

# Anfavea

Brazilian Automotive  
Industry Association

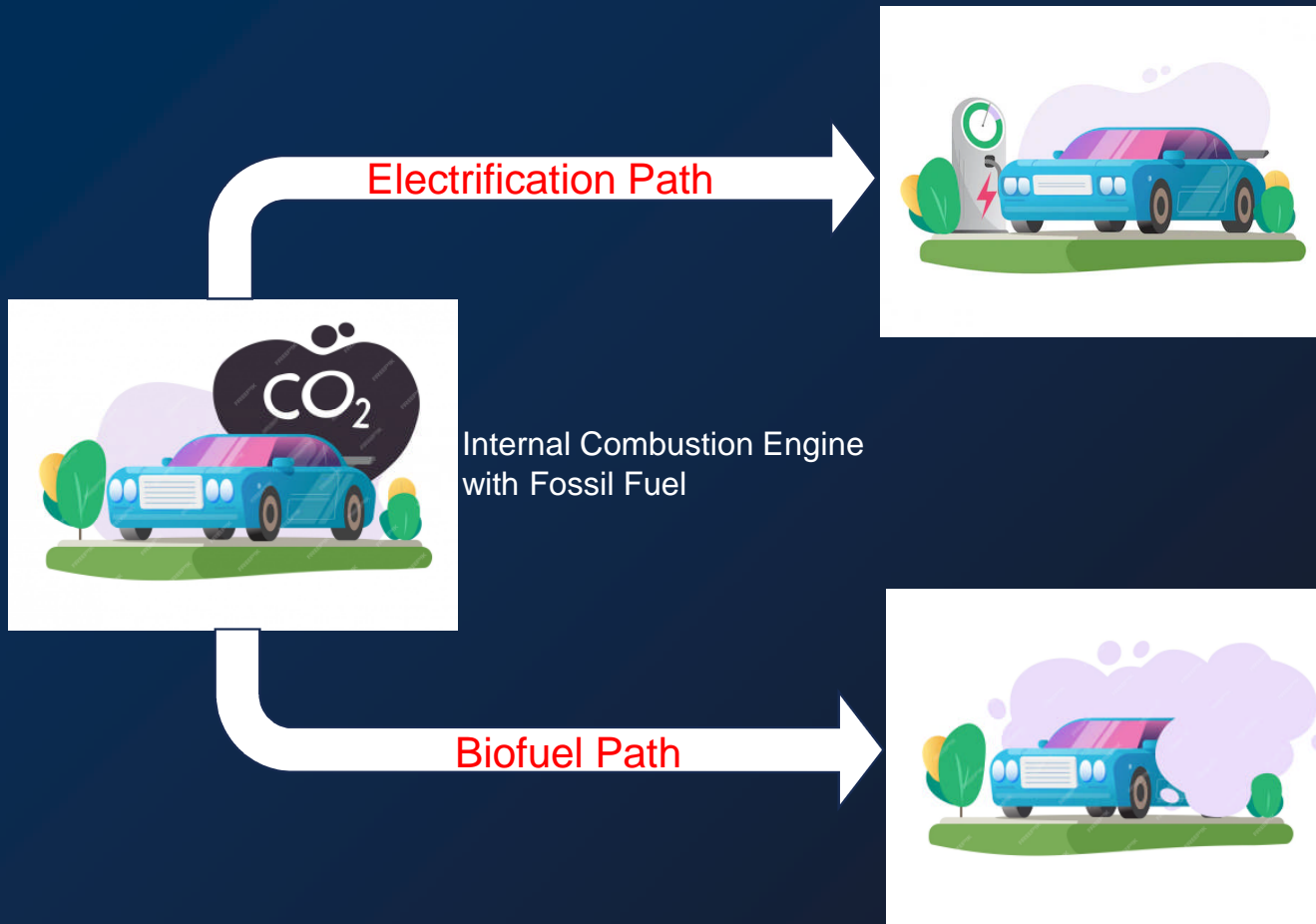


## Diversity in Carbon Neutrality

# How Brazil Is Playing This Game on the Automotive Sector



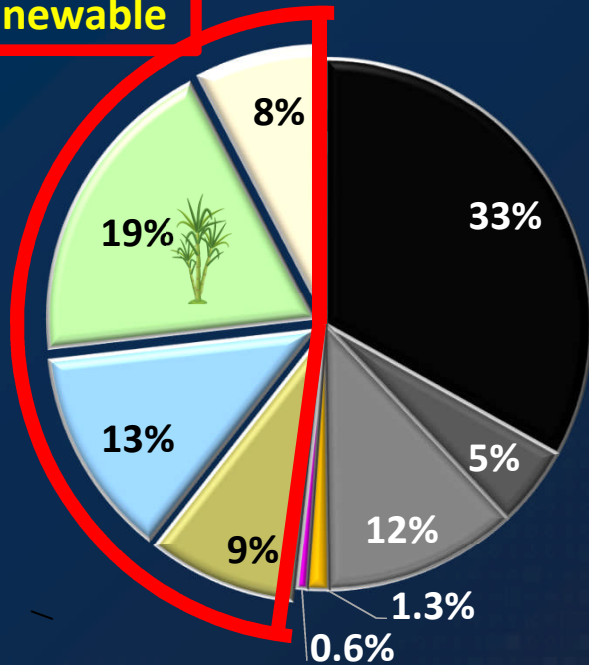
# Vehicles Emission Decarbonization Paths



# Brazilian energy matrix

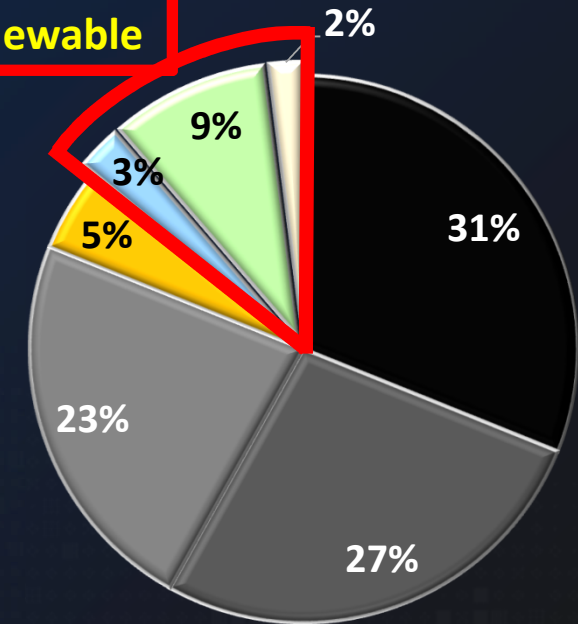
## Brazil

**48%  
Renewable**



## World

**14%  
Renewable**

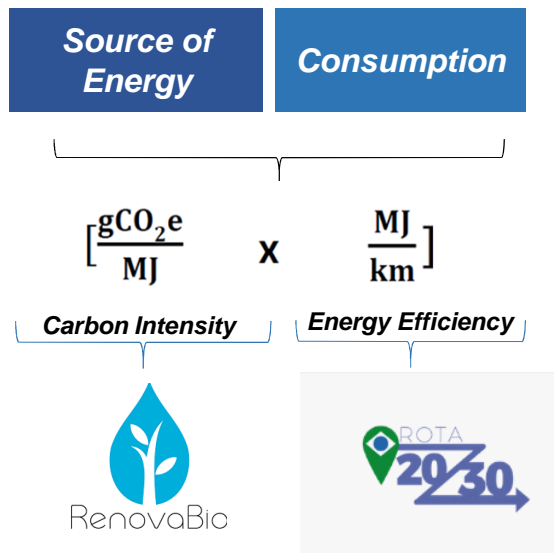


- Oil and derivatives
- Mineral coal
- Natural gas
- Nuclear
- Other non-renewable
- Firewood and charcoal
- Hydraulics
- Biomass / Sugar cane
- Other renewable

# “From Well to Wheel” Concept

**CO<sub>2</sub>e =**

## Vehicle Use



Carbon Intensity	
	gCO <sub>2</sub> e/MJ
Ethanol	24,63
Gasoline	74,30
Natural Gas	86,70
Diesel Oil	77,60
Electricity	22,58

Source: [https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-708/NT-EPE-DPG-SDB-2022-03\\_Intensidade\\_de\\_carbono\\_Transporte\\_Rodoviario.pdf](https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-708/NT-EPE-DPG-SDB-2022-03_Intensidade_de_carbono_Transporte_Rodoviario.pdf)

