



INNOVATION AND SUSTAINABILITY PARTNERSHIP – TOWARDS GREENING INDUSTRIES WITH GREEN CHEMISTRY

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1 Braskem

Largest Polymers Producer of the Americas
Largest Biopolymer producer of the World



2 Business Strategy

Braskem



SURVIVAL

Focus on client and market
Competitive Raw Material and Energy
Operational productivity and
Efficiency

GROWTH

International at Americas
Supply the Brazilian Market
Renewable Chemistry

PERPETUITY

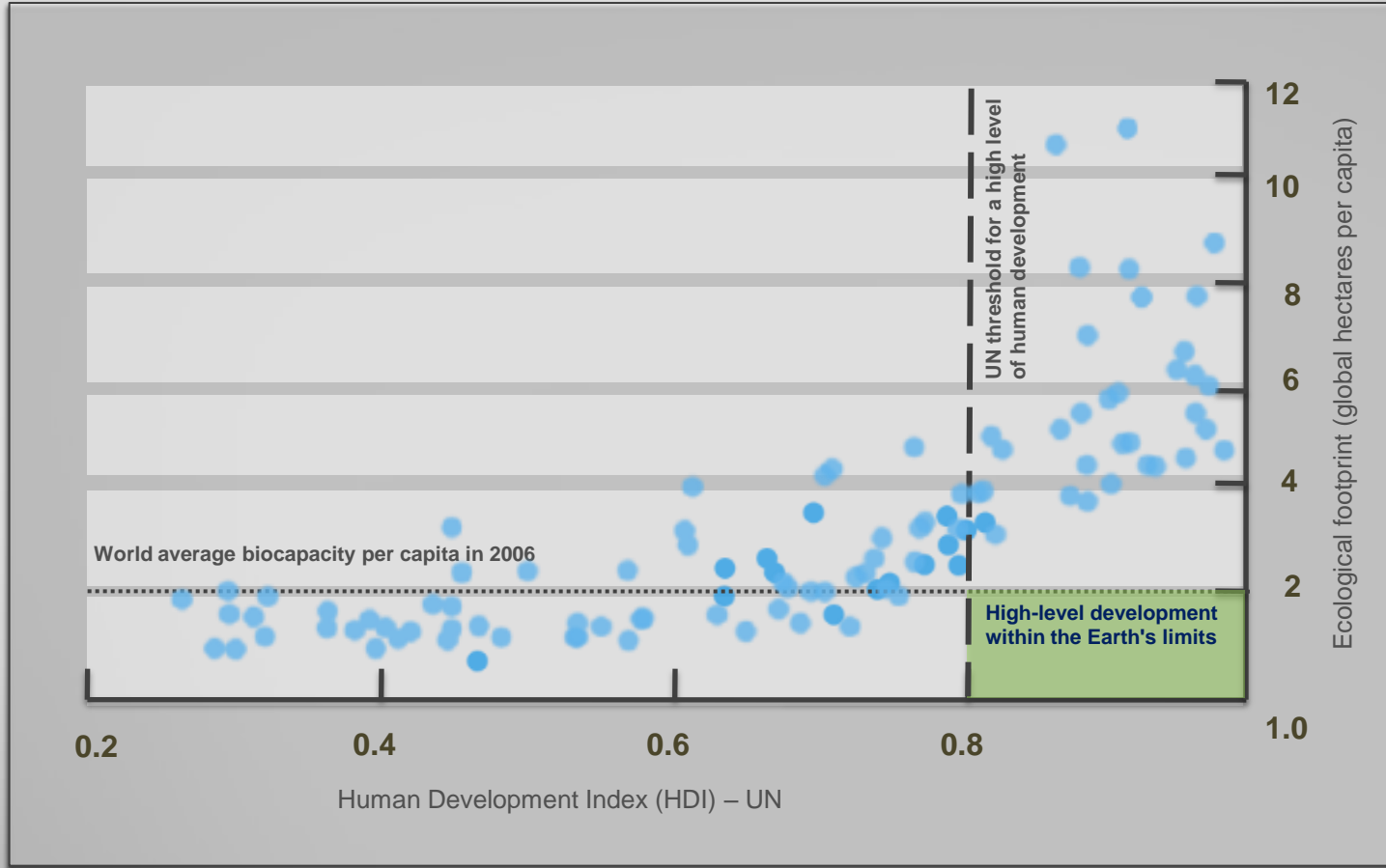
Competences and Technology
People and Organization
Sustainability and Innovation



