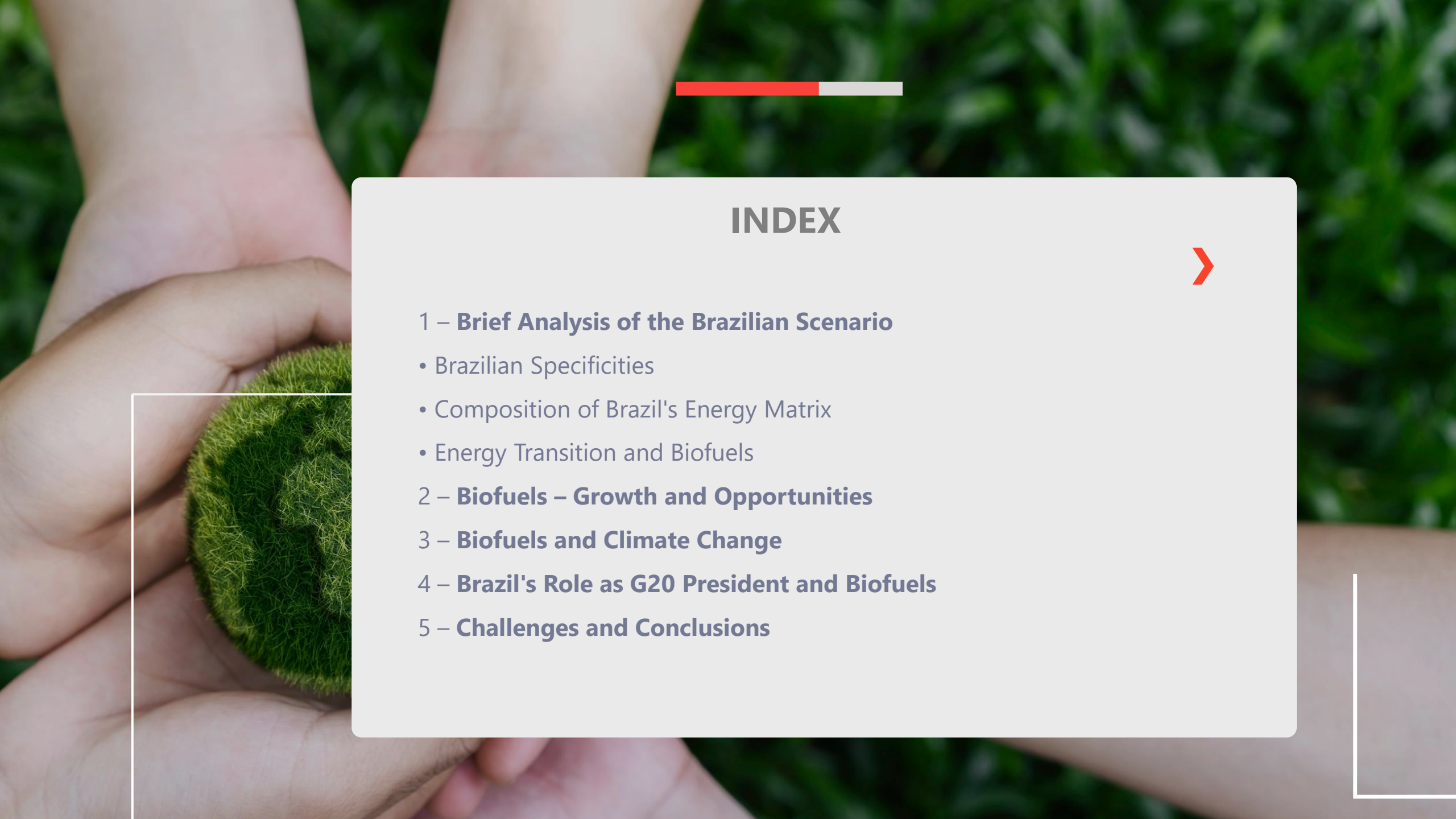
BIOFUELS IN BRAZIL

Brazilian Chamber of Commerce

for Great Britain A&O SHEARMAN



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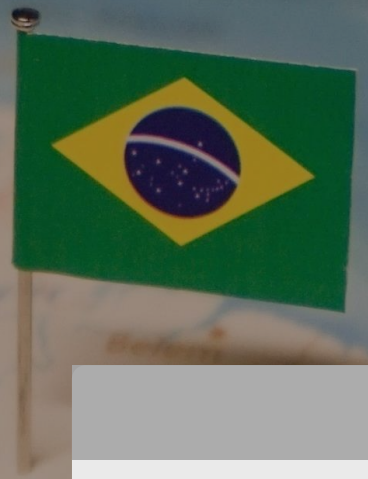
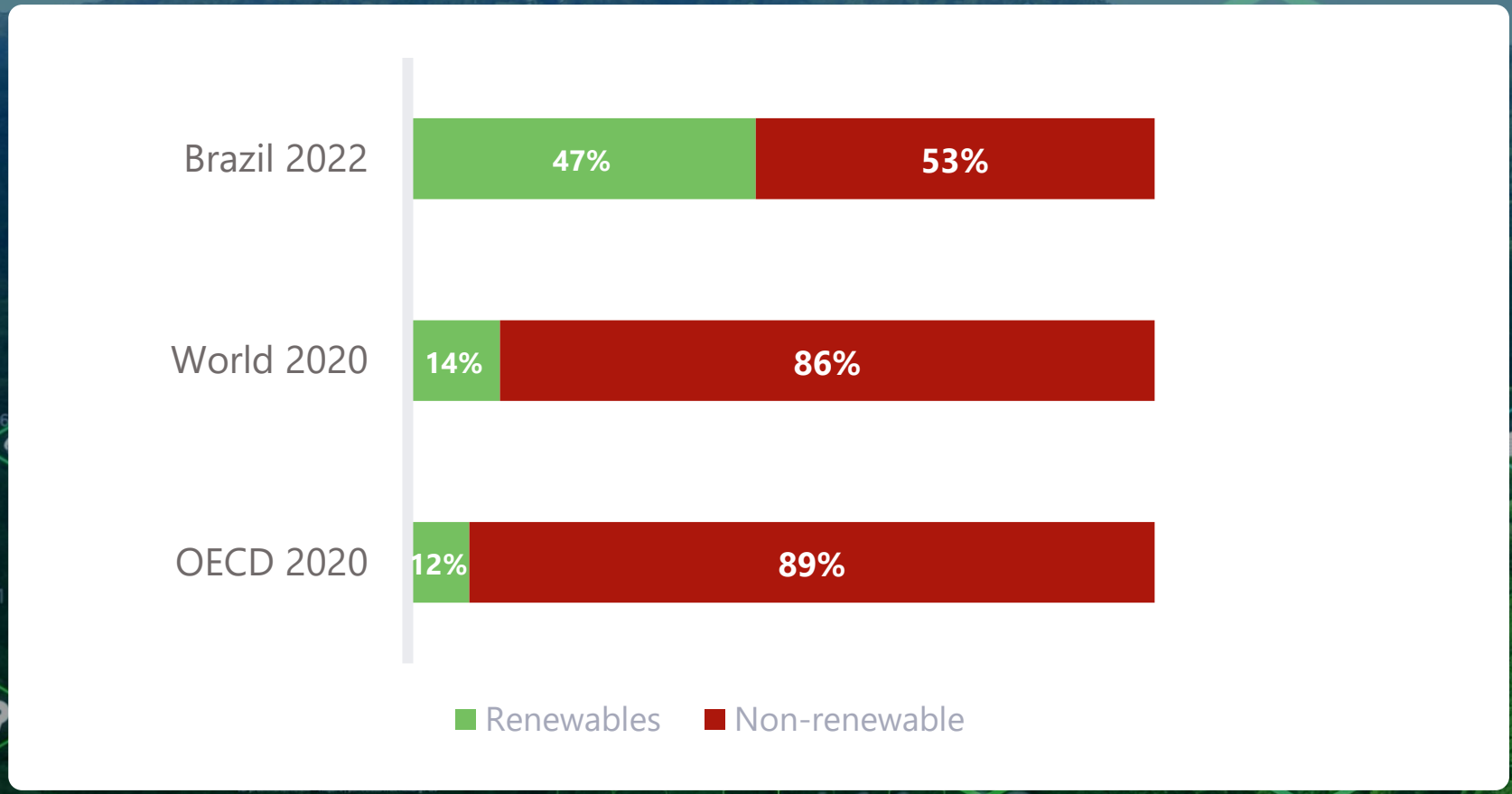
OPENING REMARKS

Brazil's Energy Matrix and the Transition to Renewable Sources



A country's energy matrix represents the set of energy sources used to supply the society's energy demand. The composition of this matrix is fundamental to understanding the environmental, economic, and social impacts related to energy production and consumption.

When discussing the reduction of fossil fuel use, it is essential to analyze the energy matrix. Biofuels, such as ethanol and biodiesel, emerge as promising alternatives, as they can partially replace petroleum derivatives in various sectors, such as transportation and industry.