# Targets for the sources of energy



**Target: To reduce the carbon intensity of Fuels**

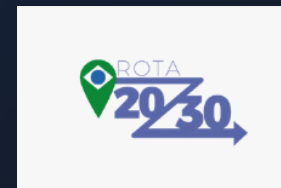
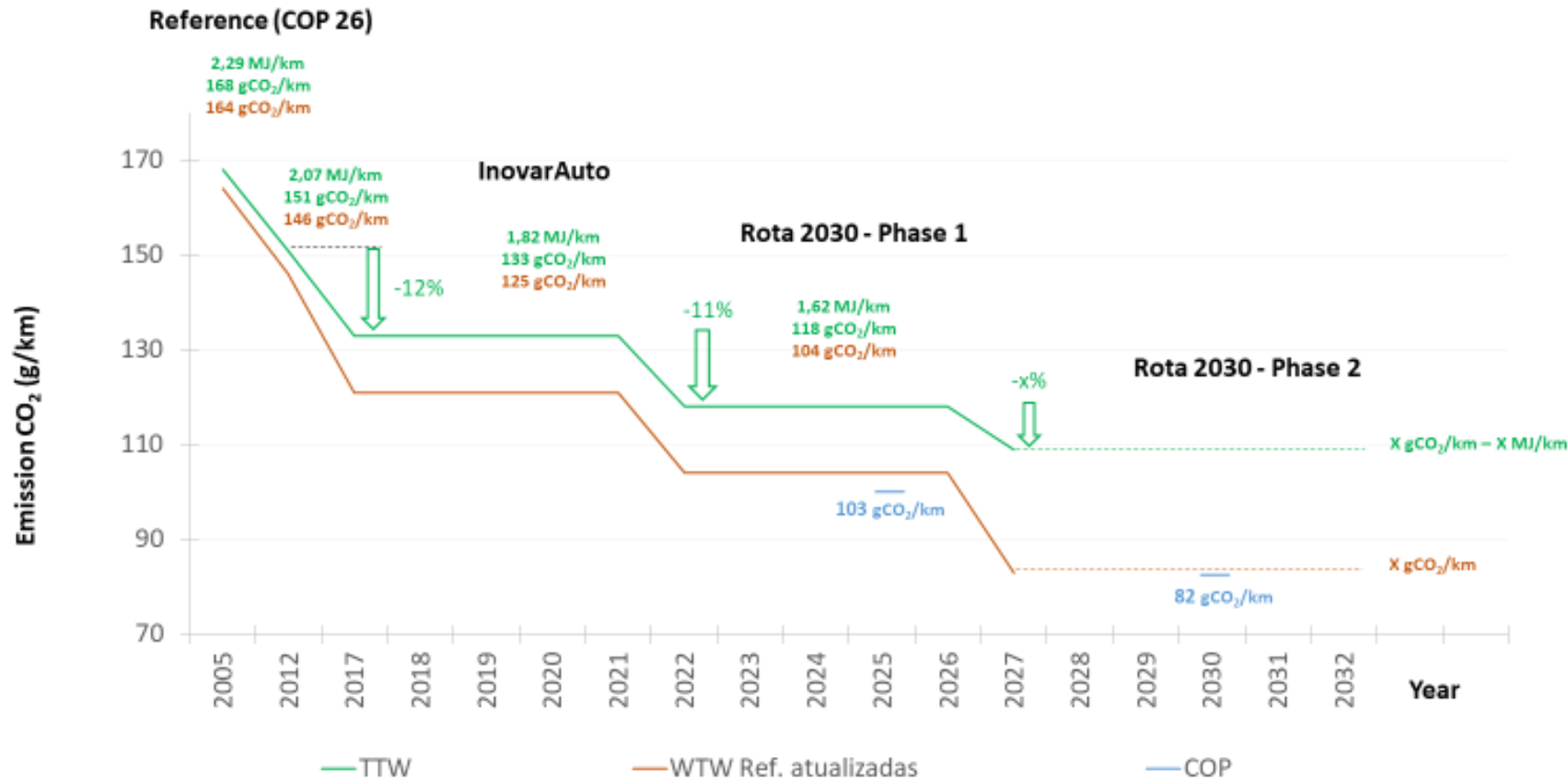
Law nº 13.576/2017

## Evolution of Carbon Intensity of Energy Sources (gCO<sub>2</sub>eq/MJ)

Energy Source	2019	2020	2027	2032
Ethanol	28,45	28,52	24,63	21,61
Gasoline	77,54	75,07	74,30	73,73
Natural Gas	86,70	86,70	86,70	86,70
Diesel Oil	80,45	79,84	77,60	77,26
Electricity	34,22	31,77	22,58	26,62

Source: [https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-708/NT-EPE-DPG-SDB-2022-03\\_Intensidade\\_de\\_carbono\\_Transporte\\_Rodoviario.pdf](https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-708/NT-EPE-DPG-SDB-2022-03_Intensidade_de_carbono_Transporte_Rodoviario.pdf)

# Targets for Energy Efficiency and CO<sub>2</sub> Emission (CO<sub>2</sub>eq/km)



Law nº 13.755/2018



**Thank you!**