



BRASKEM  
**ESGDAY**<sup>22</sup>



## FORWARD-LOOKING STATEMENTS

- ▶ This presentation includes forward-looking statements. These forward-looking statements are not solely historical data, but rather reflect the targets and expectations of Braskem's management. The terms **“anticipate”, “believe,” “expect”, “foresee”, “intend”, “plan”, “estimate”, “project”, “aim”** and similar terms are used to indicate forward-looking statements. Although we believe these forward-looking statements are based on reasonable assumptions, they are subject to various risks and uncertainties, many of which are out of the Company's control and are prepared using the information currently available to Braskem. There is no guarantee, therefore, that the expected events, trends or results will actually occur.
- ▶ This presentation was updated as of October 10, 2022, and Braskem does not assume any obligation to update it in light of new information or future developments.
- ▶ Braskem undertakes no liability for transactions or investment decisions made based on the information in this presentation.



# AGENDA

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TIME (BRT)	PRESENTATIONS	PRESENTERS
9:30 am – 9:35 am	Opening	Roberto Simões
9:35 am – 9:45 am	Braskem's Path	Antonio Queiroz
9:45 am – 10:05 am	The road to Industrial Decarbonization	Gustavo Checcucci
10:05 am – 10:45 am	Growth Avenues: Circular Economy and Bio	Edison Terra / Walmir Soller
10:45 am – 11:10 am	Q&A	All
11:10 am – 11:15 pm	Final Remarks	Roberto Simões

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**OPPENING**

ROBERTO SIMÕES  
CEO







BRASKEM  
**ESGDAY**<sub>22</sub>

# AGENDA

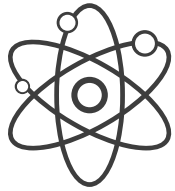
**ANTONIO QUEIROZ**

VP Innovation, Technology and Sustainable Development

## BELIEF AND PURPOSE

BRASKEM IS DEDICATED TO CREATING SUSTAINABLE SOLUTIONS IN THE CHEMICAL SECTOR, WITH THE OBJECTIVE OF IMPROVING PEOPLE'S LIVES

### BELIEF



**Plastics and chemicals make life better**

### PURPOSE



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

### CONTRIBUTION



Wide and diversified portfolio of chemicals, specialties, thermoplastic resins, biopolymers and recycled products that **meet daily human needs and make people's lives better**

# TIMELINE OF THE SUSTAINABLE PERFORMANCE

THEREFORE, BRASKEM OPERATES IN ACCORDANCE WITH THE SUSTAINABLE DEVELOPMENT PRINCIPLES SINCE THE BEGINNING OF ITS OPERATIONS IN 2002

2002

## Creation of Braskem

With a letter of commitment to a sustainable operation

2009

## 2020<sup>1</sup> Macro Objectives

### Statement on Climate Change

2014

## Global Compact Lead

For the leadership in contributions to SDGs<sup>3</sup>

2018

## Circular Economy

Position and strategy in post-consumption plastic

2020

## Certification by the MPF<sup>3</sup>, DoJ<sup>4</sup>, and SEC<sup>5</sup>

Considering the adopted compliance and improvement system

2021

## New Cycle of Commitments

undertaken in 2020, defined as the focus of the strategy for 2025, 2030 and 2050

2008

## GHG<sup>2</sup> Inventory

First year of the GHG Inventory accounting

2010

## Green PE

Beginning of operation of the green ethylene, raw material for the Green PE, made from sugar cane

2018

## Sustainable Development Policy

Defines governance and guidelines for the sustainable strategy

2020

## Carbon Neutral Circular Economy

Commitments to carbon neutrality and circular economy

2022



ESG DAY 22

BRASKEM UNDERSTANDS AND REINFORCES ITS ROLE AS A TRANSFORMATION AGENT FOR SUSTAINABLE DEVELOPMENT



# TIMELINE OF THE SUSTAINABLE PERFORMANCE

## BRASKEM HAS A SUCCESSFUL TRACK RECORD IN IMPLEMENTING ITS LONG-TERM GOALS (2009-2020) AND HAS BEEN RECOGNIZED OVER TIME

### ACHIEVEMENT OF THE 2020 MACRO OBJECTIVES

Achievement of

**85%** of

commitments undertaken

- 1 Healthy and Safety
- 2 Economic and Financial Results
- 3 Post-consumption
- 4 Renewable Resources
- 5 Water Efficiency
- 6 Combating Climate Change
- 7 Energy Efficiency
- 8 Local Development
- 9 Solution Development
- 10 Strengthening Practices

### AWARDS AND RECOGNITION



B3 Carbon Efficient Index  
2012-2022



Recognition by ECLAC  
2020



B3 Corporate Sustainability Index  
2005-2022 (ex-2021)



RobecoSAM's Sustainability  
Yearbook  
2014-2022



GHG Protocol - Gold  
2010-2021



Recognition by  
UN Global Compact  
2014-2021



Exame Diversidade Forum  
2019



CDP – Water and  
climate leader  
2016-2021



Women in Leadership  
in Latin American  
2019



# IN 2020, SUSTAINABILITY WAS INCLUDED AS A STRATEGIC PILLAR OF THE COMPANY

## STRATEGIC PILLARS



**Productivity and Competitiveness**



**Sustainability**



**Growth and Diversification**



**People, Governance and Reputation**



**Capital Allocation and Financial Discipline**



**INNOVATION**

As a facilitator to all pillars

## AMBITIONS

Braskem as a first quartile operator.

To be a global reference in the chemical/petrochemical sector in sustainable development.

Increase diversification in raw materials, markets and products, with new operations representing more than 50% of EBITDA.

To be recognized as a people-oriented company that promotes local development and human rights.

Having Braskem as a financially healthy company that generates value for shareholders.

**SAFETY is and will always be the focus of Braskem's operations, as a PERMANENT AND NONNEGOTIABLE VALUE**

# ADDITIONALLY, AT THE END OF 2020, BRASKEM HAS RENEWED ITS COMMITMENTS TO SUSTAINABLE DEVELOPMENT CONSIDERING GLOBAL CHALLENGES AND TRENDS...

## PILLARS OF ACTION

1

### SOCIAL RESPONSIBILITY AND HUMAN RIGHTS



To be recognized as a company that promotes **HUMAN RIGHTS AND EQUITY** in our value chain and contributes to the local development of surrounding communities

2

### ELIMINATING PLASTIC WASTE



We want to be recognized as a company that develops **THE RECYCLING VALUE CHAIN** in the regions where it operates

3

### COMBATING CLIMATE CHANGE



To be a **GLOBAL REFERENCE IN THE SECTOR** and a key player in removing CO2 emissions through the use of renewable feedstock

# ... AND IN LINE WITH THE UN 2030 AGENDA AND WITH THE PARIS AGREEMENT, BRASKEM IS COMMITTED TO STRENGTHENING ITS PERFORMANCE IN THE NEUTRAL CARBON CIRCULAR ECONOMY

2

## ELIMINATING PLASTIC WASTE

### GOAL

- To increase the sale of recycled products, to work on preventing the disposal of plastic waste, and make the products increasingly more circular

### COMMITMENTS ASSUMED

- Until 2025:**
- To sell 300 thousand tons of products with recycled content per year
- Até 2030:**
- To increase sales of products with recycled content to 1 million tons per year
  - To recover 1.5 million tons per year of plastic waste

Sales Volume of Recycled Chemicals and Resins (kt)



3

## COMBATING CLIMATE CHANGE

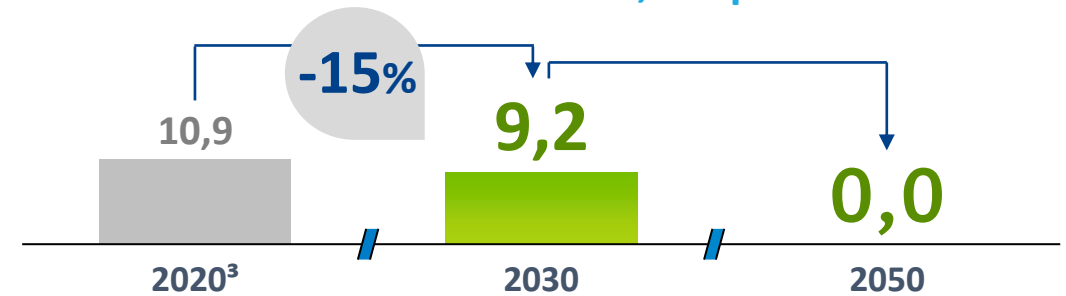
### GOAL

- To achieve **carbon neutrality**, through the **reduction and removal of emissions**, from the production of products from **renewable sources** and **carbon capture**

### COMMITMENTS ASSUMED

- Until 2030**
- To reduce GHG<sup>1</sup> emissions Scope 1 and 2 by 15% by 2030
  - To reach 1.0 million tons of green PE production capacity by 2030.
- Until 2050**
- To achieve carbon neutrality by 2050

Emissions MM tCOe2, Scope 1 e 2





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# THE ROAD TO INDUSTRIAL DECARBONIZATION

**GUSTAVO CHECCUCCI**  
Director of Energy and Industrial Decarbonization



# TO ACHIEVE CARBON NEUTRALITY BY 2050, BRASKEM IMPLEMENTED A GOVERNANCE STRATEGY CONTAINING THREE WORK FRONTS

## COMBATING CLIMATE CHANGE WORKSTREAM

### BRASKEM'S WORK FRONTS IN CLIMATE CHANGE

#### 1 EMISSIONS REDUCTION



Reduction in CO<sub>2</sub>e<sup>1</sup> emissions focused on energy efficiency and increasing use of renewable energy

#### 2 CARBON REMOVAL



Speed up the Company's business growth in chemicals and polymers made from renewable materials that remove CO<sub>2</sub>e<sup>1</sup> from the atmosphere

#### 3 CARBON CAPTURE



Investment in carbon capture technologies for storage and use as raw material to produce chemical products

#### ENABLERS

Development of tools, strengthening of governance and review of internal processes

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# BRASKEM CREATED THE INDUSTRIAL DECARBONIZATION PROGRAM IN 2021 TO MOVE FORWARD WITH THE EMISSION REDUCTION WORK FRONT

## EMISSIONS REDUCTIONS



➤ **Braskem's Industrial Decarbonization Program** aims to develop a strategy and action plan to implement initiatives that promote a 15% reduction in absolute GHG<sup>1</sup> emissions (scopes 1 and 2) by 2030, based on the Company's carbon inventory

## PILLARS

### CULTURE AND PROCESS

- Formation and cultivation of an industrial mindset focused on GHG emissions
- Strengthening of governance and processes oriented towards decision-making considering potential GHG emissions
- Fostering partnerships in the development and implementation of solutions

### MAIN LINES OF ACTION

#### GOVERNANCE

- Implementation of operational initiatives with continuous improvement actions aimed at reducing GHG emissions

#### ENERGY EFFICIENCY

- Reducing GHG emissions through energy integration and optimization initiatives

#### ENERGY MATRIX

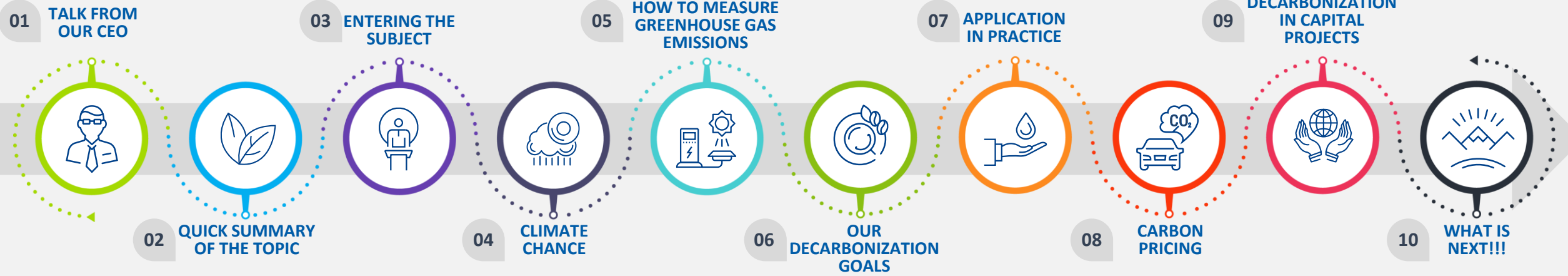
- Increase in the share of renewable energy and low-carbon fuels in Braskem's energy matrix