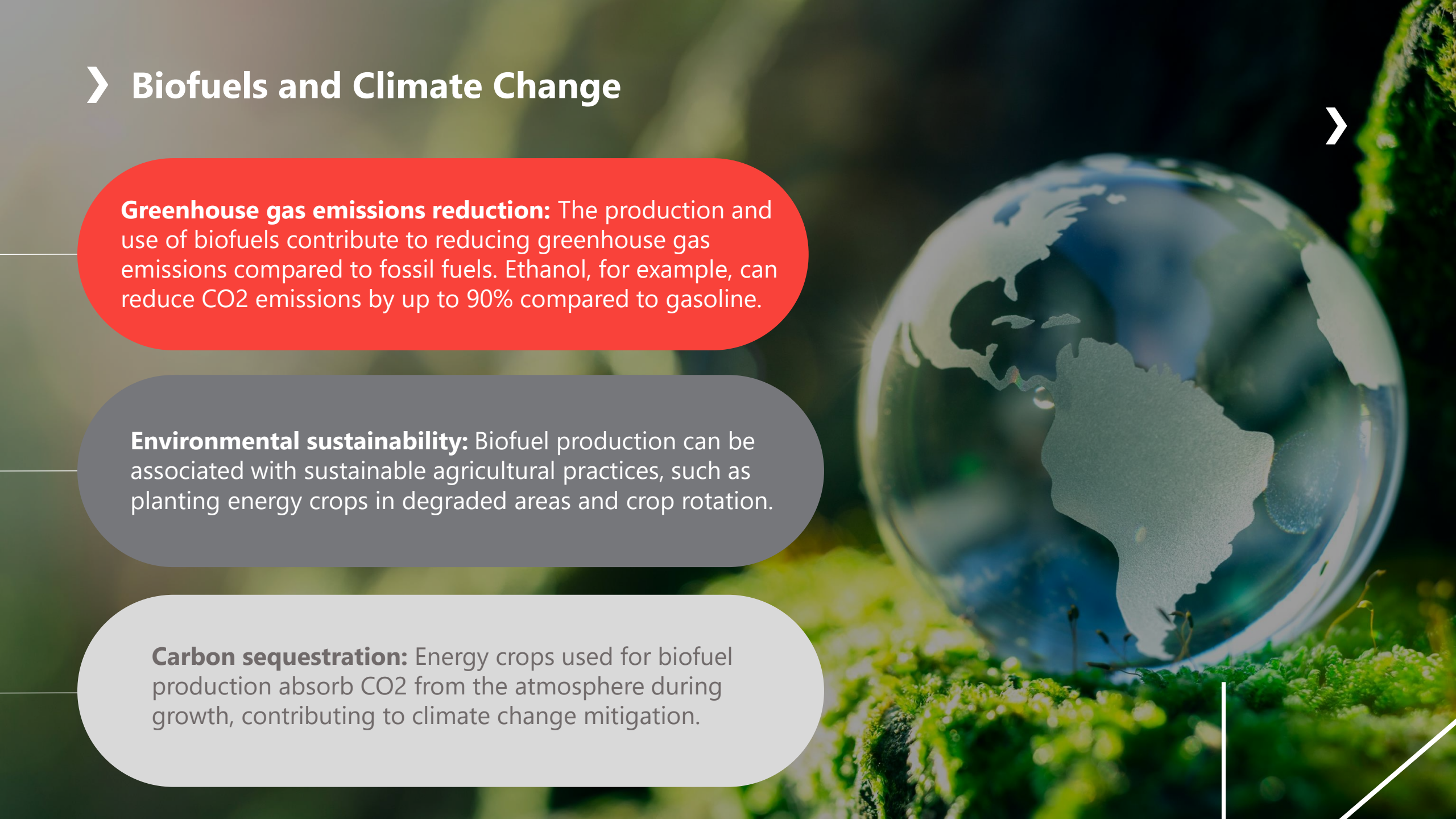

Brazil 2022
47%
53%
World 2020
14%
86%
OECD 2020
12%
89%
Renewables
Non-renewable

Biofuels and Climate Change

Greenhouse gas emissions reduction: The production and use of biofuels contribute to reducing greenhouse gas emissions compared to fossil fuels. Ethanol, for example, can reduce CO2 emissions by up to 90% compared to gasoline.

Environmental sustainability: Biofuel production can be associated with sustainable agricultural practices, such as planting energy crops in degraded areas and crop rotation.

Carbon sequestration: Energy crops used for biofuel production absorb CO2 from the atmosphere during growth, contributing to climate change mitigation.