3 Braskem in Numbers

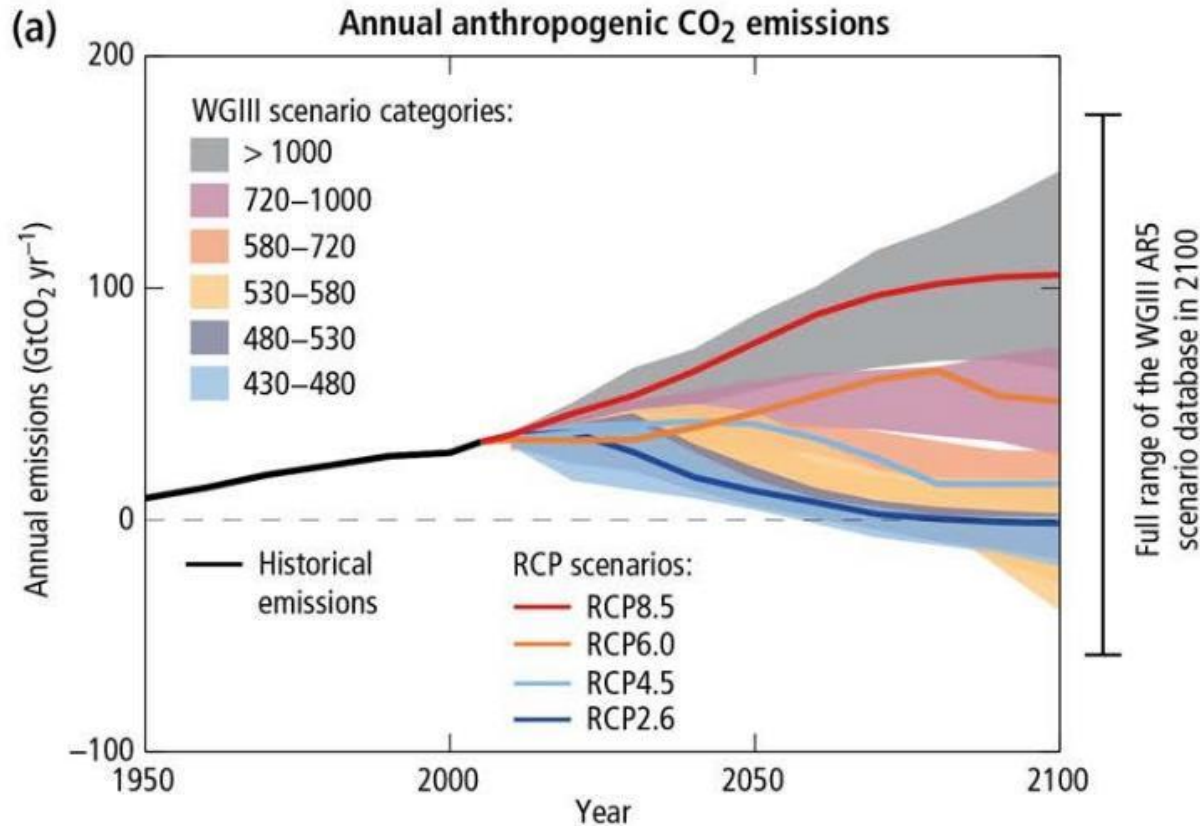


4 Sustainability Challenge



Source: Global Footprint Network (2010), UNDP (2009)

5 Climate Change Challenge



Source: IPCC, 2014

6 Our Contribution for Sustainable Development



BUSINESS ALIGNMENT

STRONG CULTURE AND MANAGEMENT ALIGNED WITH THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT

7 Sustainability and Innovation Nexus

Improve people's lives by creating sustainable solutions through chemicals and plastics