#### TRANSFORMATIVE PROJECTS

- Implementation of key initiatives capable of greatly reducing GHG emissions from the main emitter complexes

# ACCULTURATION ACTION

## INDUSTRIAL DECARBONIZATION TRAIL



### RECOGNITION AND MOTIVATION

#### BEST PROJECT | DESCARBONIZATION



### GLOBAL DECARBONIZATION CONFERENCE

## GLOBAL INDUSTRIAL DECARBONIZATION Conference

We have received your registration for the Global Industrial Decarbonization Conference! Check out the program:

**October 25<sup>th</sup>, Tuesday**

<b>OPENING EVENT</b> Sustainability Strategy in Braskem
<b>ROUND TABLE</b> Braskem's Industrial Decarbonization Culture and Governance
<b>PRESENTATION</b> Results of Braskem's Marginal Abatement Cost Curve (MACC) Industrial Decarbonization Portfolio

# MACC<sup>1</sup> IS AN IMPORTANT MANAGEMENT TOOL FOR PRIORITIZING AN ORGANIZATION'S DECARBONIZATION INITIATIVES

## CARBON REDUCTION

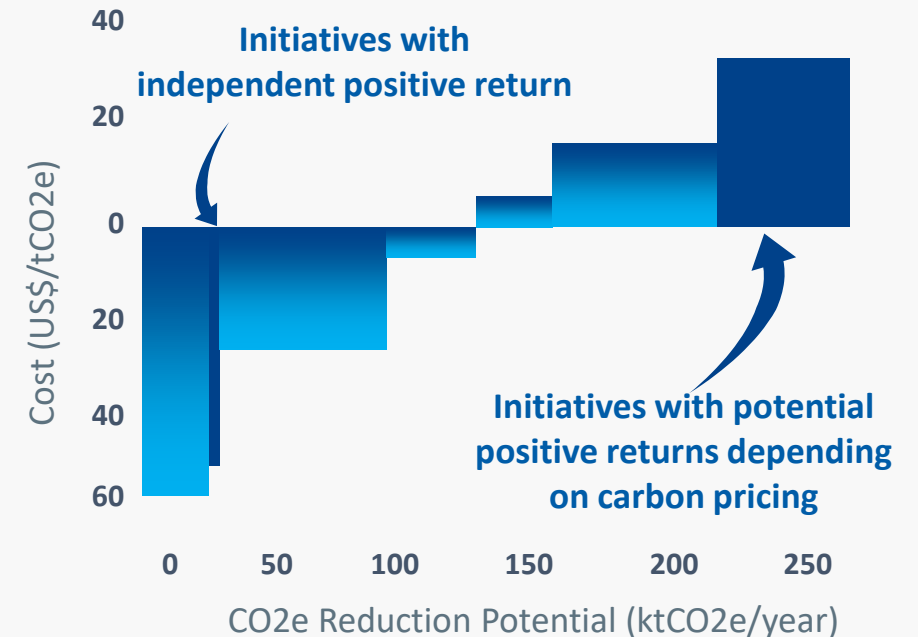
### WHAT IS MACC AND HOW TO INTERPRET IT?

The MACC, or Marginal Abatement Cost Curve, is a simple and effective way to visualize the cost per ton of carbon equivalent avoided and the amount of tons of carbon equivalent that a given initiative will be able to mitigate.

By integrating financial feasibility analysis with initiatives with their emission reduction potential, the tool is a great ally in developing a corporate climate mitigation of emissions, based on concrete actions that will indicate the viability of achieving reduction goals.

- The **width (x-axis)** of each block (representing a specific initiative) correspond to its CO<sub>2</sub>e reduction potential per year
- The **height (y-axis)** denotes the cost of implementing the initiative per unit of emission reduction considering the NPV calculation method
- The set of initiatives is plotted from the most economical option (left) to the most expensive (right)

### ILLUSTRATIVE EXAMPLE

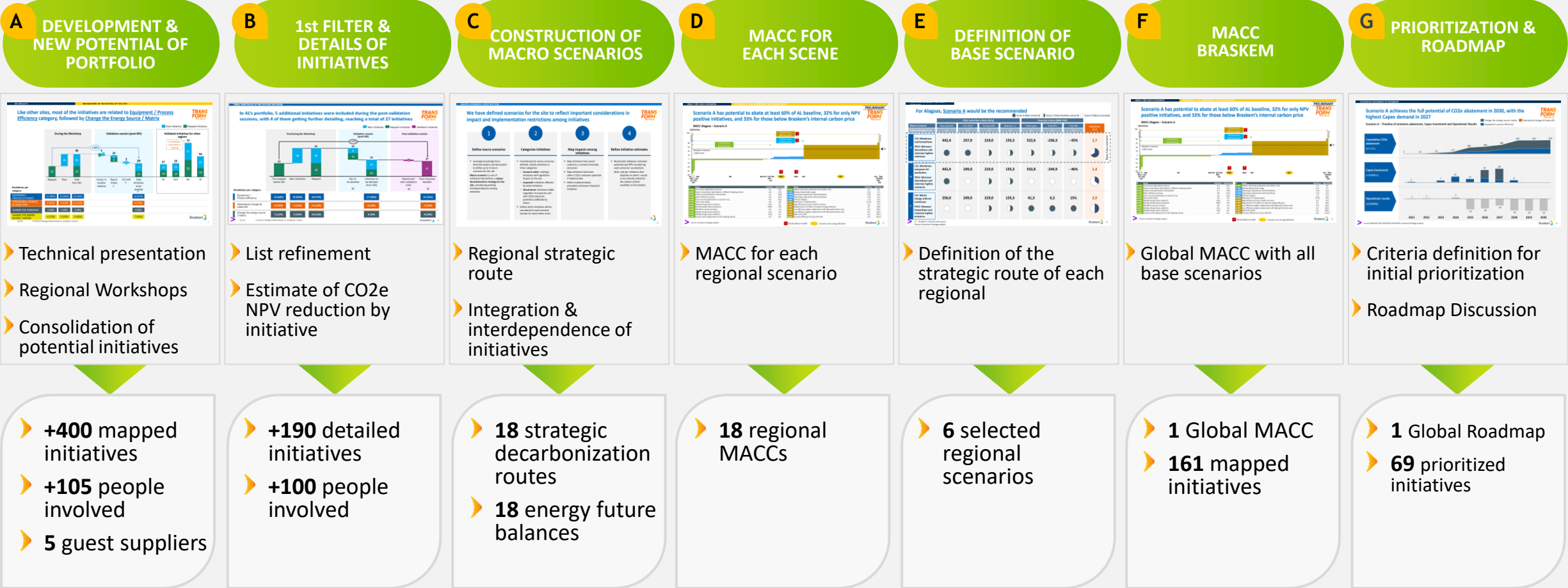




# IN THE LAST YEAR, THE EFFORTS UNDER THE INDUSTRIAL DECARBONIZATION PROGRAM RESULTED IN THE DEVELOPMENT OF MACC GLOBAL AND A DECARBONIZATION ROADMAP

## CARBON REDUCTION

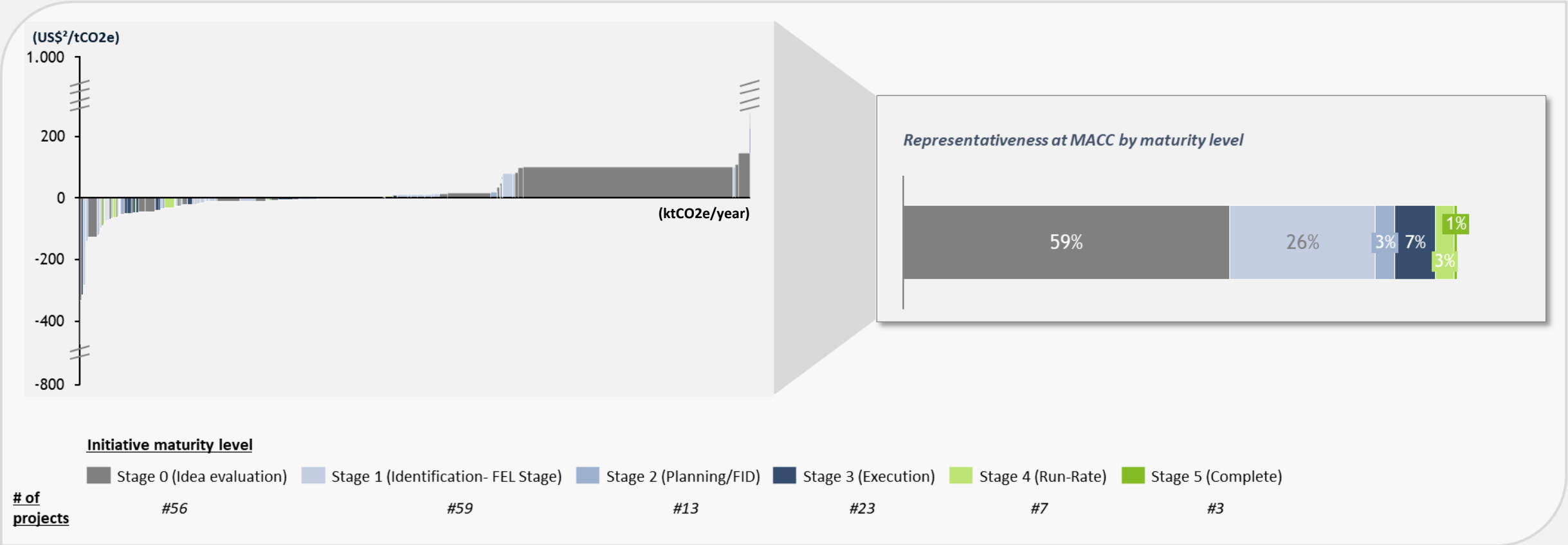
### THE “ROADMAP DECARBONIZATION 2030” PROJECT WAS COMPOSED OF 7 STEPS



# THE CONSOLIDATED MACC CAN BE PRESENTED BY THE MATURITY OF THE INITIATIVES MAPPED

CARBON REDUCTION

## MACC BRASKEM - ANALYSIS BY PROJECT MATURITY

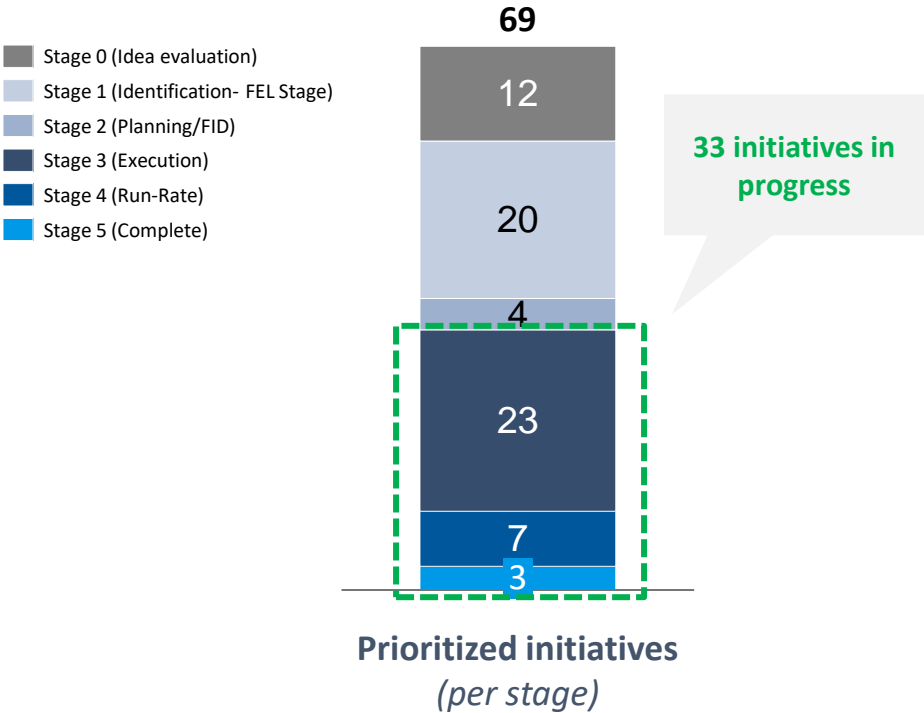


The consolidated MACC takes into account all 161 initiatives chosen for Braskem's decarbonization process

