



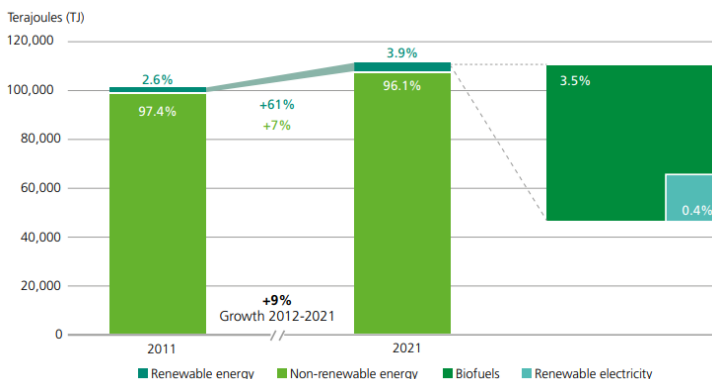
# BIOETHANOL:

## FAST TRACK TO MOBILITY DECARBONIZATION

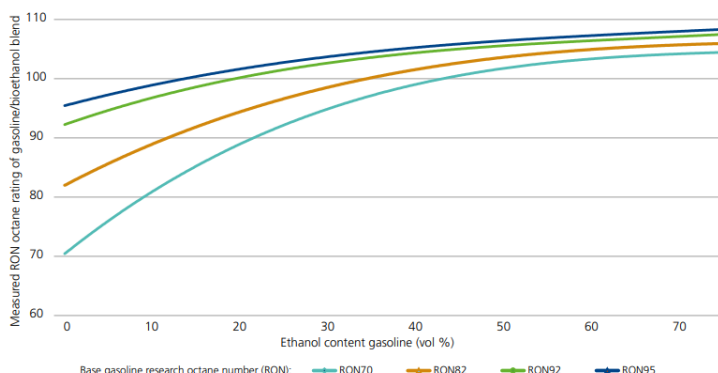
### Bioethanol can replace fossil fuels immediately

Accelerating the energy transition and decarbonization in mobility is an urgent matter. Replacement of fossil fuels by renewable energy sources has advanced worldwide, in almost all sectors. However, the transportation of people and goods, predominantly by road (77%), remains heavily dependent on fossil fuels.

Renewable share of total final energy consumption in transport, all modes, 2011 and 2021



Effect of bioethanol blending on the RON octane rating of gasoline

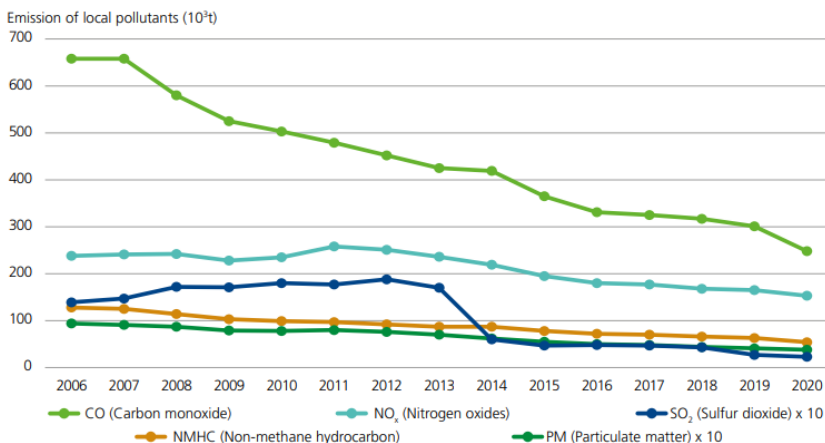


### Bioethanol improves engine performance

Its high oxygen content (around 35% by mass of bioethanol) brings important advantages. Due to its partial oxidation, bioethanol combustion requires 40% less air compared with gasoline, which increases engine torque and power, in addition to reducing pollutant emissions.

### Air quality benefits of bioethanol as fuel

Evolution of vehicle pollutant emissions in São Paulo state

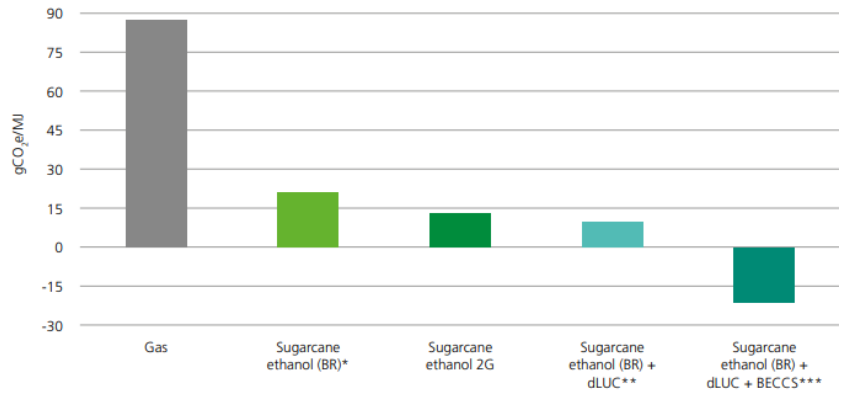




## The potential for mitigating bioethanol emissions could reach near-zero or even negative emissions

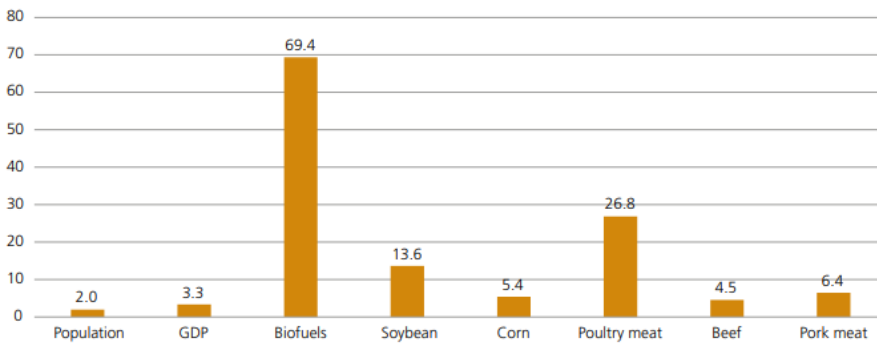
Since 2003, it is estimated that bioethanol has prevented the emission of approximately 600 million tons of CO<sub>2</sub> in Brazil.

Estimated carbon footprint of sugarcane bioethanol incorporating different mitigation strategies (approximate values)



\*Produced in Brazil (BR)  
 \*\*Direct Land Use Change (dLUC)  
 \*\*\*Bioenergy with carbon capture and storage (BECCS)

Multiplication of Brazilian population, GDP, and agricultural production from 1975 to 2021



**Food and bioenergy production increased simultaneously**

**Bioenergy production pushes regional development**

Want to know more?  
Access the summary for policy makers here!



Even with the high degree of mechanization in sugarcane, corn and soybean crops in Brazil, **biofuel production generates 5.86 times the number of jobs per energy output** compared to oil refining.