Processes



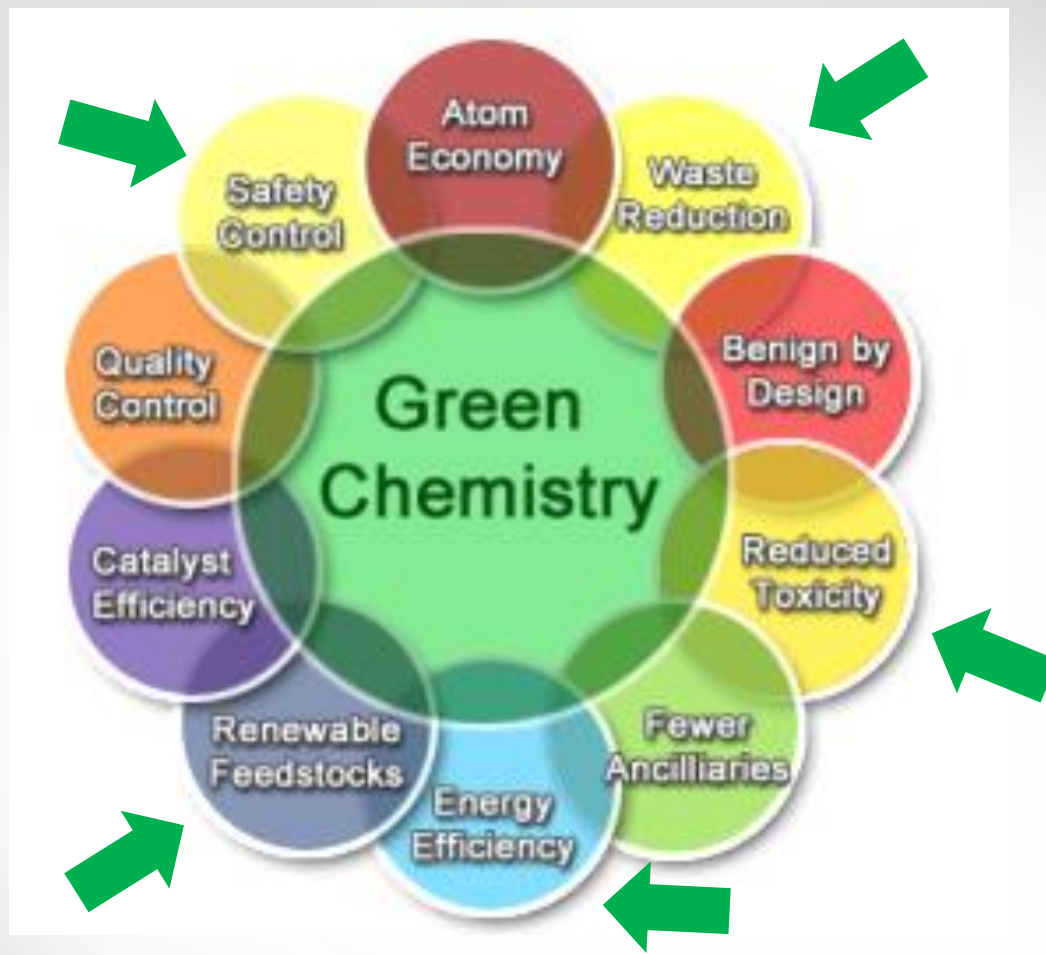
Products



Business Models

Innovation is our way of doing businesses seeking for productivity, competitiveness, with responsibility and considering the whole value chain.