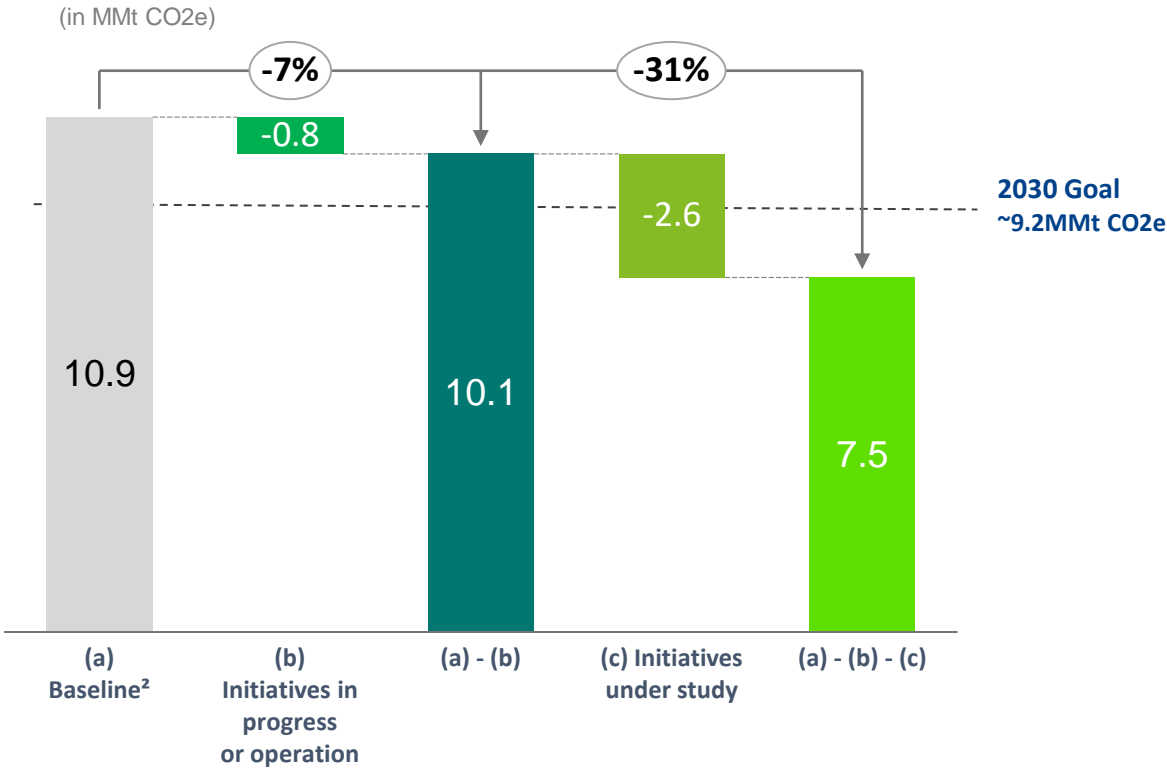
**AMONG THE 161 INITIATIVES MAPPED, WE HAVE 69 PRIORITIZED INITIATIVES<sup>1</sup> WITH A POTENTIAL TO REDUCE ~3.4 MMT CO<sub>2</sub>e, CONSIDERING UNCERTAINTIES, MATURITY STAGE AND NPV**

**CARBON REDUCTION**

**INITIATIVES PRIORITIZED BY STAGE**  
Number of initiatives (#)



**POTENTIAL TO REDUCE EMISSIONS, SCOPE 1 AND 2, AFTER IMPLEMENTATION OF PRIORITIZED INITIATIVES**



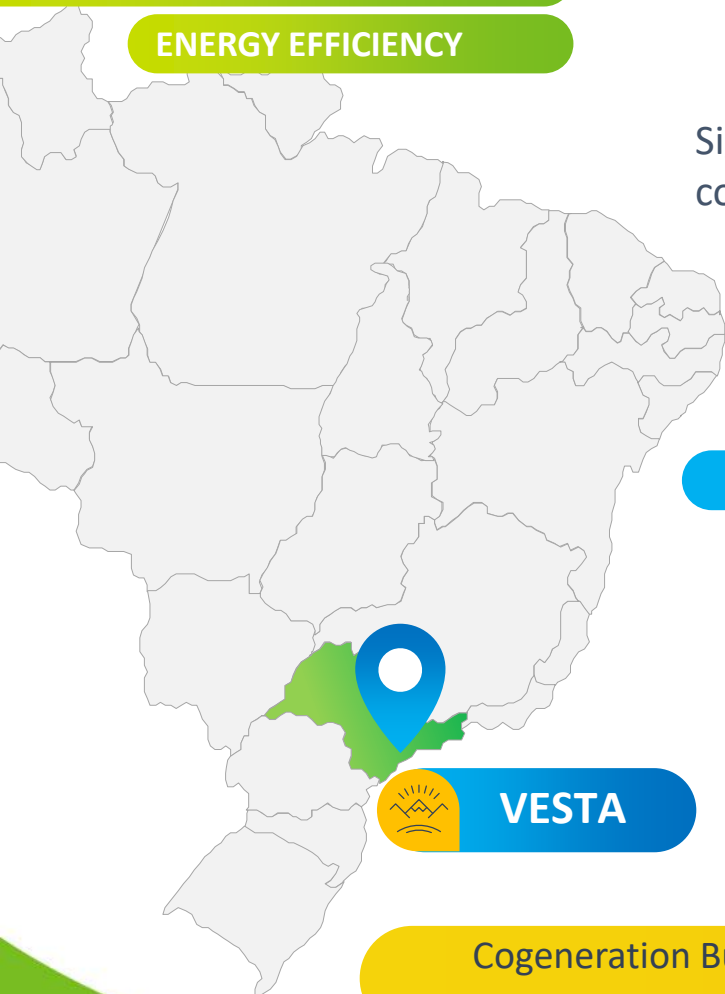
**In the initial prioritization, it was possible to map initiatives that will allow Braskem to reach the 2030 goal of reducing at least 15% of CO<sub>2</sub>e emissions of scope 1 and 2 (considering existing assets) with positive NPV**



# PROJEC VESTA ENERGY RENOVATION OF THE Q3 SITE (ABC) WITH ELECTRICITY AND NEW COGENERATION

CARBON REDUCTION

ENERGY EFFICIENCY



Signed contract

Partial motorization

Expected completion of the engine

**Estimated gains with the reduction of:**

- ▶ Total GHG emissions of **~100 kt CO2e/y**
- ▶ Energy consumption in **7,3%** of the site
- ▶ Water consumption of **11%** of the site

2018

2019-2020

2021

2022

2023

Construction and Implementation

Cogeneration Start

**Main Gains:**

- ▶ **Reduction of ~35 kt CO2e/y** due to electricity and natural gas
- ▶ **Electrical Reliability**



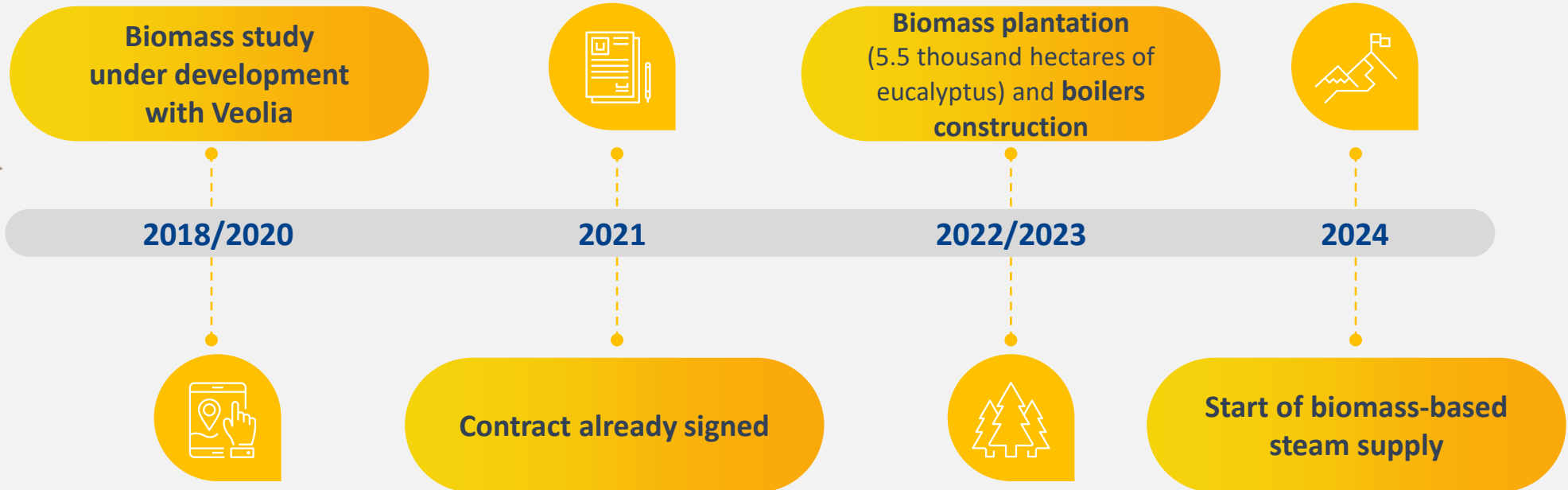
Cogeneration Business Model: **investment and implementation** by a **third party** (Siemens Energy).  
**Electricity and steam purchase agreement for 15 years.**

# AL BIOMASS PROJECT

## REPLACEMENT OF FOSSIL FUEL CONSUMPTION BY RENEWABLE ONES

CARBON REDUCTION

ENERGY MATRIX



### EXPECTED EARNINGS:

**Reduction of 150 kt/year of CO<sub>2</sub>e**  
 Equivalent to 1/3 of GHG emissions from Braskem's units in Alagoas in 2021

**Replacement of 215,000 m<sup>3</sup>/d of natural gas with biomass steam**

**Socio-economic development in the region** with the promotion of the eucalyptus production chain

# RENEWABLE ELECTRICITY CONTRACTING INITIATIVES

CARBON REDUCTION

ENERGY MATRIX

**casadosventos**  
energia para um novo mundo



In operation

**auren**



In construction

**voltalia**



In operation

More than **150** MWh of long-term electricity has already been contracted

**110** ktCO<sub>2</sub>e/y in 2025

**edf**  
energies nouvelles



In operation

**edf**  
energies nouvelles



In construction



# TO TAKE THE PATH TO DECARBONIZATION, BRASKEM HAS DEVELOPED A ROBUST INDUSTRIAL DECARBONIZATION PORTFOLIO WITH INITIATIVES WITH THE OBJECTIVE OF ACHIEVING THE GOAL FOR 2030

- ▶ The Company has developed **governance in line with our commitment to Combat Climate Change**, with **action fronts in Reduction, Removal and Capture**.
- ▶ The **Reduction** front continues to advance with the **Industrial Decarbonization Program**:
  - In 2022
    - Update of the MACC curve involving a portfolio of 161 initiatives with more than **100 people involved**
    - **Initial prioritization of 69 initiatives with estimated potential to reduce ~3.4 MMt CO2e in emissions**



## COMBATING CLIMATE CHANGE



**COMMITMENT**

**Until 2030**

- ▶ Reduction of Scope 1 and 2 GHG emissions by 15% by 2030

The initial prioritization guides the implementation trajectory of the initiatives to reach the 2030 goal, to reduce at least 15% of CO2e emissions of scope 1 and 2, with positive NPV



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## **GROWTH AVENUES: CIRCULAR ECONOMY AND BIOPOLYMERS**

**EDISON TERRA**

(EXECUTIVE VP OF SOUTH AMERICA OLEFINS & POLYOLEFINS)

**WALMIR SOLLER**

(EXECUTIVE VP OF EUROPE & ASIA OLEFINS & POLYOLEFINS)