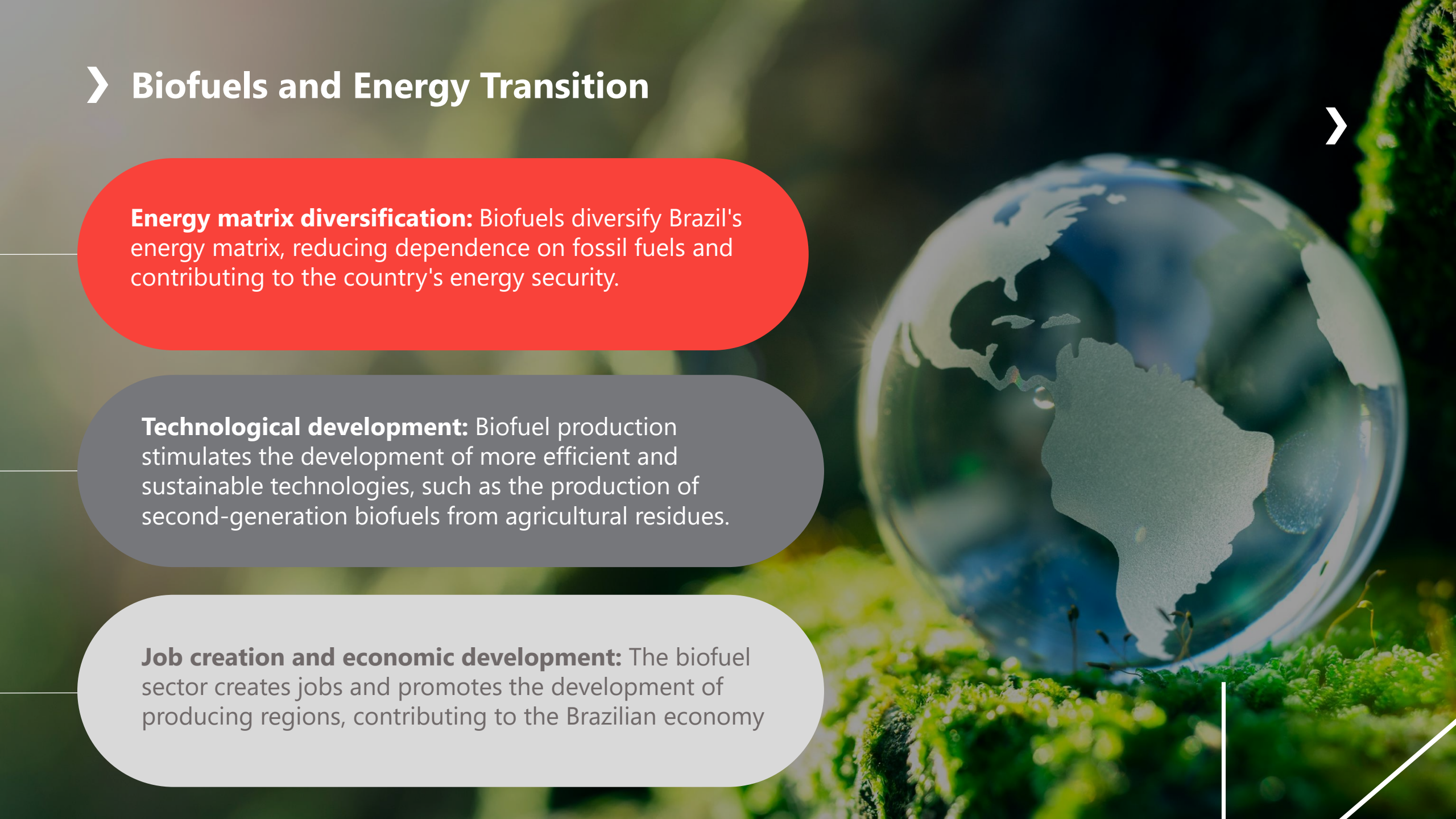


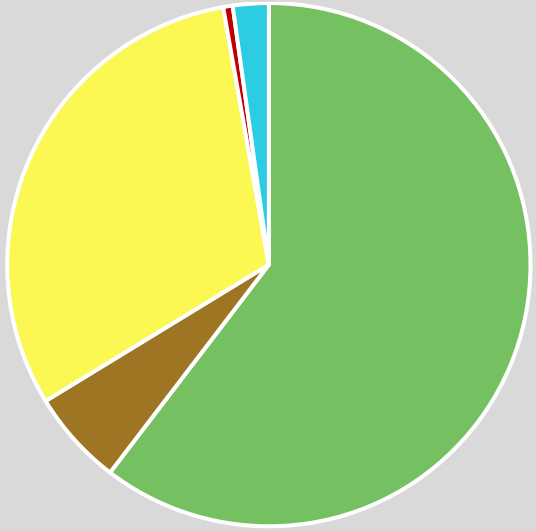
Biofuels and Energy Transition

Energy matrix diversification: Biofuels diversify Brazil's energy matrix, reducing dependence on fossil fuels and contributing to the country's energy security.

Technological development: Biofuel production stimulates the development of more efficient and sustainable technologies, such as the production of second-generation biofuels from agricultural residues.