8 Our Strategy and Green Chemistry Nexus







9 Our Strategy and Green Chemistry Nexus



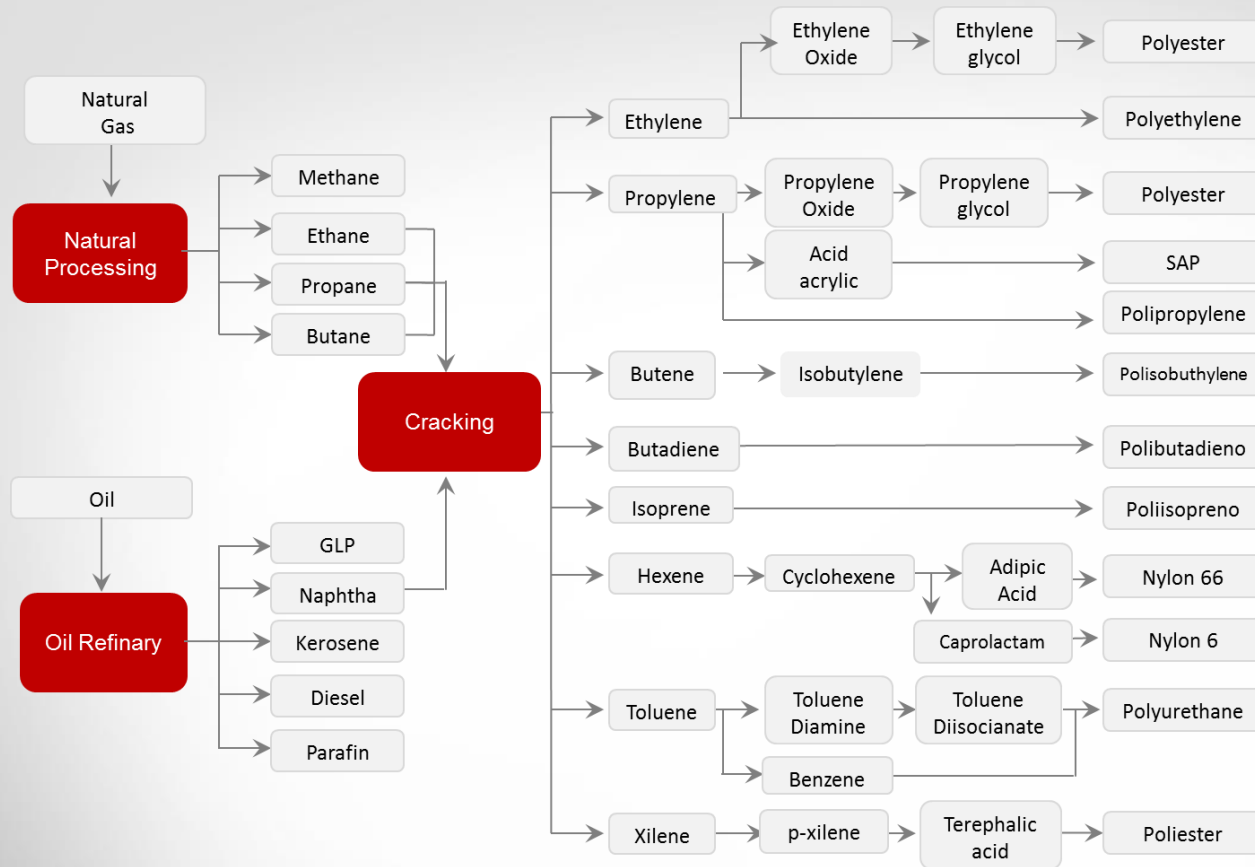
10 Brazilian Opportunity on Renewables

Energy Balance creates competitiveness along with GHG emissions reduction

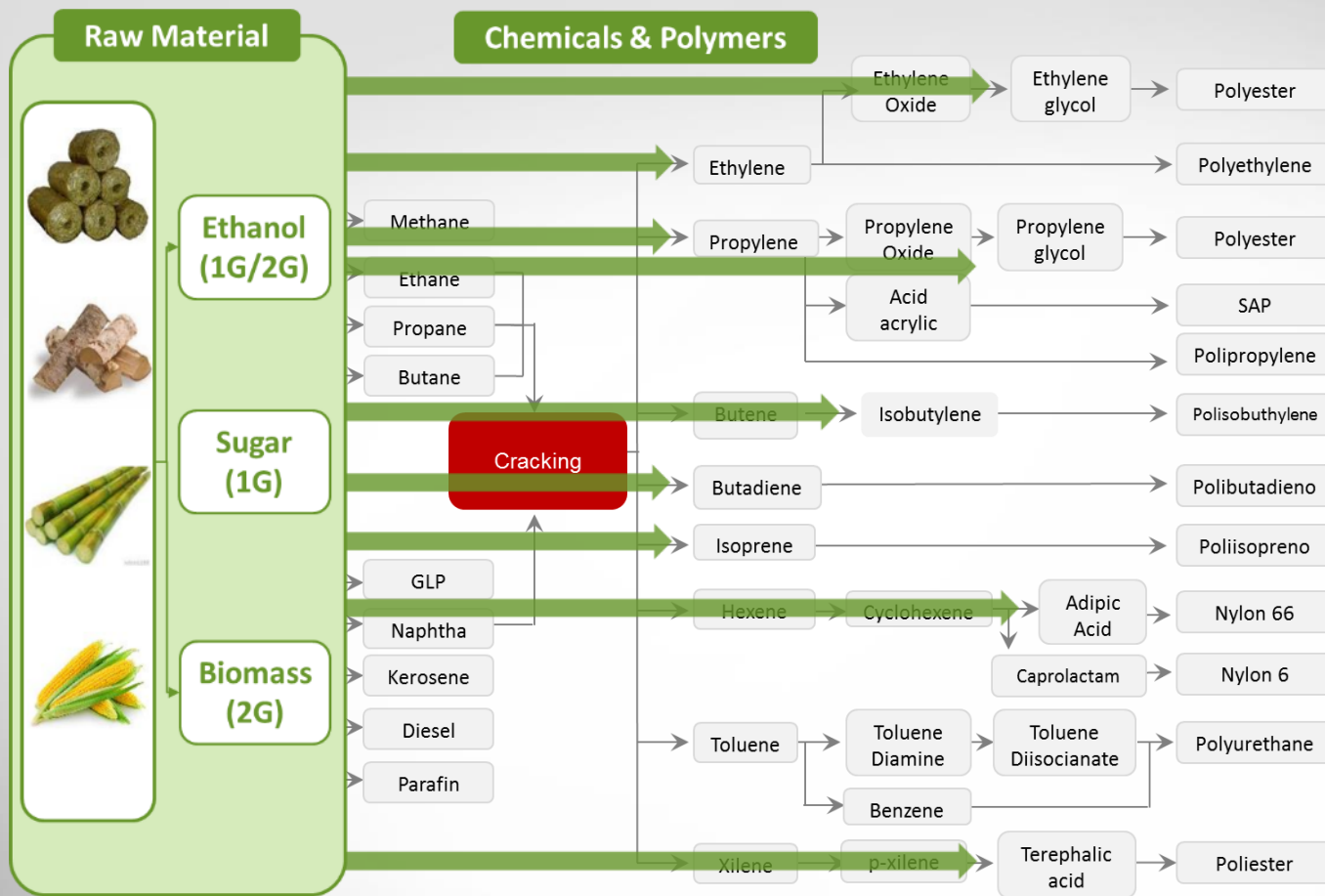
Source				
Country	Brazil	USA	EU	EU
GHG emissions reduction	90%	35%	34%	45%
Energy balance	9.3	1.4	2.0	2.0
Productivity (liters/hectare)	7,000	3,800	2,500	5,500