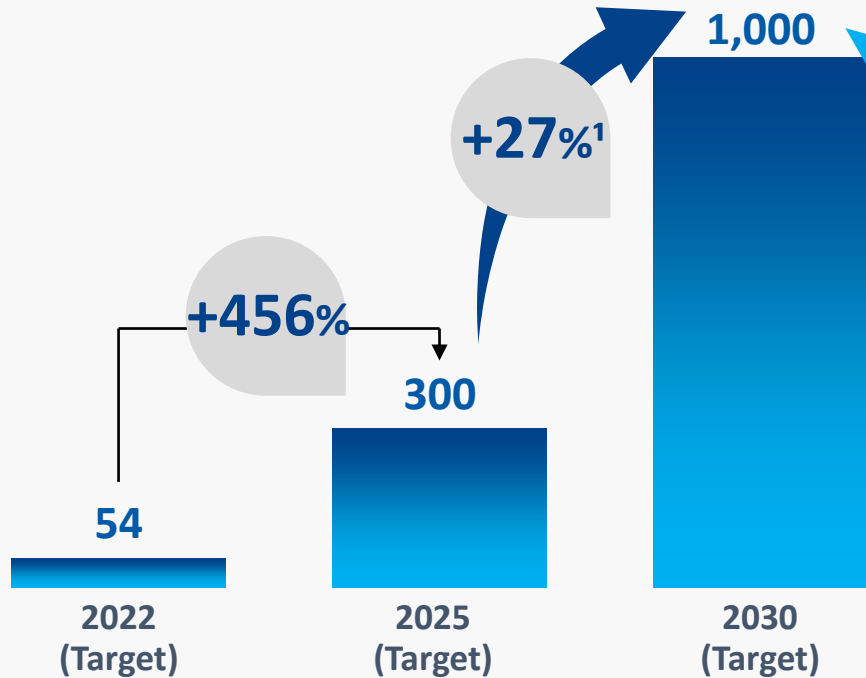


# BRASKEM BELIEVES THAT INVESTING IN THE CIRCULAR ECONOMY AND BIOPOLYMERS IS A BUSINESS OPPORTUNITY, REPRESENTING GROWTH AVENUES FOR THE COMPANY

## GROWTH AVENUES

### CIRCULAR ECONOMY

- Grow the portfolio of products with recycled content to reach 300 thousand tons by 2025 and 1.0 million tons by 2030

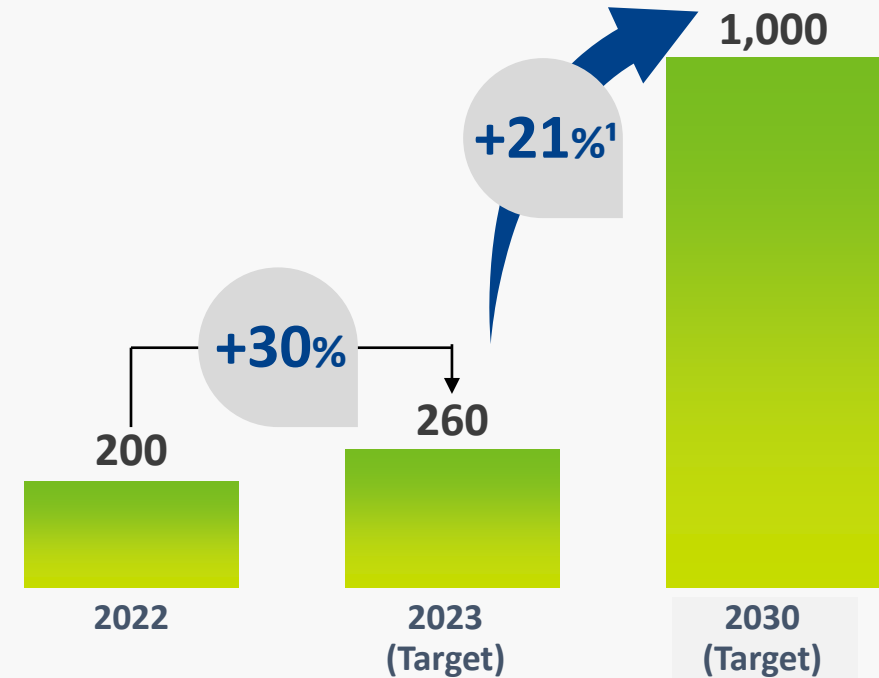


**Impact:** Prevent 1.5 MMt of plastic waste from being sent to incineration, landfills, or disposed in the environment by 2030

■ Sales Volume of Recycled Chemicals and Resins

### BIOPOLYMERS

- Expansion of Green PE production capacity to 1.0 million tons by 2030



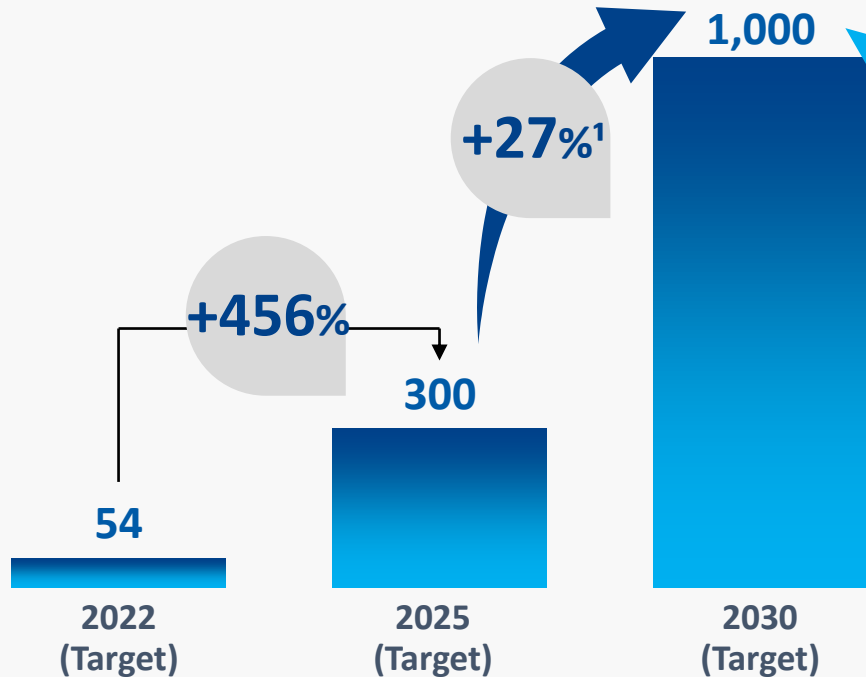
■ Green PE

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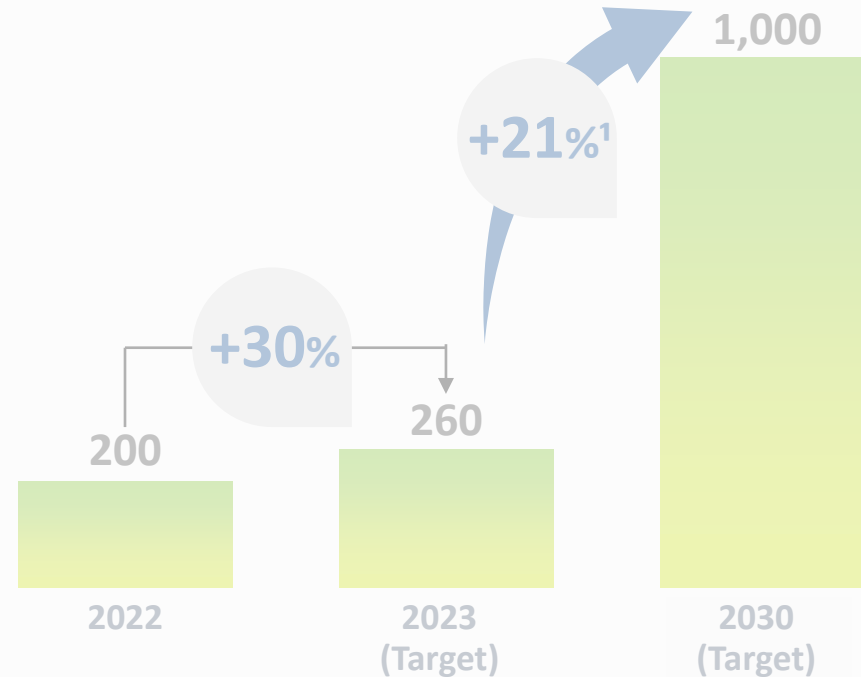


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■ Green PE



# BRASKEM HAS THE AMBITION TO BE RECOGNIZED WORLDWIDE AS A COMPANY THAT DEVELOPS THE RECYCLING VALUE CHAIN IN THE REGIONS WHERE IT OPERATES

## BRASKEM'S WORK FRONTS

1

### INVESTMENT IN A SUSTAINABLE PRODUCT PORTFOLIO



Investment in a **portfolio of innovative and sustainable products from chemicals and plastics**, transformed by the Company's customers into applications that meet daily human needs and make people's lives better

2

### DEVELOPMENT OF CIRCULAR PACKAGING (CAZOOLO)



Creation of Braskem's **new circular packaging design laboratory** (Cazoolo) with the aim of bringing collective intelligence to the sustainable development of packaging<sup>1</sup>

3

### CONSUMER ENGAGEMENT



Promotion and engagement of consumers in recycling and recovery programs, especially **through education to value the recovery of plastic waste** for the economy and its correct destination

4

### PARTNERSHIPS AGAINST GARBAGE IN THE SEAS



Building partnerships to understand, **prevent and solve the lack of plastic waste management**

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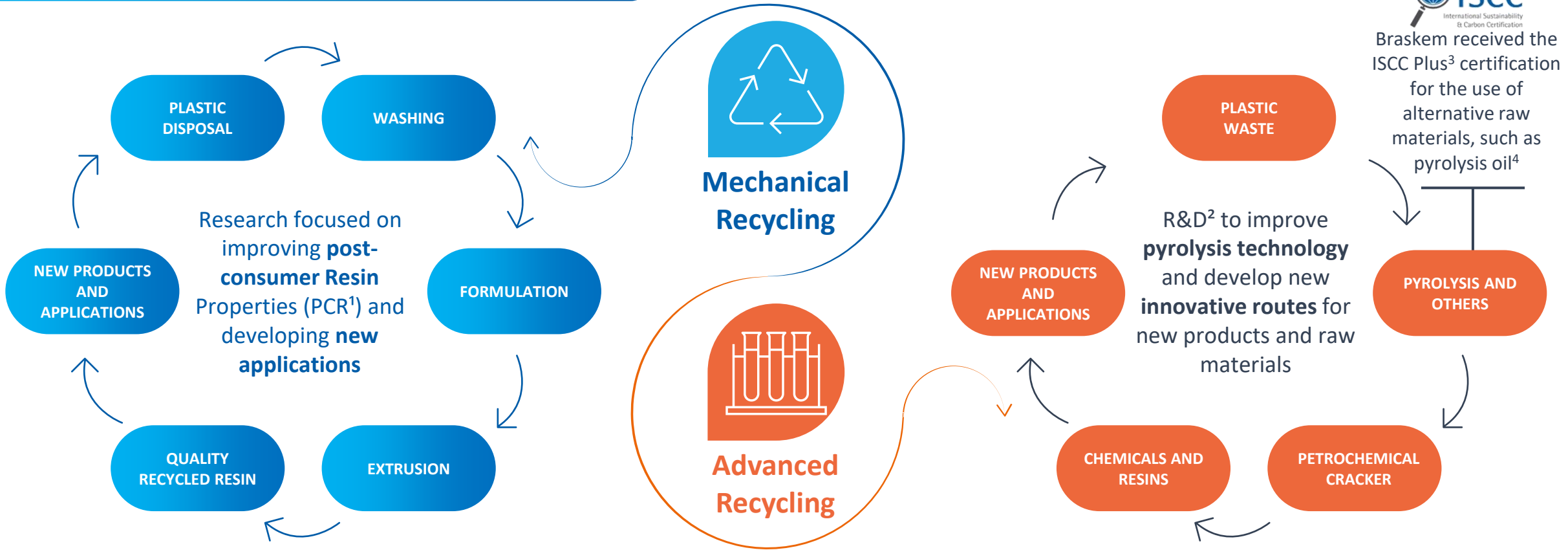


Building partnerships to understand, **prevent and solve the lack of plastic waste management**

# BRASKEM'S TRANSITION STRATEGY TO A CIRCULAR ECONOMY IS STRONGLY BASED ON MECHANICAL AND ADVANCED RECYCLING SOLUTIONS

- 1
- 2
- 3
- 4

## INVESTMENT IN A SUSTAINABLE PRODUCT PORTFOLIO



**The Company is investing to strengthen mechanical and advanced recycling, enabling projects for the development of high-quality PCR<sup>1</sup> and expanding research and innovation through collaboration with strategic partners**

Source: Braskem. Note (1): PCR: Post-consumer resin. Note (2): R&D: Research & Development. Note (3): ISCC Plus: International Sustainability and Carbon Certification. Note (4): Pyrolysis oil: Chemical process that breaks down thermoplastic resin molecules by applying heat.

