



Empresa de Pesquisa Energética

Investments and Operating and Maintenance Costs in the Biofuel Sector: 2024 - 2033

December 2023 – Technical Note



Disclaimer



This report presents Energy Research Office's (EPE) view on future events regarding the short-term outlook for the fuel market in Brazil. However, such projections involve a wide range of known and unknown risks and uncertainties and, therefore, the data, analysis, and any other information contained in this document is not a guarantee of future achievements and events.

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Finally, it is worth noting that this document is subject to revision.

Investments in Biofuels



*Investments in biofuels distribution and sale are not considered.
Operating and maintenance costs are not considered.
** Authorized expansion are those indicated by ANP.
***Exchange rate: R\$4,91/US\$ (December/2023 average) (BACEN, 2024).

Source: EPE, 2023

Investments and Operating and Maintenance Costs in the Biofuel Sector



Sugarcane Ethanol (1G)

Projects: **1 greenfield: 300 million liters**
Authorized expansion: 2.3 billion liters

Investments: **R\$ 6.2 billion**



Corn Ethanol

Projects: **Greenfields/expans.: 5.9 billion liters**
Authorized expansion: 700 million liters

Investments: **R\$ 15.5 billion**



Biodiesel

Projects: **8 units e 12 expansions**
(capacity of 1.8 billion litros/year)
8 soybean processing units
(5.8 Mt/year total capacity)

Investments: **R\$ 5.2 billion**



SAF/HVO

Projects: **Total of 2.2 billion liters/year**

Investments: **R\$ 15.7 billion**

2G Second Generation Ethanol

Projects: **13 greenfields: 1.1 billion liters**
(average capacity: 82 million liters/year)

Investments: **R\$ 15.6 billion**



Ethanol Transportation

Projects: **Capacity of 9 billion liters/year**

Investments: **R\$ 2.2 billion**



Sugarcane Field Formation

Sugarcane
Field Renewal: **616 Mtc entre 2024 e 2033**

Investments: **R\$ 23.2 billion**



Biogas (from sugarcane residues)

Projects: **4 units from sugarcane residues**
(production capacity of 71 million Nm³ /year)

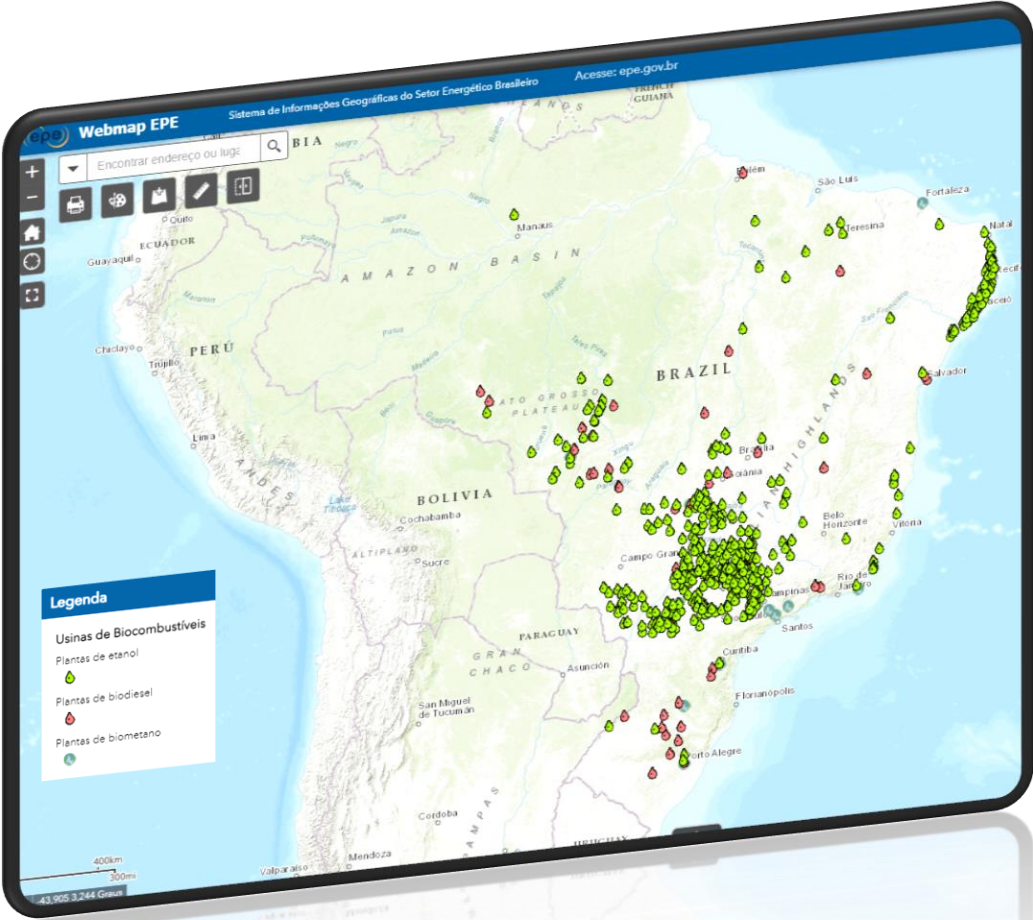
Investments: **R\$ 840 million**
Nota: sector potential: R\$ 72.3 billion until 2033



**Estimated investments for the biofuels
sector in Brazil: 2024-2033**

**R\$ 84 billion
US\$ 17 billion**

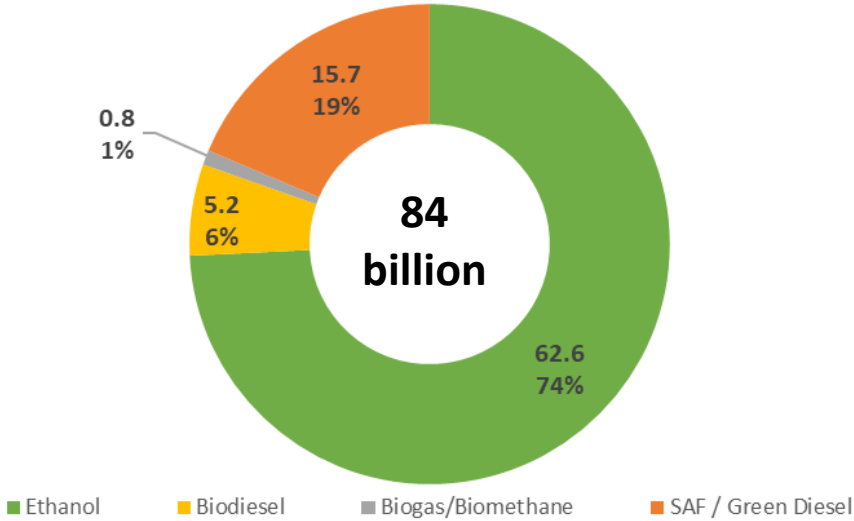
Impact on economic activity (GDP)



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CAPEX for biofuels between 2024 and 2033
(Billion R\$ and %)



	CAPEX (R\$ Billion)	OPEX (R\$ Billion)
Ethanol	62.6	746.2
Biodiesel	5.2	92.8
Biomethane ¹	0.8	0.1
SAF / Green Diesel	15.7	n/e
TOTAL	84.3	839

Note 1: For biomethane, only projects in **construction** are considered.



Operating costs for the biofuels sector in
Brazil: 2024-2033

R\$ 839 billion
US\$ 171 billion



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