*Note: reduction of avoided emissions with ethanol as a gasoline substitute and calculated according to life-cycle analysis. Source: World Watch Institute (2006) and Macedo et al. (2008) – energy balance. Productivity: IEA – International Energy Agency (2005), MTEC and UNICA. GEE: IEA – International Energy Agency (2004) and Macedo, I. de C. et al. (2004 and 2008). Elaboration: UNICA

11 Disruption Throughout Renewables



12 Disruption Throughout Renewables



13 Biobased Polyethylene

Green PE Cycle

Green Polyethylene helps reduce greenhouse gases and is 100% recyclable

Sugarcane captures CO₂



I'm green™



Production of ethanol and renewable energy



Packaging made from Green Polyethylene



Production of Green Ethylene And Green Polyethylene

Green PE Carbon footprint from Cradle to Braskem's gate:



1mt

captures

2.78mt

CO₂.eq

of I'm green™ Polyethylene

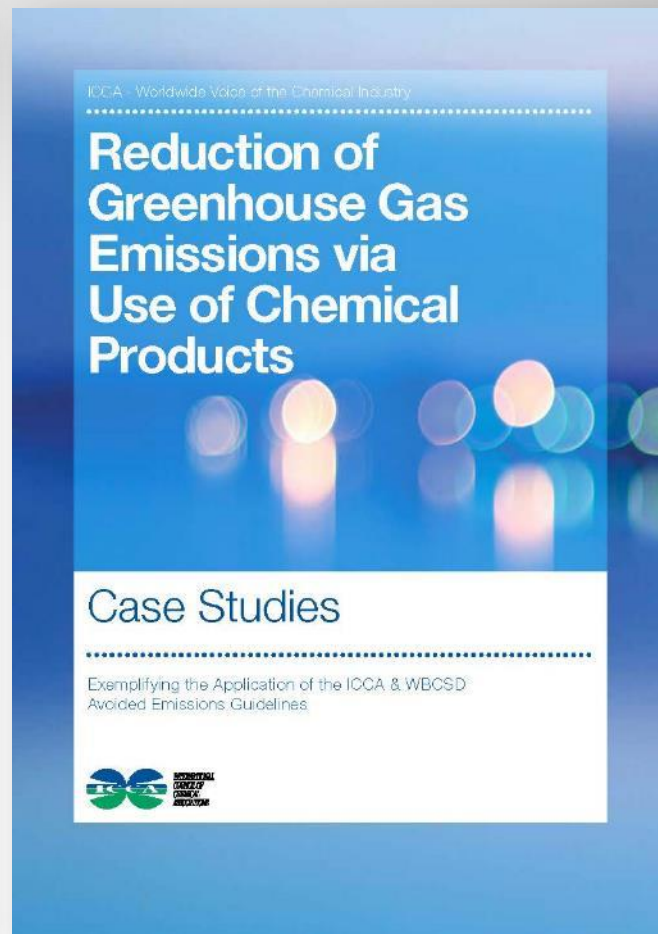
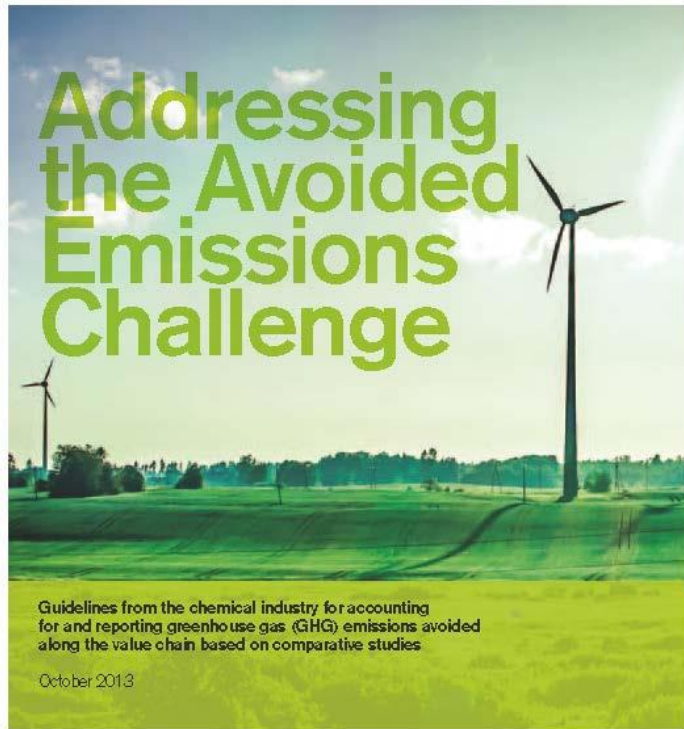