Job creation and economic development: The biofuel sector creates jobs and promotes the development of producing regions, contributing to the Brazilian economy





	%	
	59,07	Forest
	2,15	Water
	0,80	Bare/Open Land
	5,40	Swampy areas with shrubby or herbaceous vegetation, and saline marshes
	32,52	Plantable area

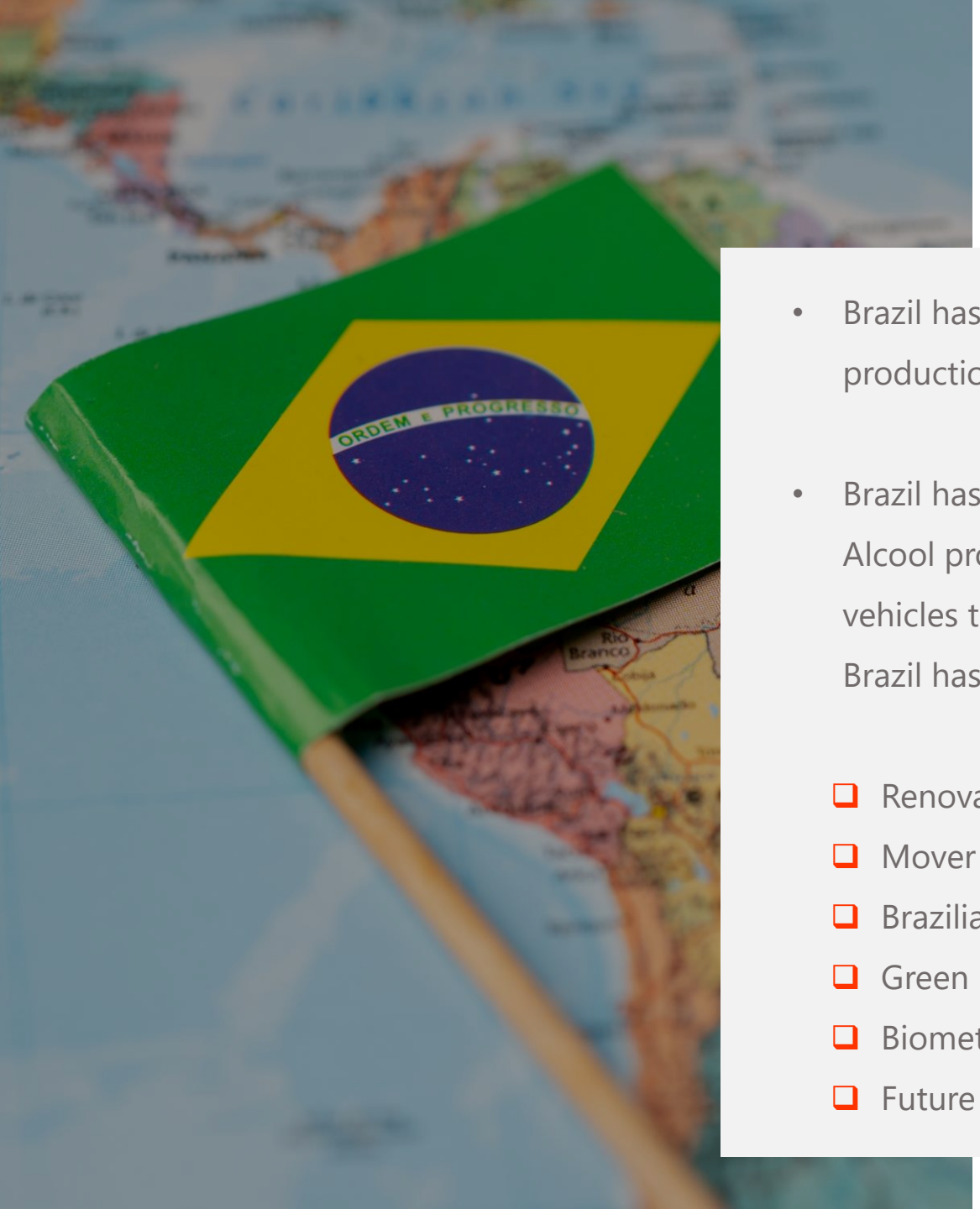
Challenges and Perspectives

Despite its benefits, the use of biofuels may raise other issues:

Competition with food production:
The expansion of cultivated areas for biofuel production can generate conflicts with food production, raising food prices and impacting food security. Experts say this is not exactly correct in view of the development of new agricultural methods and optimization of land use.

Production sustainability:
It is essential to ensure that biofuel production is carried out in a sustainable manner, avoiding environmental degradation and deforestation. Experts say this is not exactly correct in view of the development of new agricultural methods and optimization of land use. Moreover, research and development may have good alternatives for conversion of wastes in biofuels.

Energy efficiency:
Biofuel production requires energy, and it is necessary to ensure that the energy balance is positive, that is, that the energy produced from biofuels is greater than the energy consumed in its production.



