

ROADMAP TO

# NET ZERO

Accelerating our journey to **Net Zero chocolate**



# A message from our CEO



Peter Feld, CEO

**In May 2023, we made a commitment: to decarbonize our carbon footprint across the entire value chain in line with global efforts to cap warming at 1.5 degrees Celsius by 2030 and become a Net Zero company by 2050.**

Climate change is one of the most profound global challenges of our time, affecting ecosystems, economies, and communities worldwide. At Barry Callebaut, we believe that protecting our climate is not just a responsibility—it is essential for the future of our business and our world. Our sector contributes to climate change and is also deeply impacted by its effects. The production of key raw materials like cocoa and dairy impacts the climate, while changing weather patterns threaten the very supply of our ingredients. To continue our path of sustainable growth, we must drastically reduce emissions throughout our value chain. This means that agricultural practices and business models must evolve in harmony with the planet's needs.

As part of our mission to be the heart and engine for the global cocoa and chocolate industry, we fully acknowledge the responsibility we carry. To achieve this we will invest significantly, set measurable targets and remain committed for the coming years and decades.

Following rigorous and collaborative efforts, involving multiple internal and external experts, we are proud to present Barry Callebaut's Net Zero Roadmap. This roadmap not only outlines

our plans to meet these ambitious targets, but also introduces innovative solutions that will empower our customers to join us on this important journey. Our ultimate goal is to make a significant impact on global decarbonization efforts, fully aligned with the Paris Agreement and the Science Based Targets Initiative (SBTi).

However, we recognize that this journey is one we must undertake together. We are embedded in value chains, local communities, and global systems. Achieving our targets will require collaboration, supportive regulations, and enhanced solutions that empower our customers to be active partners in this mission. By working together across the entire value chain and promoting a fair distribution of responsibilities, we believe we can reach these important goals. Our aim is to become the world's leading provider of Net Zero chocolate solutions, helping our customers globally achieve their own climate targets.

With this roadmap, we have laid the foundation for a future where our dedication to chocolate not only delights but also contributes to a healthier planet. Now, we are ready to turn these ambitious plans into action, hand in hand with our customers.

Thank you for your interest in this critical mission and for joining us on our journey to Net Zero.

A handwritten signature in black ink, appearing to read 'Peter Feld'.



The background features a light green, textured surface. On the left, there are several cocoa beans, one of which is cut open to show the white pulp and seeds. On the right, there are large, vibrant green leaves, likely from a cocoa tree, with some yellowing at the edges. The overall aesthetic is natural and organic.

Why

# Setting the context

Climate change is one of the biggest challenges our world has ever faced, already affecting our business and set to have an even greater impact in the near future. An accelerated transition towards Net Zero is urgently required, not only for the planet, but also for the continued success and sustainability of our business. Protecting the climate means protecting our business.

