosene percentage to add to fossil kerosene, which can be 10% or 50% depending on the type of SAF.



Programs

RenovaBio

RenovaBio is a national biofuels program launched by the Federal Government in 2016. The program is governed by Law No. 13,576/2017 and aims to expand the biofuels production and use, enhancing domestic market competitiveness and fostering energy security.

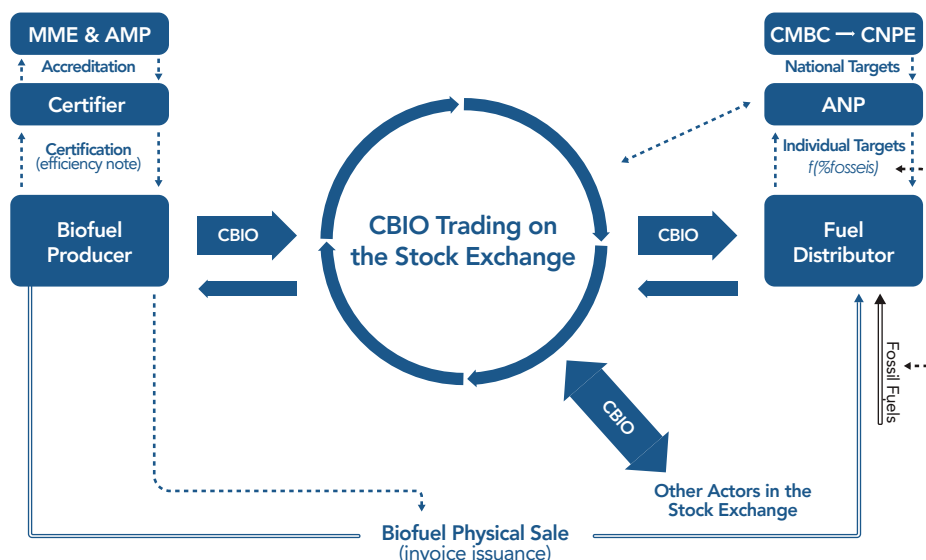
This policy is driven by with the key strategies for decarbonization targets, efficient bio-fuel production certification, and decarbonization credit (“CBIO”). The procedure is:

1. CNPE annually defines the decarbonization targets for a 10-year period.
2. ANP divides the targets into annual individual targets.
3. ANP applies the targets to fuel distributors according to their respective shares in the fossil fuels market in the previous year.
4. The fuel distributors must meet their assigned targets by acquiring CBIOs.

CBIOs are voluntarily issued by the producer, who must have their production certified in accordance with their respective energy and environmental efficiency ratings. Considering that each CBIO is equivalent to a ton of emissions not released to the atmosphere, the amount of CBIO that each producer can issue and sell in the stock exchange will vary according to the producer’s efficiency rating.

From a regulatory perspective, ANP Resolution No. 758/2018 provides for the Certificate of Efficient Biofuel Production, which includes the environmental efficiency ratings. ANP Resolution No. 802/2019 establishes the procedures for issuing CBIOs by the producer, and MME Normative Ordinance No. 56/GM/MME governs the bookkeeping, registration, negotiation and retirement of CBIOs.

RenovaBio’s Operation Scheme



Fuel of the Future

The Fuel of the Future Program (“Combustível do Futuro”) was established by CNPE Resolution No. 7/2021 to expand the use of sustainable and low-carbon fuels and integrate existing policies and programs related to these fuels in Brazil. The program also created a Technical Committee composed of 15 governmental institutions, including the MMA and the Energy Research Company (“EPE”).

The Technical Committee approved in August 2021 the creation of the following subcommittees: (i) Otto Cycle, to integrate the various public policies related to light vehicles; (ii) Diesel Cycle, in connection with the inclusion of biofuels in the Diesel Cycle; (iii) ProBioCCS, to propose a legal framework for carbon capture and storage associated with biofuel production; (iv) ProBioQAV, to introduce sustainable aviation kerosene into the energy matrix; (v) Marine Fuels, with the purpose of promoting the use of sustainable fuels in marine transportation; and (vi) Research, Development and Innovation, to develop guidelines related to renewable fuels.

Among the contributions of the program so far are:

- A report on the technical evaluation of requirements for the development of ethanol fuel cell technology (from the Otto Cycle subcommittee)
- An evaluation of technical and economic conditions for large-scale production of second generation ethanol (by the Otto Cycle subcommittee)
- Specifications of the fuels (from the Otto Cycle subcommittee)
- A report containing recommendations on the best available alternatives for sustainable marine fuels at a national level (from the Marine Fuels subcommittee)
- An economic analysis of different routes of sustainable aviation fuels production (from the ProBioQAV subcommittee)
- A technical note on a bill that aims to promote sustainable mobility through the integration of related public policies



The Federal Government submitted to the parliament on September 15, 2023, the Fuel of Future Bill of Law (Bill of Law No. 4,516/2023), which would establish certain initiatives to decarbonize the transportation matrix by fostering the use of sustainable low-carbon-intensity fuels.

