

## **ELEVENTH EDITION OF THE BIOFUELS CONJUNCTURE ANALYSIS**

The Analysis of Biofuels' Current Outlook, one of the main publications of Empresa de Pesquisa Energética – EPE (Energy Research Office) presents the relevant facts occurred in the year prior to its publication. This eleventh edition highlights the new historical records for ethanol and biodiesel production in 2019 and the important actions for RenovaBio implementation.

The main themes covered annually in this document are: supply and demand of ethanol and its production and transportation infrastructure; participation of biomass in the electric national matrix; biodiesel market and the international market for renewable fuels, in addition to new biofuels. This year, the traditional article published with the edition brings as a central theme the productive integration between energy and food and the resilience of the agro-energy sector, through a brief assessment of Covid-19 pandemic impacts on the biofuels sector.

In 2019, ethanol production grew 11% compared to 2018, reaching a new record of 36 billion liters. The main factors for this increase were the maintenance of a low international sugar prices level and the relationship between the average prices of hydrated ethanol and gasoline C, more advantageous to the biofuel. It shall be pointed the maintenance of sugar production level at 30 million tons, although the reduction of 14% in its exports. It is also important to note the 85% growth in corn ethanol production compared to 2018, reaching 1.3 billion liters. Therefore, the country returned to a positive balance in the international ethanol trade after 2 years of setbacks.

The hydrous ethanol average price observed this year decreased 4.1% compared to the previous year, while gasoline C was 4.5% more competitive, showing that the hydrous ethanol price's behavior, over the months, was similar to that observed for the fossil fuel, which resulted in stabilization of (EP / GP), in relation to 2018.

In 2019, 2.7 million new light vehicles were licensed in Brazil, so 7.7% more than in 2018, which represents the third increase in annual light vehicle licensing, hence, returning to the level of 2008. The relative price (EP / GP), this year remained favorable to the biofuel in several states, with the national average ratio stable at 66%. Thus, while gasoline C consumption remained stable at 38 billion liters, the demand for hydrous ethanol raised 15.5%, reaching 23.2 billion liters, which resulted in a 4.6% increase in total Otto cycle demand.

This year, Brazilian fleet of Otto cycle light vehicles grew 1.5%, totaling 38 million units, with flex fuel technology representing 78.4%.

Bioelectricity from sugar-energy plants injected into the National Interconnected System reached 2.6 GW<sub>med</sub> in 2019, 3.4% higher than 2018.

In relation to biodiesel, the mandatory percentage was raised to 11% in September 2019, according to the schedule provided for in the legislation. In this way, its production registered a new record of 5.9 billion liters, 11.3% higher than 2018. It is noteworthy that discussions on the regulation of green diesel started, in order to make its specifications feasible, thus allowing its trade in the country.

Emissions avoided by the use of ethanol, biodiesel and sugarcane bioelectricity in 2019 were 53 MtCO<sub>2</sub>eq, 16 MtCO<sub>2</sub>eq and 3 MtCO<sub>2</sub>eq, respectively, adding up to 72 MtCO<sub>2</sub>eq.

Among the new biofuels, HVO (Hydrotreated Vegetable Oil) and aviation BioQAV (biokerosene) deserve special attention. In the case of HVO, the document presents the characteristics that may influence its penetration in Brazilian fuel market. As for BioQAV, there are industrial and economic challenges so that it can become competitive in face of aviation kerosene of fossil origin, in Brazil and in world. It underpins a pilot project to be implemented in the coming years.

Concerning biogas, the installed capacity in distributed generation doubled from 2018 to 2019, reaching 37 MW, using as input mainly agroindustrial, animal and waste residues. In addition, its participation in the internal energy supply, although derisory (0.1%), has been growing by 23% p.y. in the last five years.

The year of 2019 was important to implement the National Biofuels Policy - RenovaBio. In January, the Agência Nacional de Petróleo, Gás Natural e Biocombustíveis – ANP (National Agency of Petroleum, Natural Gas and Biofuels) approved the accreditation of the first inspecting firm for the Certification of Efficient Biofuel Production. In order to put this policy into practice, several actions were taken by agents involved with regard to: the annual carbon intensity reduction targets, the targets for each distributor, the biofuels accreditation and the generation of financial underlying for the Decarbonization Credit.

Finally, the Analysis of Biofuels' Current Outlook in this edition addresses a very current theme in the article entitled "The agroenergetic sector and its resilience: the impacts of Covid-19". Throughout the article it is possible to observe that the existence of a high interrelation between agricultural and biofuels production brings countless positive developments, in addition to increasing sectoral resilience, which makes the impacts of this exceptional situations, such as the Covid-19 pandemic, be better supported by this sector than others of the economy.

The eleventh edition of the Analysis of Biofuels' Current Outlook of the Empresa de Pesquisa Energética (EPE) - is available on the EPE's website, at [www.epe.gov.br](http://www.epe.gov.br) .