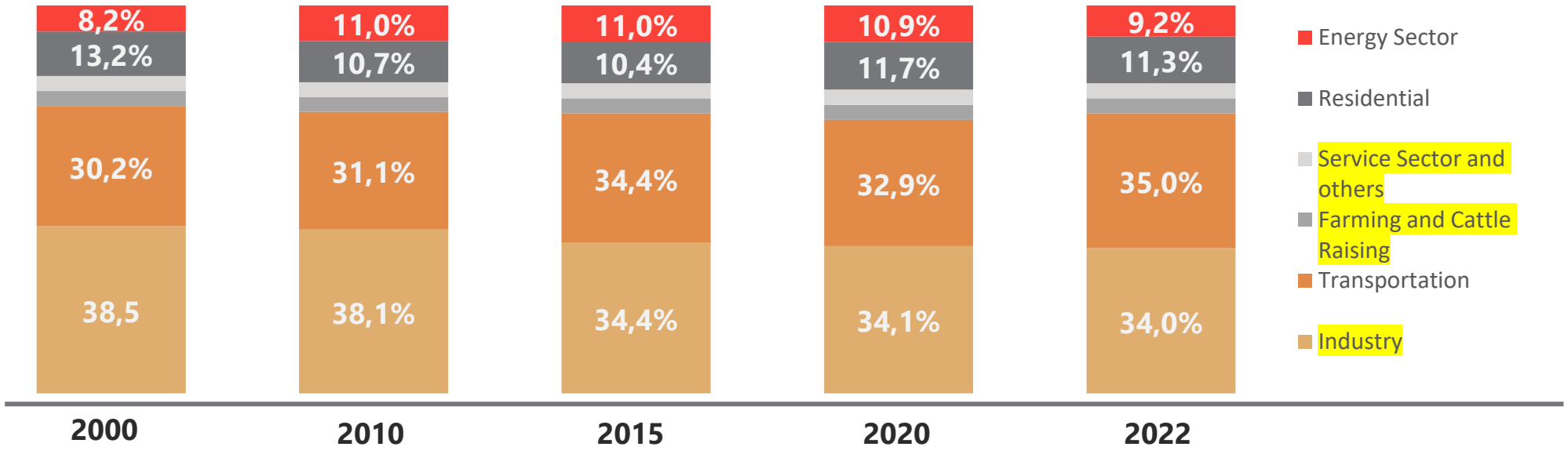
Question 1 - Assessment of the current scenario and the future of biofuels in Brazil

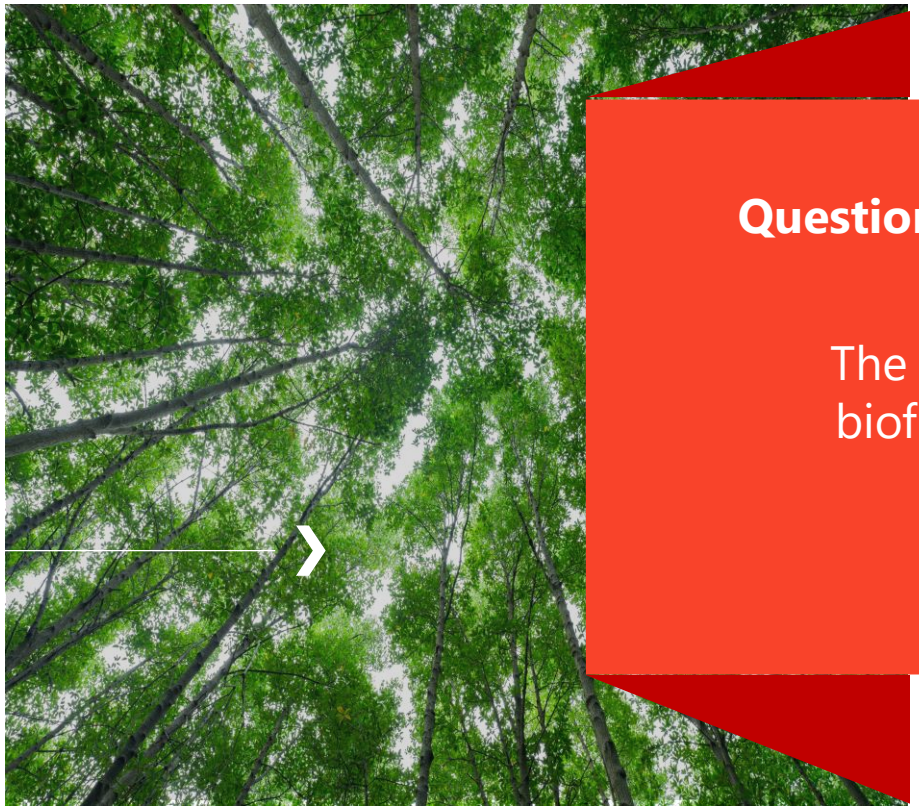
- Brazil has a great potential to consolidate itself as a world leader in the production and use of biofuels.