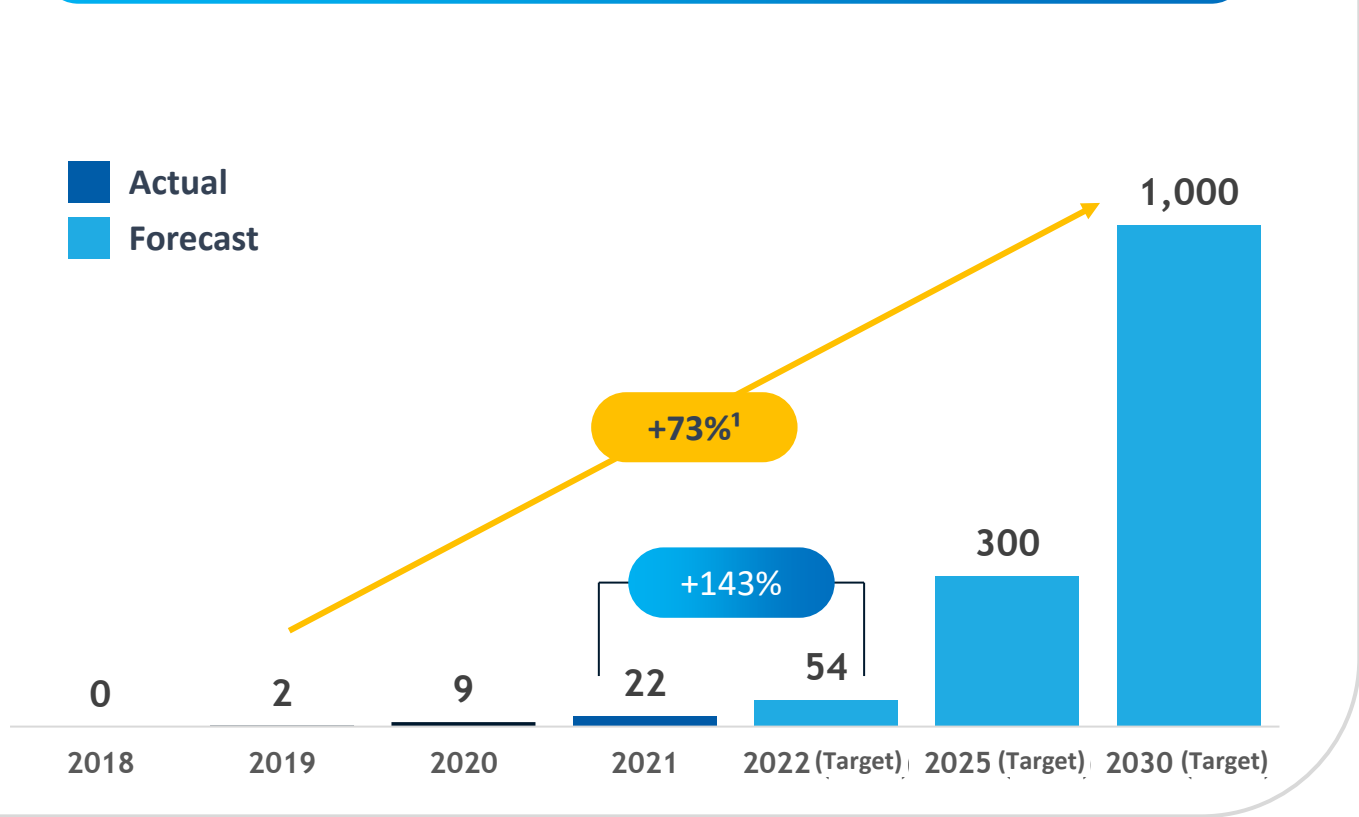


# THE COMPANY EXPECTS A SIGNIFICANT GROWTH IN THE SALES VOLUME OF RECYCLED PRODUCTS USING PLASTIC WASTE AS FEEDSTOCK

- 1
- 2
- 3
- 4

## INVESTMENT IN A SUSTAINABLE PRODUCT PORTFOLIO

### SALES VOLUME OF CHEMICALS AND RECYCLED RESINS (kt)



In 2018, Braskem made a **commitment to the Circular Economy**. Since then, sales of products with recycled content have been growing



Braskem will continue to implement efforts to **expand its portfolio of products with recycled content**

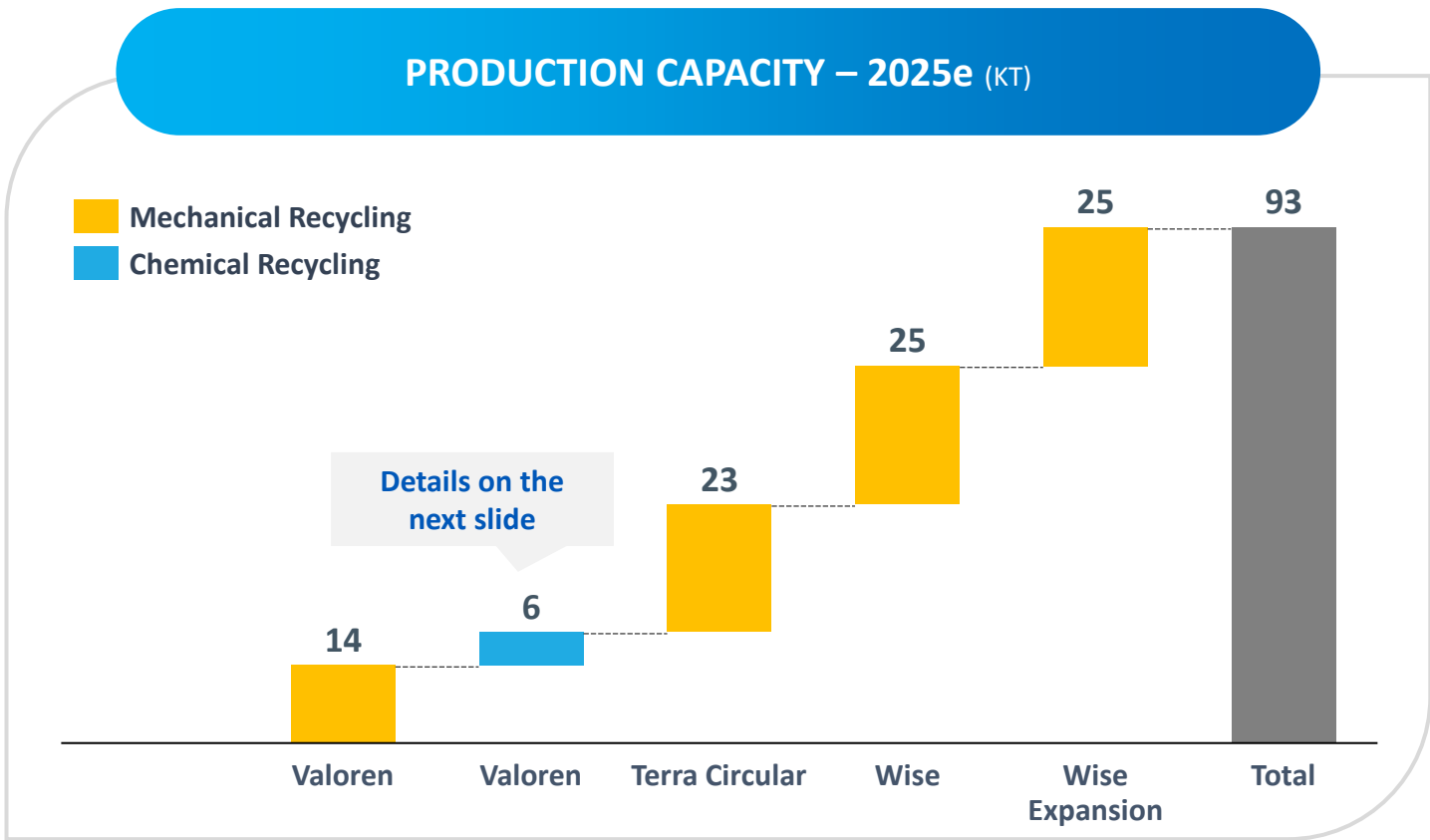
- 2025: 300 thousand tons
- 2030: 1,000 thousand tons



Braskem will also work to **prevent 1.5 million tons of plastic waste** from being sent to incineration, landfills, or deposited in the environment by 2030

# IN MECHANICAL RECYCLING, THE COMPANY HAS ALREADY ANNOUNCED SEVERAL INVESTMENTS AIMED AT EXPANDING ITS RECYCLED PRODUCT PORTFOLIO

## INVESTMENT IN A SUSTAINABLE PRODUCT PORTFOLIO



### Main transactions already announced:



- Acquisition of 61.1% of the share capital
- Estimated investment of BRL 121 million
- Company has a **strategic expansion plan** and objective of capturing market opportunities



- Joint venture creation (JV)
- Company that developed and implemented **innovative technology** capable of converting low quality plastic waste into final products



- Partnership to build the **first mechanical recycling plant in Brazil**
- Investment of BRL 67 million
- Technology developer and waste management company for transformation into recycled products

In mechanical recycling, packages are shredded into smaller fragments, known in the industry as flakes, which are washed, go through the extrusion process and form pellets – small granules of thermoplastic resins

# IN ADVANCED RECYCLING, BRASKEM IS FOCUSED ON THE DEVELOPMENT OF TECHNOLOGY, SUPPORTING THE STUDIES, TESTS AND THE CONSTRUCTION OF THE FIRST PLANT IN BRAZIL



## INVESTMENT IN A SUSTAINABLE PRODUCT PORTFOLIO

**PARTNERSHIP WITH**



Institute for Sustainable Process Technology

- › **Development of technology** for advanced separation and recycling of mixed plastic waste that will be sent to pyrolysis
- › The partnership will allow the recovery of plastics that will become raw material to produce resins



**INVESTMENT:  
€ 2 MILLION**

**PROJECT WITH**



- › **Research** on chemical recycling of plastics to develop solutions for post-consumer flexible plastic use
- › The objective of the partnership is to develop catalysts to improve the quality of products generated in the chemical recycling process of plastic



**INVESTMENT:  
BRL 2.7 MILLION**

**PARTNERSHIP WITH**



- › **Technology development and construction of the first advanced recycling unit in Brazil**, integrating and bringing synergy with the mechanical recycling line on the same site
- › **Production capacity of 6 kt/year and start in 1H23<sup>1</sup>**



**CONTRIBUTION:  
BRL 44 MILLION**

**INVESTMENT IN**



- › **Capital investment in the acquisition of minority shareholding** in a company that operates in advanced recycling
- › Focus is on accelerating the commercialization of advanced recycling with Nexus' own innovations

**Advanced recycling is the process that transforms plastic waste into circular raw material for the manufacture of new plastics or chemicals.**

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DEVELOPMENT OF CIRCULAR PACKAGING (CAZOOLO)



Creation of Braskem's **new circular packaging design laboratory** (Cazoolo) with the aim of bringing collective intelligence to the sustainable development of packaging<sup>1</sup>

3

CONSUMER ENGAGEMENT



Promotion and engagement of consumers in recycling and recovery programs, especially **through education to value the recovery of plastic waste** for the economy and its correct destination

4

PARTNERSHIPS AGAINST GARBAGE IN THE SEAS



Building partnerships to understand, **prevent and solve the lack of plastic waste management**



# ADDITIONALLY, BRASKEM IS DEVELOPING PACKAGING PROJECTS CONSIDERING A CIRCULAR ECONOMY ORIENTED DESIGN TOGETHER WITH THE CHAIN

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## DEVELOPMENT OF CIRCULAR PACKAGING (CAZOOLO)



### CIRCULAR PACKAGING DESIGN LAB

#### WHAT IS CAZOLO?

Braskem's new circular packaging design laboratory, created with the aim of bringing collective intelligence to the sustainable development of packaging

#### WHO ARE THE PARTICIPANTS?

Clients, brand owners, designers, startups and universities will be allowed to create and co-create projects aiming at complete circularity and the least impact

#### WHAT IS THE INFRASTRUCTURE?

450m<sup>2</sup> space planned to stimulate interactivity and creativity with modular rooms, shelves that simulate supermarket gondolas and a mini auditorium for project presentations



WHO CAN BE HERE AT CAZOLO?	BRAND OWNERS	TRANSFORMERS
	Due to their criticality in the packaging development process, they are the center of the process.	As a result of the influence on the Brand Owner and its connectors with Braskem.
	STARTUPS	DESIGNERS
	Due to the role played in the process circularity and its connection with Braskem Labs.	They are providers of specific knowledge that are very complementary to Braskem.