100%
recyclable

14 Contribution for Sustainability



15 Avoided Emissions



16 Contribution for Sustainability



**SUSTAINABLE
DEVELOPMENT GOALS**
17 GOALS TO TRANSFORM OUR WORLD



17 Our 2020 Goals



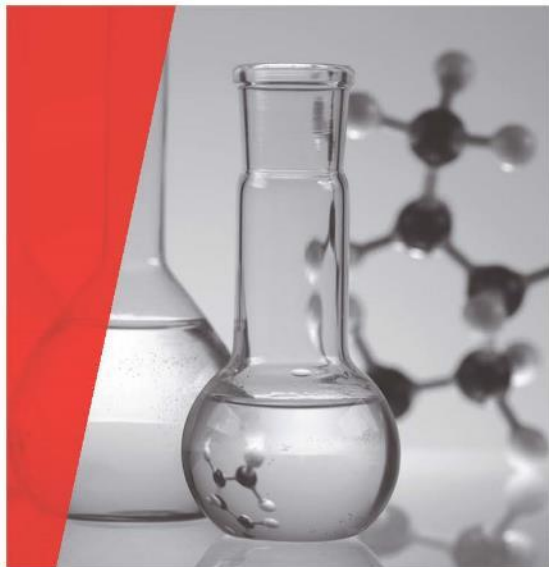
Be among the **leaders in the production of renewable-based** chemical products and thermoplastic resins.

Also, continue to be the **largest global producer of renewable-based thermoplastic resins.**



Be recognized as a company that **supports its customers in the development of environmental and social solutions in Chemistry and Plastics.**
Plastic perceived as solution for sustainable development due to its contribution to improves people's life.

18 It Makes Economic Sense



STUDY OF THE POTENTIAL FOR DIVERSIFICATION OF THE
BRAZILIAN CHEMICAL INDUSTRY

Final report in conjunction with Gas Energy

BAIN & COMPANY

Investment opportunities in the **production of chemicals** in Brazil, using alternative technologies from **renewable sources** (notably biomass) could contribute **US\$15 billion to US\$35 billion in revenue for the industry in 2030**, positively impacting the Brazilian trade balance.

Source: BNDES (2015)

19 Conclusions

- ▶ Sustainability Challenges ask for disruptive **innovations**
- ▶ Braskem has a **clear business strategy** that would like to bring a **strong contribution to sustainability** aligned with the **green chemistry** principles
- ▶ Braskem more important contribution is through the **renewable based chemicals**. They are part of the **solution for climate change**
- ▶ **Chemicals in general** represent a solution to climate change due to its **avoided emissions** characteristic, but are also **solution for the SDGs** implementation





Thank you for your attention
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