- Brazil has a long history with biofuels, dating back to the 1970s with the Pro-Alcool program, which resulted in the adaptation of the Brazilian fleet of light vehicles to use ethanol, as well as its blending with gasoline and biodiesel. Brazil has been promoting initiatives aimed at the use of biofuels, such as:

  - RenovaBio,
  - Mover Program,
  - Brazilian Vehicle Labeling Program;
  - Green Hydrogen Legal Framework;
  - Biomethane and Biogas;
  - Future Fuels Bill, and others

Growth in biofuel production and market share





Question 2 - Growth in biofuel production and market share

The expansion of biofuel production and the growth of the biofuel market in Brazil represent a significant opportunity for the country's sustainable development.

Question 3 – Biofuels in the context of Brazilian NDC and Brazilian Climate Change Plan

RenovaBio is Brazil's National Biofuels Policy, enacted in 2017. Its primary goals are to

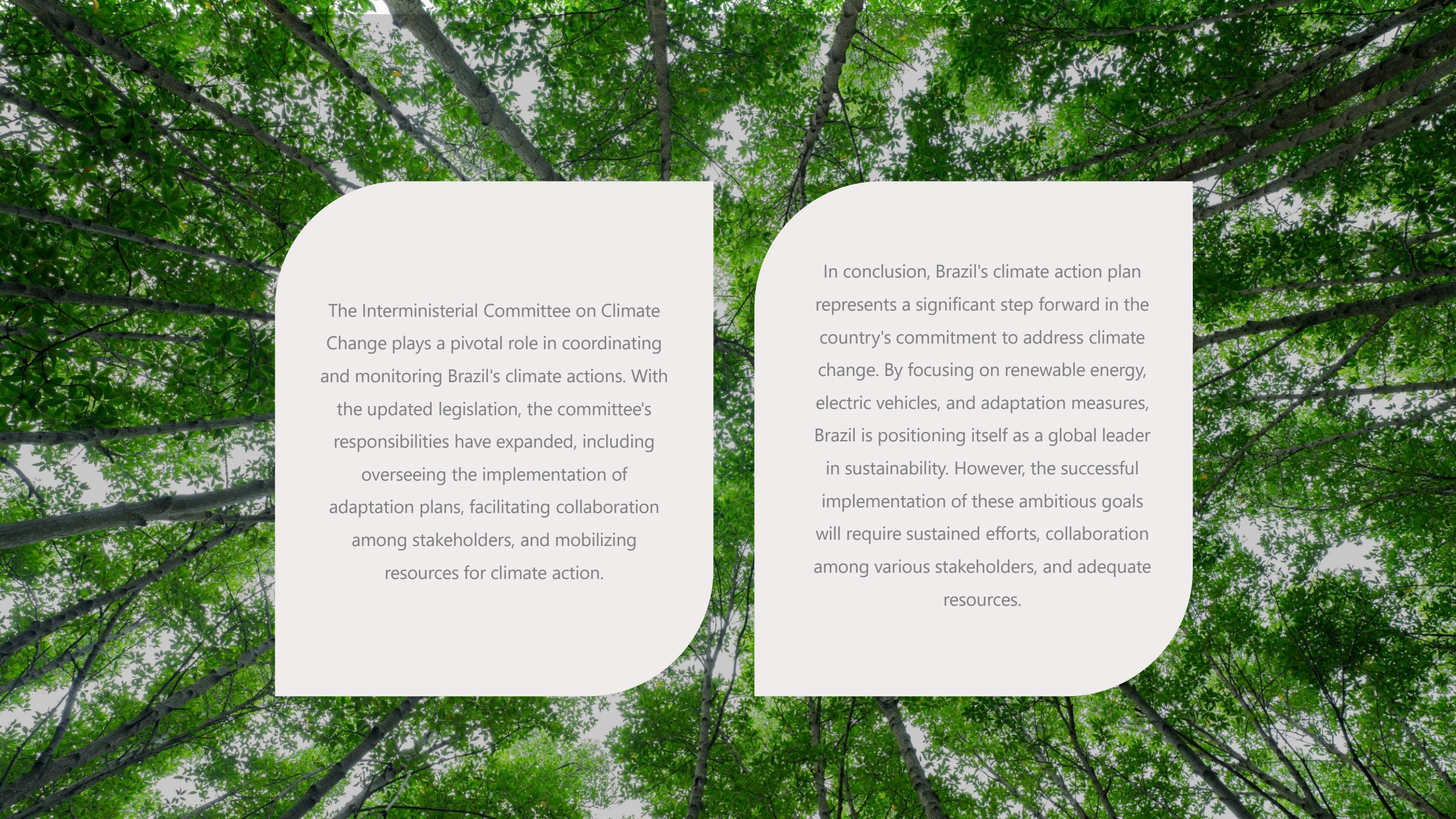
- Contribute significantly to Brazil's commitments under the Paris Agreement;
- Promote the widespread use of biofuels in the energy mix, ensuring a steady supply of fuels; and
- Create a stable fuel market, driving improvements in energy efficiency and reducing greenhouse gas emissions throughout the biofuel lifecycle.