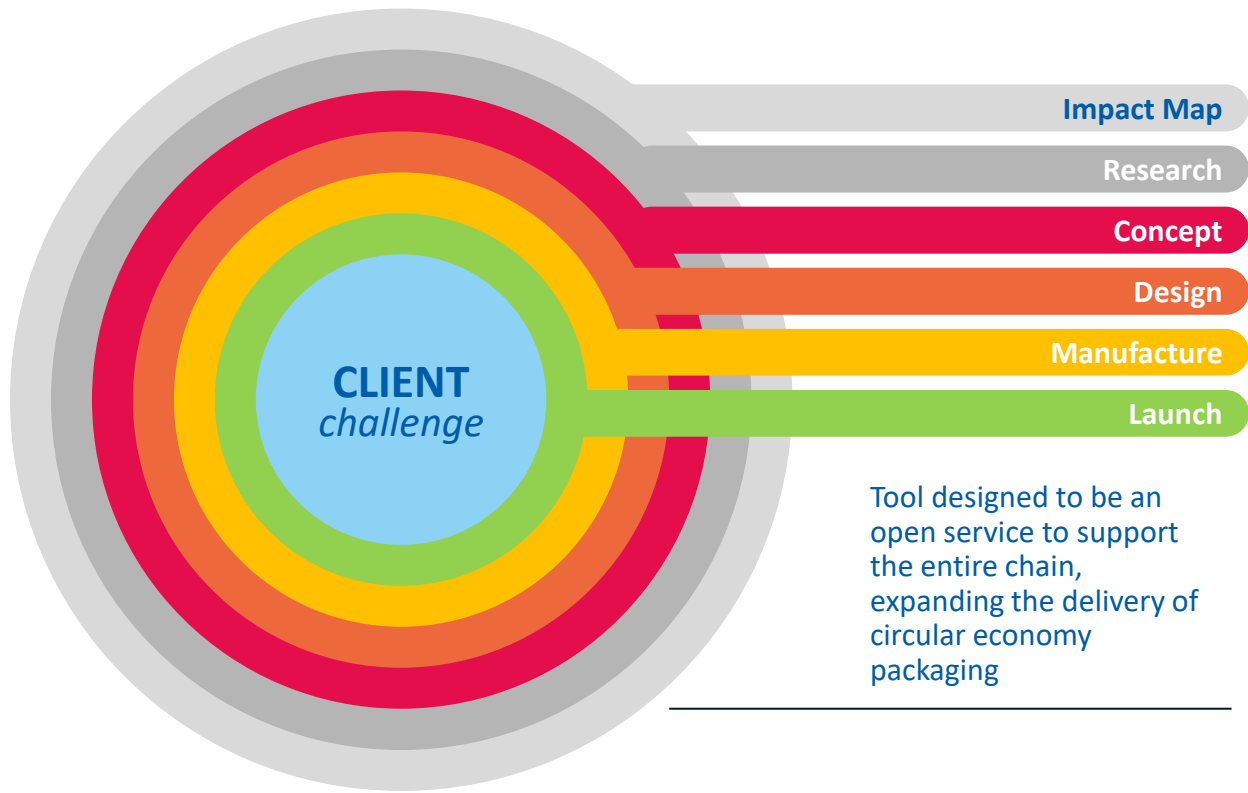
According to a study by the Technical University of Denmark, 80% of a product environmental profile is adjusted in the conceptual creation

# THE PROJECTS DEVELOPED AT CAZOOLO WILL BE BASED ON CONCEPTS OF THE DESIGN FOR ENVIRONMENT (DFE) METHODOLOGY TO CREATE INNOVATIVE AND SUSTAINABLE PACKAGING

## DEVELOPMENT OF CIRCULAR PACKAGING (CAZOOLO)

METHODOLOGY

### DESIGN FOR ENVIRONMENT (DFE)



### COMMENTS



The DfE concept aims to **improve the environmental** impact of packaging by choosing the format and composition of the material, defining circular routes, consumer engagement and the end of life of the product solution.



The goal is to **make packaging follow the circular economy model** and help to promote reuse and refill solutions, as well as the recycling process.



As a result, the environmental impact is reduced, and value is generated for the entire chain

**Benefits of using the DfE methodology:** (i) identification of environmental impacts (LCA), (ii) integration of circularity (product + consumer), (iii) systemic vision (from briefing to post-consumption solution) and (iv) measurement of environmental impact reduction

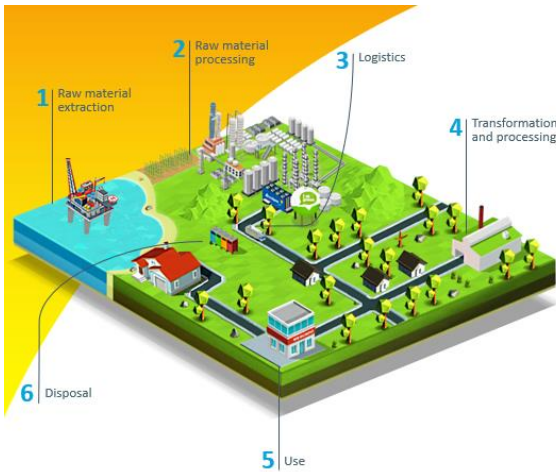
# THE COMPANY ALSO PERFORMS LIFE CYCLE ANALYSIS (LCA), WITH THE OBJECTIVE OF SUPPORTING DECISION-MAKING ABOUT THE MOST SUSTAINABLE OPTION

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## INVESTMENT IN A SUSTAINABLE PRODUCT PORTFOLIO

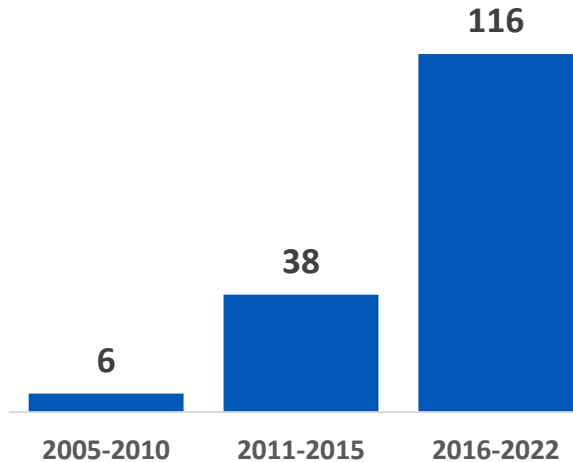
Life Cycle Analysis (LCA)

### CONCEPT:



LCA is a complete analysis that quantifies the environmental impacts of a product's life cycle, from raw material extraction to final disposal

### LCA CONCLUDED PROJECTS:



Braskem believes that it is important to use science through tools such as the LCA to select the most sustainable option

### CASE: PLASTIC STRAW



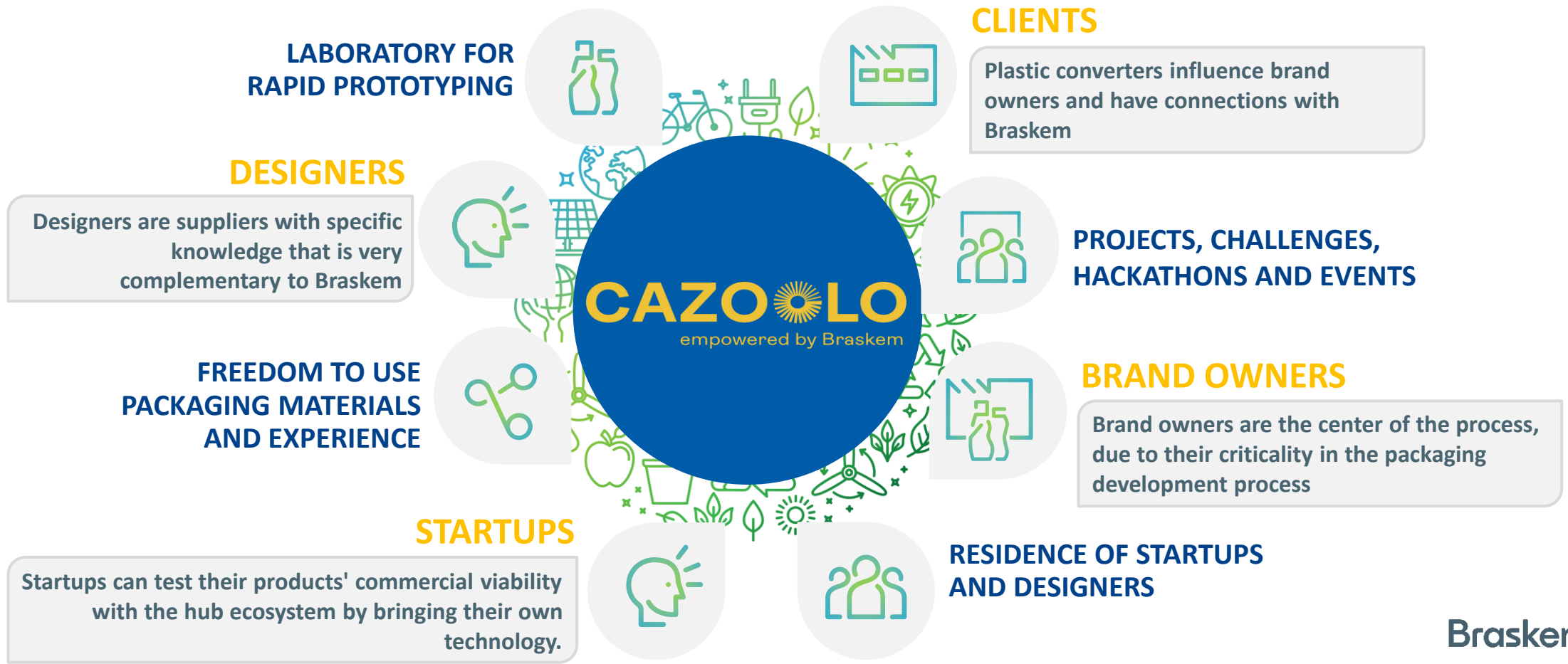
	PAPER 2.08 g Unit Mass	STEEL <sup>1</sup> 0.05 g Unit Mass	PLASTIC 0.42 g Unit Mass
Carbon footprint	2.46(g)	3.46(g)	1.50(g)
Water consumption	1.80(L)	2.33(L)	0.50(L)

Straws are items that could be dispensed, except for medical and food safety needs. However, if the decision is to use them, it is important to ensure recycling

# THUS, AT CAZOLO, PROFESSIONALS AND COMPANIES OF VARIOUS SIZES AND SECTORS OF THE ECONOMY CAN COLLABORATE IN PROJECTS RELATED TO PACKAGING CIRCULARITY

## DEVELOPMENT OF CIRCULAR PACKAGING (CAZOLO)

CAZOLO: a location linked to Braskem's innovation ecosystem focused on the creation of circular economy packaging solutions that is accessible to brand owners, consumers, entrepreneurs, and designers





# BRASKEM HAS THE AMBITION TO BE RECOGNIZED WORLDWIDE AS A COMPANY THAT DEVELOPS THE RECYCLING VALUE CHAIN IN THE REGIONS WHERE IT OPERATES

## BRASKEM'S WORK FRONTS

1

### INVESTMENT IN A SUSTAINABLE PRODUCT PORTFOLIO



Investment in a **portfolio of innovative and sustainable products from chemicals and plastics**, transformed by the Company's customers into applications that meet daily human needs and make people's lives better

2

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# BRASKEM HAS PARTNERSHIPS WITH WASTE CASHBACK STARTUPS TO ENGAGE THE POPULATION IN PROPER WASTE DISPOSAL

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## CONSUMER ENGAGEMENT

### MOLÉCOOLA



- › Installation of recycling material collecting stations
- › Those who dispose of their recyclable garbage, such as plastic packaging, **will get points that may be redeemed for discounts** on goods from several partner businesses.