Based on the current Bill of Law No. 4,516/2023, the Fuel of Future Program would contemplate:

- Instituting a National Sustainable Aviation Fuel Program - PROBIOQAV
- Instituting a National Green Diesel Program - PNDV
- Regulating CCS activity
- Modifying the maximum and minimum ethanol percentage in gasoline sold to the end consumer
- Regulating the e-fuel supply chain
- Integrating RenovaBio, Route 2030, and Brazilian Vehicle Registration programs



For Further Reference

Our Previous Publications

-  [Brazil: Incentives for the Biofuels Market](#)
 -  [Brazil: CNPE Creates Working Group to Analyze Inclusion of Diesel Cycle Biofuels in National Energy Policy](#)
 -  [Brazil's CNPE Establishes Guidelines for New Biodiesel Marketing Model](#)
 -  [RenovaBio - publicação da Resolução ANP nº 802/2019 - lastro para emissão de CBios](#)
 -  [RenovaBio: Revisão das metas compulsórias anuais de redução de gases de efeito estufa](#)
 -  [Decree No. 10,940/2022: CNPE Responsible for Gasoline Composition](#)
-  [Brazil Launches Federal Strategy to Incentivize the Sustainable Use of Biogas and Biomethane and Methane Zero Program](#)
 -  [Expectativas quanto à Política Federal de biogás e biometano](#)
 -  [State Law No. 9,635/2022: State of Rio de Janeiro Reduces ICMS on Biogas and Biomethane Transactions](#)
 -  [Decarbonization Credits \(CBIOs\): Ministry of Mines and Energy Sets Forth New Rules for Bookkeeping, Registration, Negotiation and Retirement](#)

Contact Us

We will continue to monitor this topic and keep you informed.



Bruno Belchior

Partner

+55 21 2127 4205

bbelchior@mayerbrown.com

Rio de Janeiro



Henrique Rojas

Associate

+55 21 2127 4208

hrojas@mayerbrown.com

Rio de Janeiro



Bárbara Leite

Associate

+55 21 2127 1657

bleite@mayerbrown.com

Rio de Janeiro



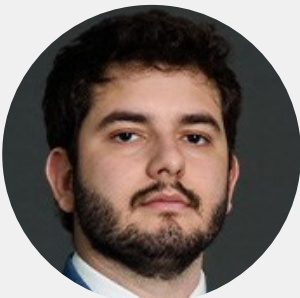
Gabriela Martelo

Associate

+55 21 2127 1634

gmartelo@mayerbrown.com

Rio de Janeiro



Guilherme Galiuzzi

Associate

+55 21 2127 1645

ggaliuzzi@mayerbrown.com

Rio de Janeiro

Our Team

Alexandre Chequer
achequer@mayerbrown.com

Tiago Macêdo
tmacedo@mayerbrown.com

Gonçalo Falcão
gfalcao@mayerbrown.com

Olavo David
odavid@mayerbrown.com

Julia Braga
jbraga@mayerbrown.com

Vital Neto
vneto@mayerbrown.com

Gabriela Martelo
gmartelo@mayerbrown.com

Bruno Belchior
bbelchior@mayerbrown.com

Débora Yanasse
dyanasse@mayerbrown.com

Juliana Senna
jsenna@mayerbrown.com

Henrique Rojas
hrojas@mayerbrown.com

Bruno Ribeiro
bribeiro@mayerbrown.com

João Rodrigues
jrodrigues@mayerbrown.com

Guilherme Galiazzi
ggaliazzi@mayerbrown.com

Victor Galante
vgalante@mayerbrown.com

Paulo Rage
prage@mayerbrown.com

Norman Nadorff
nnadorff@mayerbrown.com

Leandro Duarte
lduarte@mayerbrown.com

Bárbara Leite
bleite@mayerbrown.com

Caio Souza
csouza@mayerbrown.com

Rebeca Liareno
rliareno@mayerbrown.com

Brasília

SCS Quadra 9, Bloco A, Torre B,
Ed. Parque Cidade Corporate,
Salas 503/504
Brasília - DF
70308-200

T + 55 61 3221 4310
F + 55 61 3221 4311



Rio de Janeiro

Av. Oscar Niemeyer, 2.000
Aqwa Corporate, 15º andar
Rio de Janeiro - RJ
20220-297

T +55 21 2127 4210
F + 55 21 2127 4211



São Paulo

Av. Presidente Juscelino
Kubitschek, 1.455
6º andar
São Paulo - SP
04543-011

T +55 11 2504 4210
F +55 11 2504 4211



Vitória

Av. Nossa Senhora dos
Navegantes, 451
17º andar, Conj 1703
Vitória - ES
29050-335

T +55 27 2123 0777
F + 55 27 2123 0780



Mayer Brown is a global services provider comprising associated legal practices that are separate entities, including Mayer Brown LLP (Illinois, USA), Mayer Brown International LLP (England), Mayer Brown (a Hong Kong partnership) and Tauil & Chequer Advogados (a Brazilian law partnership) (collectively the "Mayer Brown Practices") and non-legal service providers, which provide consultancy services (the "Mayer Brown Consultancies"). The Mayer Brown Practices and Mayer Brown Consultancies are established in various jurisdictions and may be a legal person or a partnership. Details of the individual Mayer Brown Practices and Mayer Brown Consultancies can be found in the Legal Notices section of our website. "Mayer Brown" and the Mayer Brown logo are the trademarks of Mayer Brown.

© 2024 Mayer Brown. All rights reserved.

Attorney Advertising. Prior results do not guarantee a similar outcome.

Americas | Asia | EMEA

tauilchequer.com.br | mayerbrown.com