NINETH EDITION OF ANALYSIS OF BIOFUELS' CURRENT OUTLOOK

EPE presents its nineth edition of Analysis of Biofuels' Current Outlook, with the most relevant facts occurred in 2017.

The main topics of this bulletin are: the supply and demand of ethanol and its production and transportation infrastructure, the participation of bioelectricity in the national energy matrix and the biodiesel market. The last section of the document contains an article addressing the RenovaBio, its goals and possible unfolding, as well as the work developed from EPE to subsidize the Ministry of Mines and Energy in its elaboration.

The enactment of the National Biofuels Policy was the major highlight of 2017. Its main objective acknowledges the strategic role of biofuels in the Brazil's energy matrix, regarding the energy security and the mitigation of greenhouse gases in the fuel sector.

This edition shows that the combination of several factors provided a contraction in the sugarcane segment: the sugarcane processing reached 636 million tonnes, 5.3% lower than the previous year. The decline in the average price of sugar on the international market reduced the attractiveness for its production, which dropped 2%, reaching 38 million tonnes. The production of ethanol reduced, totaling 27.7 billion liters, shrinkage of 3.2%. The document emphasizes the first negative impact in the trade balance for this biofuel. Even with the approval of 72th CAMEX Resolution in August, Brazil became net ethanol importer, especially sourced from United States.

These factors were responsible for the first negative balance in the foreign trade of this biofuel.

The area marked to the sugar-energy sector lowered 3.5% compared to the previous harvest, reaching 8.7 million hectares. However, the average age of sugarcane maintained the high level, with perspective for better results in the next harvest, as was observed an increase of 18% in the cultivation area. The agricultural productivity stayed at the same plateau, 72.5 tc/ha, and, also considering the downsizing in area, reduced the amount of sugar cane available for harvest. Sugarcane yield increased by 2.7% to 138.2 kg ATR/tc in the 2017/18 crop.

The chapter dedicated to the demand for ethanol addresses the licensing of light vehicles and motorcycles, which presented the first rise (9.4%), after four years of fall in a row. Thus, Otto Cycle fuel demand grew 1.9% comparing with 2017, reaching 54.5 billion liters of equivalent gasoline. The share of the flex fuel category in the national light vehicles fleet represented 74% in 2017.

In 2017, there was a rise in ethanol prices, driven mainly by its lower supply. The relationship between average prices of hydrated ethanol and C gasoline (EP/GP)[1] remained unfavorable to biofuel in several states, and the national average ratio remained frozen at 71%. Thus, while consumption of C gasoline grew by 4%, rising to 44.3 billion liters, the demand for hydrous ethanol decreased 7%, reaching 14.5 billion liters.

The chapter on bioelectricity acknowledges that the amount of energy injected by sugarcane plants into the Interconnected National System SIN[2] in 2017 was very close to the observed in 2016, reaching 2.4 GWméd, exceeding it only by 0.9%.

Regarding biodiesel, the mandatory participation in fossil diesel was risen to 8% in March 2017, according Law 13,263/2016. The percentage of 10% was early applied by one year, in effect since March 2018. The production of this biofuel was 4.3 billion liters, 13% hiker than 2016.

In the item New Biofuels, it is described that the development of 2G ethanol still have constraints to be solved, particularly at pre-treatment and lignin filtration, that will allow the availability of this biofuel at great volumes and competitive prices. On the other hand, the technology HVO (Hydrotreated Vegetable Oil), which enables the production of fuels drop in, have been evolving globally. Focusing on biokerosene for aviation, international agreements can induce to the competitive production of this biofuel. This means an opportunity to Brazil, due to its enormous availability of raw material.

The use of liquid biofuels contributed to avoiding the emission of 57 $MtCO_{2eq}$ in 2017. Bioelectricity also contributed to avoiding the emission of 3.3 $MtCO_2$ in this year. This contribution is relevant in face of the international agreements signed by Brazil to reduce GHG emissions.

The nineth edition of the Analysis of Biofuels Current Outlook closes with an article discussing the National Biofuels Policy. The document presents RenovaBio as an initiative aiming to value the national potential in renewable sources and promote the adequate expansion of the production and use of biofuels, emphasizing the regularity of fuel supply. This modern public policy consist in the biofuel positive environmental externalities valuation by the structure of de-carbonization's target, converging to the

[1] EP/GP – Ethanol prices / Gasoline prices.

[2] SIN is a system of production and transmission of electricity in Brazil that includes the South, Southeast, Center-West, Northeast and part of North region.

international environmental agreements signed by Brazil in the framework of climate change.

Diverse actions from EPE aims to assist the MME to reach success in the RenovaBio implementation. The long term predictability for the biofuels sector will depend on the appropriate balancing of de-carbonisation targets for fuel market players and civil society, aiming to ensure energy security and the better social-environmental return, both to civil society and to market agents.

The nineth edition of Analysis of Biofuels' Current Outlook is available at EPE's web site: **www.epe.gov.br**.