### COLETANDO

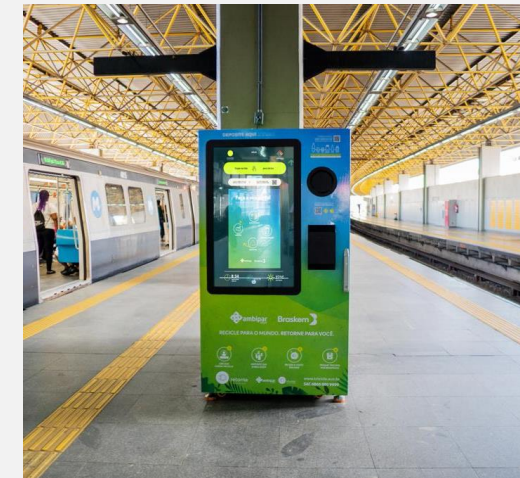


- › People take their sanitized post-consumer packaging to collection points (or deliver them to circulating mobile points) and **can exchange them for credits available on a card, provided directly at the recycling station.**
- › Having this card, it will be possible to make purchases in local establishments, such as markets, pharmacies and bakeries

### AMBIPAR TRICICLO



- › The Return Machines, by Ambipar Triciclo, will receive polyethylene and polypropylene waste in order to increase the recycling of this type of plastic
- › Each PE and PP package deposited **will be worth 10 tricoins within the Triciclo loyalty program**



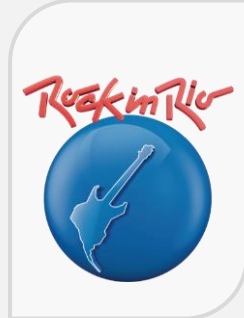
- › Ambipar Triciclo, Braskem and Metrôrio installed return machines for the benefit of packaging recycling

Plastic waste collected in initiatives with cashback startups will be used as raw material at Braskem's mechanical recycling plant in Indaiatuba (SP), in partnership with Valoren

# IN THE CONSUMER ENGAGEMENT AGENDA, THE COMPANY HAS ALSO LEVERAGED MUSIC FESTIVALS TO RAISE AWARENESS IN SOCIETY ABOUT THE CORRECT DISPOSAL OF WASTE

## CONSUMER ENGAGEMENT

### ENCOURAGEMENT ACTIONS FOR CORRECT DISPOSAL AT MUSIC FESTIVALS



- Installation of plastic waste collection stations
- Participants exchanged recyclable items, such as plastic cups, snacks and chocolate packaging, for points that were worth gifts
- **More than 872 thousand plastic items were collected at the collection points that will be transformed into new packaging**



Rock In Rio



- Installation of plastic waste collection stations
- Participants exchanged recyclable items, such as plastic cups, snacks and chocolate packaging, for points that were worth gifts
- **130,000 discarded plastic items were collected at the waste collection points that the company took to the Lollapalooza Brasil festival**



Lollapalooza

Other initiatives developed by Braskem:





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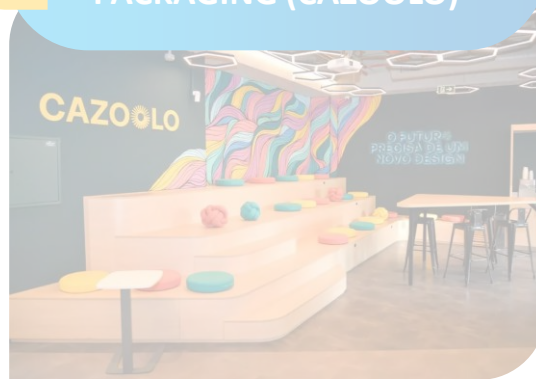
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# BRASKEM HAS SOUGHT TO ENGAGE IN PARTNERSHIPS TO UNDERSTAND, PREVENT AND SOLVE THE LACK OF MANAGEMENT OF PLASTIC WASTE, ESPECIALLY THE PROBLEM OF GARBAGE IN THE SEAS

## PARTNERSHIPS AGAINST GARBAGE IN THE SEAS

### IMPLEMENTATION OF OCS (OCEAN CLEAN SWEEP) PROGRAM

#### 1 CONTEXT

- ▶ Plastic microgranules that are dispersed in the environment are polluting the oceans
- ▶ Improper disposal that leads to material fragmentation is one of the paths taken by post-consumer plastic

#### 2 ADHESION TO THE OCS PROGRAM

- ▶ International plastics industry initiative to reduce the loss of plastic pellets to the environment

#### 3 COMMITMENT FROM BRASKEM

- ▶ **100% of the Company's industrial units adopting the best practices for pellet control** (millimeter plastic granules)

#### 4 CERTIFICATION

- ▶ Achievement of the OCS Blue seal, granted by Plastivida, licensor of Operation Clean Sweep® in Brazil

#### Main measures implemented:

- ▶ Training and awareness actions with internal teams and partners
- ▶ Changes to the floor of the units
- ▶ Purchase of vacuum cleaners
- ▶ Installation of collectors to capture pellets, flakes and powders
- ▶ Installation of protection in equipment to contain material loss
- ▶ Improvements in pellet filling and packaging systems
- ▶ Improvements in truck loading and unloading methods



# THE COMPANY IS ALSO ONE OF THE SPONSORS OF THE BLUE KEEPERS PROJECT, COORDINATED BY THE GLOBAL PACT BRAZIL

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## PARTNERSHIPS AGAINST GARBAGE IN THE SEAS



### › BLUE KEEPERS

- › Blue Keepers is a program developed to combat plastic pollution in rivers and oceans, in a systemic and lasting way
- › Braskem is one of the project sponsors, coordinated by the Global Compact Brazil
- › With joint articulation and focus on waste management, the project works to generate impact in the short, medium and long term through diagnosis, solutions, pilot projects and public management

An initiative by the Brazil Network of the Global Compact that brings together companies from different sectors to face the challenge of discarding plastics in the seas and Braskem participates in the movement

# THE COMPANY WILL ALSO MEET THE COMMITMENTS MADE WITH AEPW (ALLIANCE TO END PLASTIC WASTE)



## PARTNERSHIPS AGAINST GARBAGE IN THE SEAS

### PART A: SOLUTION ACCELERATOR FUND

- ▶ **Investment of US\$ 7.5 million until 2023**
  - ▶ Companies commit to providing Alliance membership fees for each year of their membership
  - ▶ Spending is managed by the Alliance's senior leadership team in line with the strategy
  - ▶ Part A capital proves new ideas and demonstrates new solutions

### PART B: MEMBER DIRECTED COMMITMENT (MDC)

- ▶ **Investment of US\$ 15.0 million until 2023 (target already achieved) ✓**
  - ▶ Alliance members commit to investing directly in their own activities to deal with plastic waste
  - ▶ These investments are chosen and managed by the companies themselves
  - ▶ Members submit their investment ideas to AEPW for approval to be eligible as MDC projects
  - ▶ Part B capital creates a global movement of companies exploring their own ideas and developing new business models

**AEPW is a sectoral coalition committed to investing in projects and technologies to end the disposal of plastic waste in the environment, especially in the oceans**



# FINALLY, BRASKEM LAUNCHED WENEW, ITS NEW CIRCULARITY ECOSYSTEM

WENEW

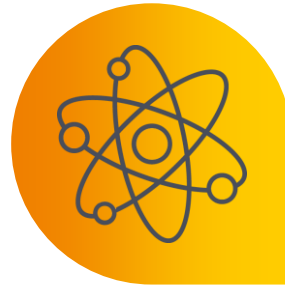


## WENEW: BRASKEM'S NEW CIRCULARITY ECOSYSTEM



### CIRCULAR PRODUCTS

Circular Resins and Chemicals



### TECHNOLOGY

Innovative technologies capable of accelerating the circular economy



### EDUCATION

Environmental education and consumer engagement initiatives



### DESIGN CIRCULAR

Rethinking product and packaging design is essential for EC<sup>1</sup>

Wenew brings together all the products, initiatives, partnerships and projects that the Company develops to enhance its action in favor of the circular economy

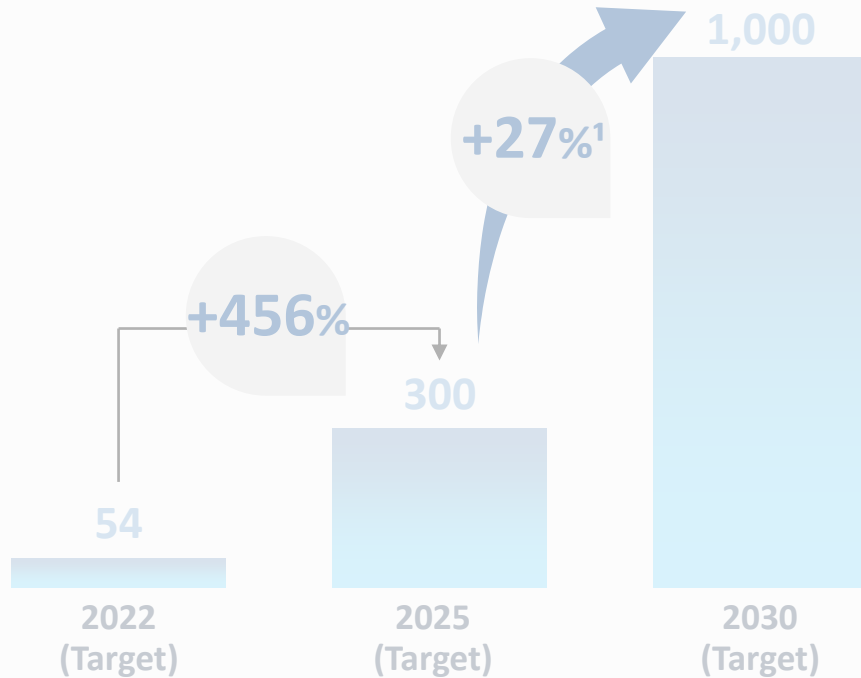
The new ecosystem is an initiative that will have a major impact on Braskem's growth strategy and on the achievement of plastic waste reduction commitments

# BRASKEM BELIEVES THAT INVESTING IN THE CIRCULAR ECONOMY AND BIOPOLYMERS IS A BUSINESS OPPORTUNITY, REPRESENTING GROWTH AVENUES FOR THE COMPANY

## GROWTH AVENUES

### CIRCULAR ECONOMY

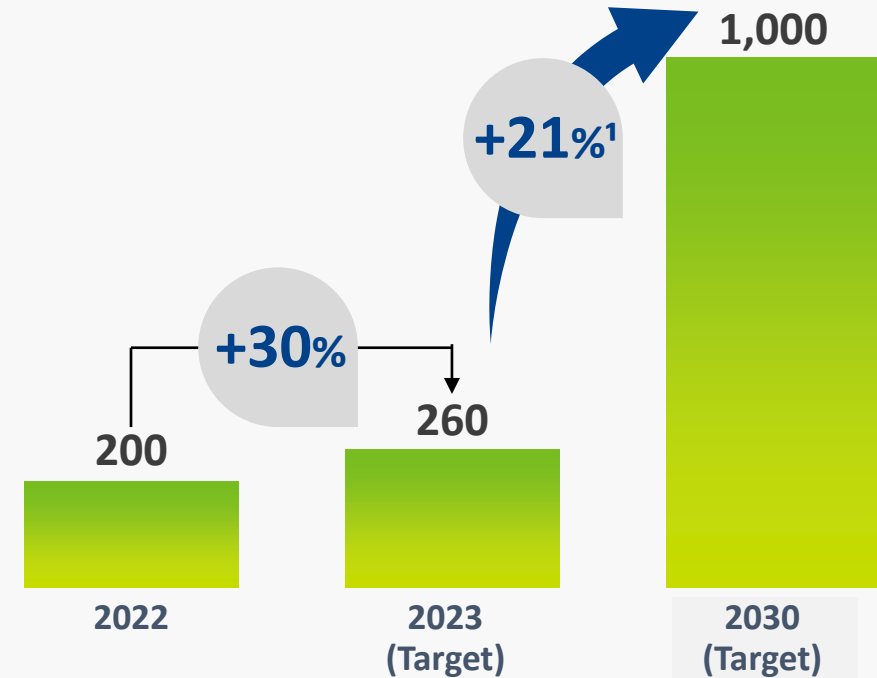
- Grow the portfolio of products with recycled content to reach 300 thousand tons by 2025 and 1.0 million tons by 2030