- RenovaBio was launched to support Brazilian Nationally Determined Contribution (NDC) at the time.
- The country's updated NDC under the Paris Agreement outlines bold targets, including a significant shift towards renewable energy sources and a drastic reduction in greenhouse gas emissions.

Central to this plan is a proposed complete replacement of gasoline with biofuels and electricity in light-duty vehicles by 2035. This ambitious goal would see a substantial increase in ethanol consumption and a significant uptake of electric and hydrogen-powered vehicles. The transportation sector, a major contributor to emissions, is thus poised for a significant green overhaul.

Complementing the NDC, Brazil has also launched the **National Energy Transition Policy. This policy seeks to facilitate a just and inclusive transition to a low-carbon economy, emphasizing** renewable energy sources and energy efficiency. The policy establishes the National Energy Transition Forum as a platform for dialogue and participation, ensuring that the transition aligns with the needs of the population. Additionally, the National Energy Transition Plan will outline specific actions and strategies to achieve the policy's objectives.

To further strengthen its climate commitments, **Brazil has updated its National Climate Change Plan. The revised plan prioritizes adaptation measures, focusing on making infrastructure, such as housing, transportation, and energy, more resilient to the impacts of climate change. The plan also promotes nature-based solutions, such as ecosystem restoration, and ensures a just transition by addressing social inequalities..**



The Interministerial Committee on Climate Change plays a pivotal role in coordinating and monitoring Brazil's climate actions. With the updated legislation, the committee's responsibilities have expanded, including overseeing the implementation of adaptation plans, facilitating collaboration among stakeholders, and mobilizing resources for climate action.

In conclusion, Brazil's climate action plan represents a significant step forward in the country's commitment to address climate change. By focusing on renewable energy, electric vehicles, and adaptation measures, Brazil is positioning itself as a global leader in sustainability. However, the successful implementation of these ambitious goals will require sustained efforts, collaboration among various stakeholders, and adequate resources.

QUESTION 4 – Biofuels and G20

As one of the world's largest biofuel producers, Brazil has a fundamental role to play in the G20. The country can share its experiences and knowledge with other nations, as well as advocate in the international level for foreign policies that promote the sustainable development of the sector, foster local economies, and encourage foreign investment.

The Future Fuels Act:
A New Chapter for Sustainable Energy in Brazil
Driving the energy transition and combating climate change

Main Objectives of the Law:

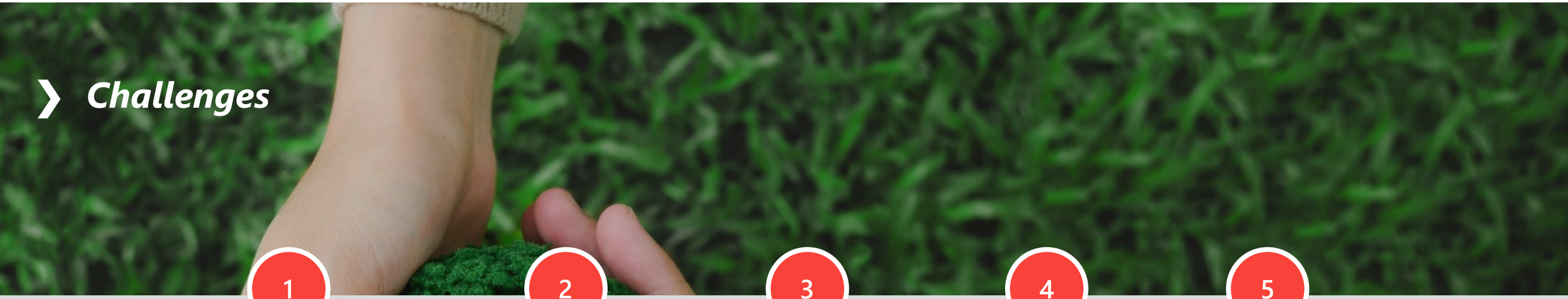
- Promote the energy transition towards cleaner and more sustainable sources.
- Reduce greenhouse gas emissions.
- Encourage the production and use of biofuels
- Promote sustainable mobility.
- Integrate public policies for energy.

The Future Fuels Act:A New Chapter for Sustainable Energy in Brazil
Driving the energy transition and combating climate change

❯ Positive impacts

- Development of research and development
- Increase of agricultural production.
- Attraction of investments.
- Improve position of brazil as a leader of biofuels
- Alignment with local and internation green gas reduction goals

The Future Fuels Act:A New Chapter for Sustainable Energy in Brazil
Driving the energy transition and combating climate change



❯ *Challenges*

1. Law depends on regulations and procedures to be developed by Executive Body and coordination amongst agencies

2. **Commodity** price fluctuations

3. Resistance from industry sectors and dependence of fossil fuels,

4. Availability of investment

5. Need for public awareness

Thank you!