■ Sales Volume of Recycled Chemicals and Resins

### BIOPOLYMERS

- Expansion of Green PE production capacity to 1.0 million tons by 2030



■ Green PE

# BRASKEM IS A PIONEER IN RENEWABLE PLASTICS AND A GLOBAL LEADER IN GREEN PE

## BIOPOLYMERS

➤ We are the **largest global producer of biopolymers**, having established in 2010 the first industrial scale Green Ethylene plant, located in Triunfo, Brazil with a production capacity of 200 kt/year

➤ **Portfolio of products based on renewable raw materials (ethanol from sugarcane)**, including Green Polyethylene (Green PE) and Green EVA, serving a wide variety of end customers in different sectors

➤ **Winning platform and distinctive capabilities to be the world leader in biopolymers**, capable of promoting growth on a global scale

➤ Product portfolio also driving value of our **renewable raw materials ecosystem and responsible sourcing best practices**

➤ Applied by **+180 brand owners** ...in over 40 countries

➤ **Brand protected** in all regions <sup>(1)</sup> of influence

➤ **Brand internationally recognized**

➤ Several awards earned by clients and Braskem related to innovation and sustainability due to I'm green™ brand



## I'M GREEN BRAND SELECTED PRODUCT APPLICATIONS



PERSONAL CARE  
DOVE SHAMPOO



FOOD  
I LOVE ECO



PERSONAL CARE  
SUNDOWN



TOILET PAPER  
NEVE

# GREEN PE IS A DIFFERENTIATED PRODUCT WITH UNIQUE ATTRIBUTES IN THE GLOBAL PETROCHEMICAL INDUSTRY

BIOPOLYMERS

## MAIN GREEN PE ATTRIBUTES



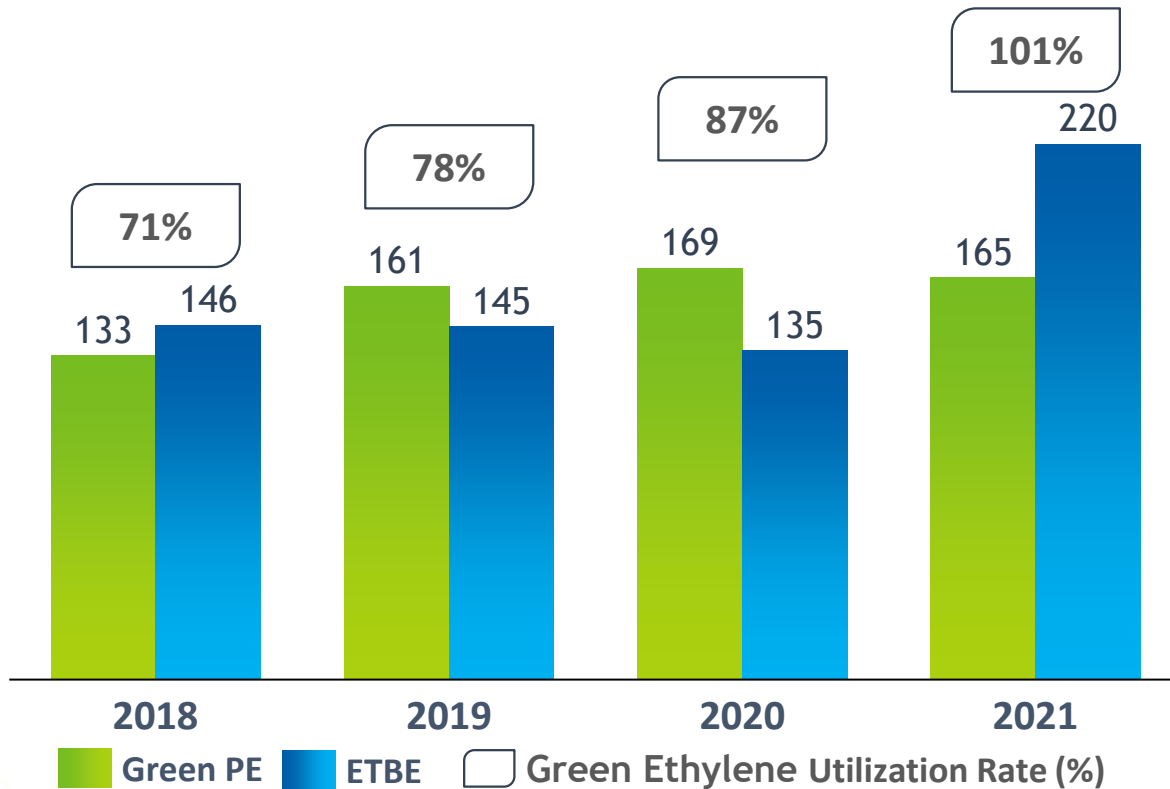


# OVER THE YEARS, BRASKEM HAS IMPROVED THE OPERATING AND FINANCIAL PERFORMANCE OF RENEWABLE BUSINESS

## BIOPOLYMERS

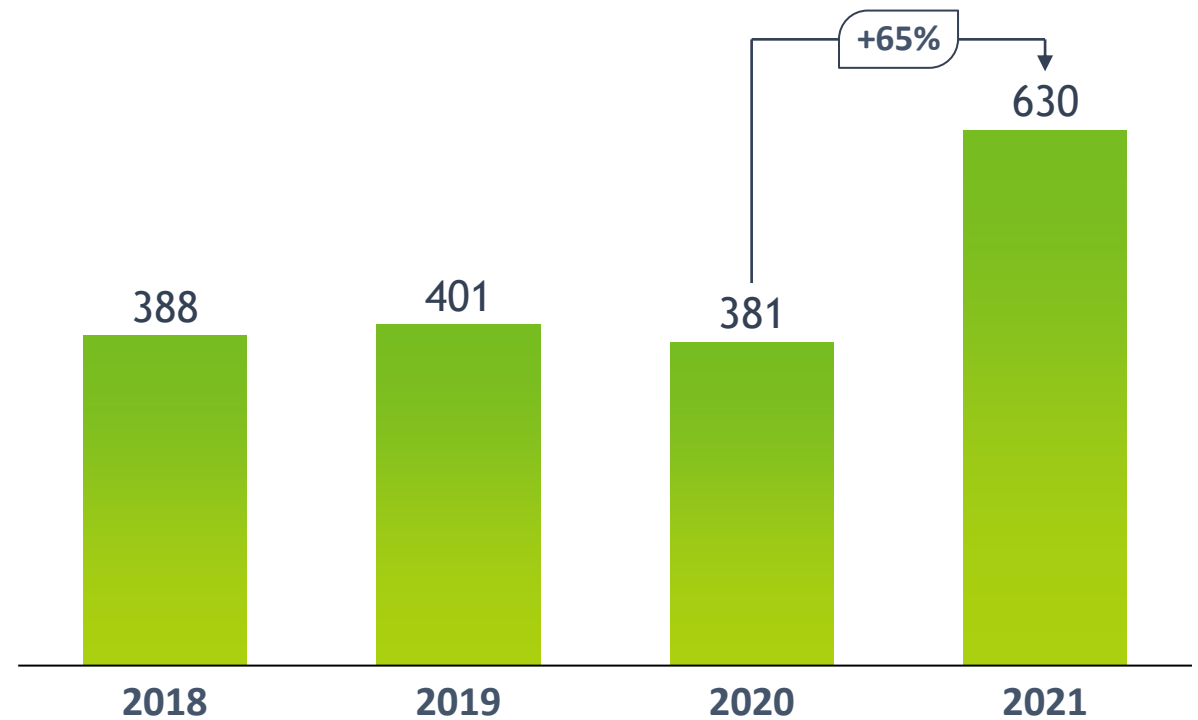
### Green PE Sales (I'm green™ bio-based) and ETBE

(kt)



### Green PE and ETBE Net Revenue

(US\$ million)



# OUR PATH TO GROW IN BIOPOLYMERS BY 2030

## BIOPOLYMERS



### Unlock existing plant capacity

- Expansion to 260 kt/year in progress
- Investment estimated US\$ 87.0 million



### Establish New Partnerships

- Braskem and SCG Chemicals signed the MoU to study joint investment in a new green ethylene plant in Thailand
- Braskem and Lummus signed a partnership to jointly license Braskem's green ethylene technology



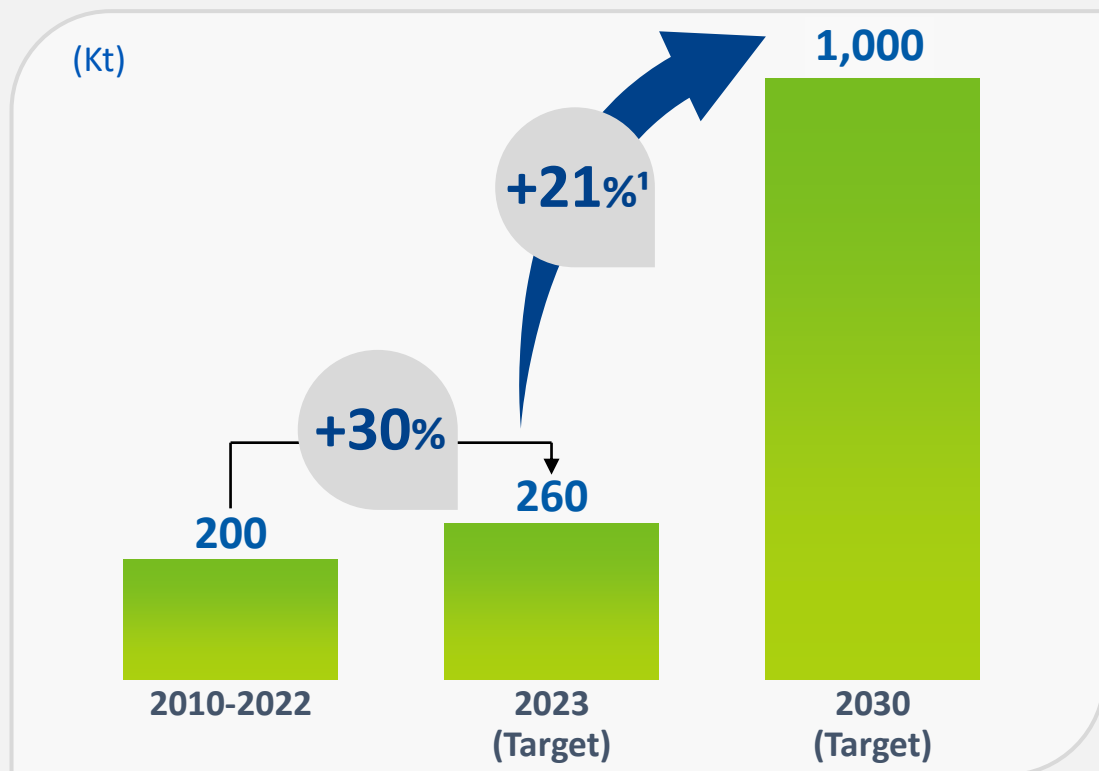
### Develop and grow asset base

- Commitment to achieve 1.0 million tons of green PE production capacity by 2030
- Represents a 5.0x growth of our current production capacity (200 kt/year)

# BRASKEM IS A PIONEER IN THE PRODUCTION AND MARKETING OF GREEN PE AND HAS A GOAL TO REACH 1.0 MILLION TONS OF CAPACITY PRODUCTION BY 2030

## BIOPOLYMERS

### GREEN PE PRODUCTION CAPACITY



### PROJECTS ALREADY ANNOUNCED BY THE COMPANY

DBN<sup>2</sup> of the current plant in Rio Grande do Sul

- Expansion from 200 kt/year to 260 kt/year of current green ethylene production capacity
- Investment of approximately US\$ 87 million
- Status: In progress



- Signing of MOU<sup>3</sup> to conduct feasibility studies to jointly invest in a **new green ethylene plant in Thailand**
- New plant could even double existing capacity



- Partnership to **develop and license Braskem's technology to produce green ethylene**
- It will bring complementary knowledge to accelerate Braskem's commitment until 2030

Braskem is working to accelerate the delivery of the commitment (reach 1.0 million tons of production capacity by 2030) through strategic and financial partnerships



BRASKEM  
**ESGDAY**<sub>22</sub>  
Q&A



BRASKEM

**ESGDAY**<sub>22</sub>

# FINAL REMARKS

ROBERTO SIMÕES  
CEO