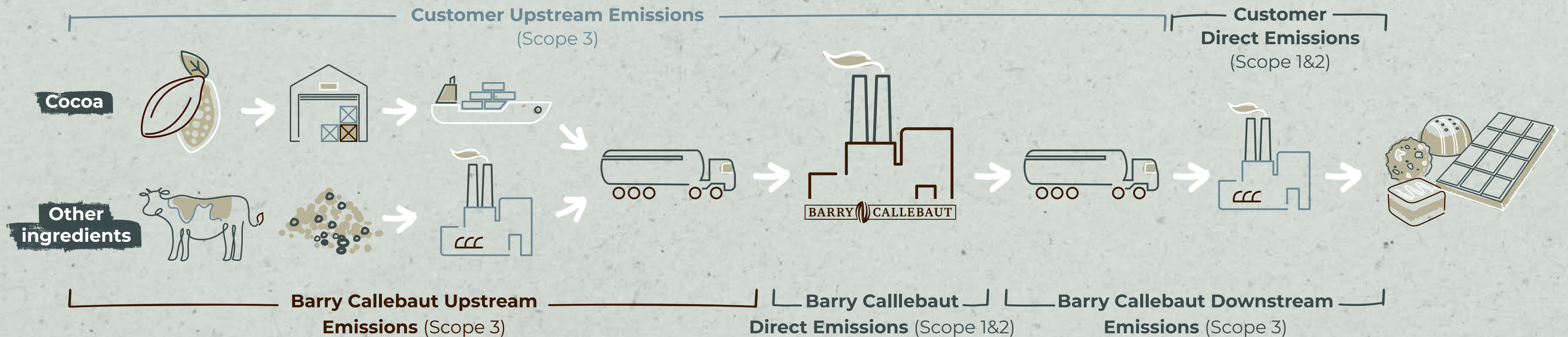




Barry Callebaut considers climate change among the critical financial risks within the broader scope of Environmental, Social, and Governance (ESG) factors (see [Risk Overview in our Annual Report 2022/23](#)). It impacts the long-term sustainable supply of cocoa and other agricultural raw materials, the price volatility of these resources, our supply chain and operations. Additionally, we are navigating a shifting policy environment, with measures such as carbon taxes becoming increasingly prevalent. In response, we are building stronger partnerships with customers and suppliers, seizing opportunities in an evolving market through leading innovation, and staying at the forefront of these legislative changes to address these challenges effectively.

While we have a long-standing commitment to reducing emissions throughout our value chain, there are still ample opportunities to further reduce emissions and even remove carbon from the atmosphere, which we will explore in the next section. Since we share the value chain with our suppliers and customers, collaboration is essential to achieving these goals.

## Emissions along the value chain





## What is the Paris Agreement?

The Paris Agreement, adopted in 2015, is a legally binding international treaty aimed at combating climate change by limiting global warming to well below 2 degrees Celsius, with efforts to restrict it to 1.5 degrees. It emphasizes reducing greenhouse gas emissions, enhancing adaptive capacities, and fostering climate resilience. This agreement is crucial as it unites countries in a collective effort to address the pressing threat of climate change, ensuring a sustainable and resilient future for all.

## What is the Science Based Targets Initiative?

The Science Based Targets initiative (SBTi) is a global organization that supports companies to set science-based emissions reduction targets that align with the goals of the Paris Agreement. By providing a clear pathway to reduce greenhouse gas emissions, the SBTi ensures businesses contribute effectively to limiting global warming and supports the transition to a low-carbon economy. SBTi also assesses and validates these targets through its validation services.





## Barry Callebaut has always been an early-adopter in climate action

Sustainability is at the heart of Barry Callebaut, and we have a long-standing commitment to building a sustainable cocoa and chocolate supply chain. Our roadmap and the targets outlined in this report continue to accelerate the efforts we've already been making for years, aligned with the "**Thriving Nature**" pillar of Forever Chocolate, our plan to make sustainable chocolate the norm.

Milestones in our sustainability and climate change mitigation journey.

### 2005

Barry Callebaut launches its own cocoa sustainability initiative "Quality Partner Program"

### 2008

Launch of 5-year targets to reduce GHG emissions from our factories by **20% and increase renewable energy to 20% by 2013 (accomplished)**

### 2012

Start of sustainability initiative "Cocoa Horizons"

### 2014

Initial calculations and reporting on emissions in the Supply Chain (Scope 3)

### 2015

Launch of **Forever Chocolate** strategy to make sustainable chocolate the norm

### 2019

- Pioneers with first assessment of carbon footprint from direct Land Use Change (dLUC), initial reduction targets SBTi-approved in alignment on 1.5 degrees Celsius goal
- First company to receive SustainCERT certification, certifying achievement on carbon removals from agroforestry

### 2022

Reduction of overall corporate carbon intensity per ton of product by more than **18% since 2016**

### 2024

Re-commitment to SBTi with FLAG and **2030 targets, Net Zero and an updated footprint** aligned with latest science and standards

### 2030

Reach interim GHG reduction targets set for Scope 1, 2 and 3

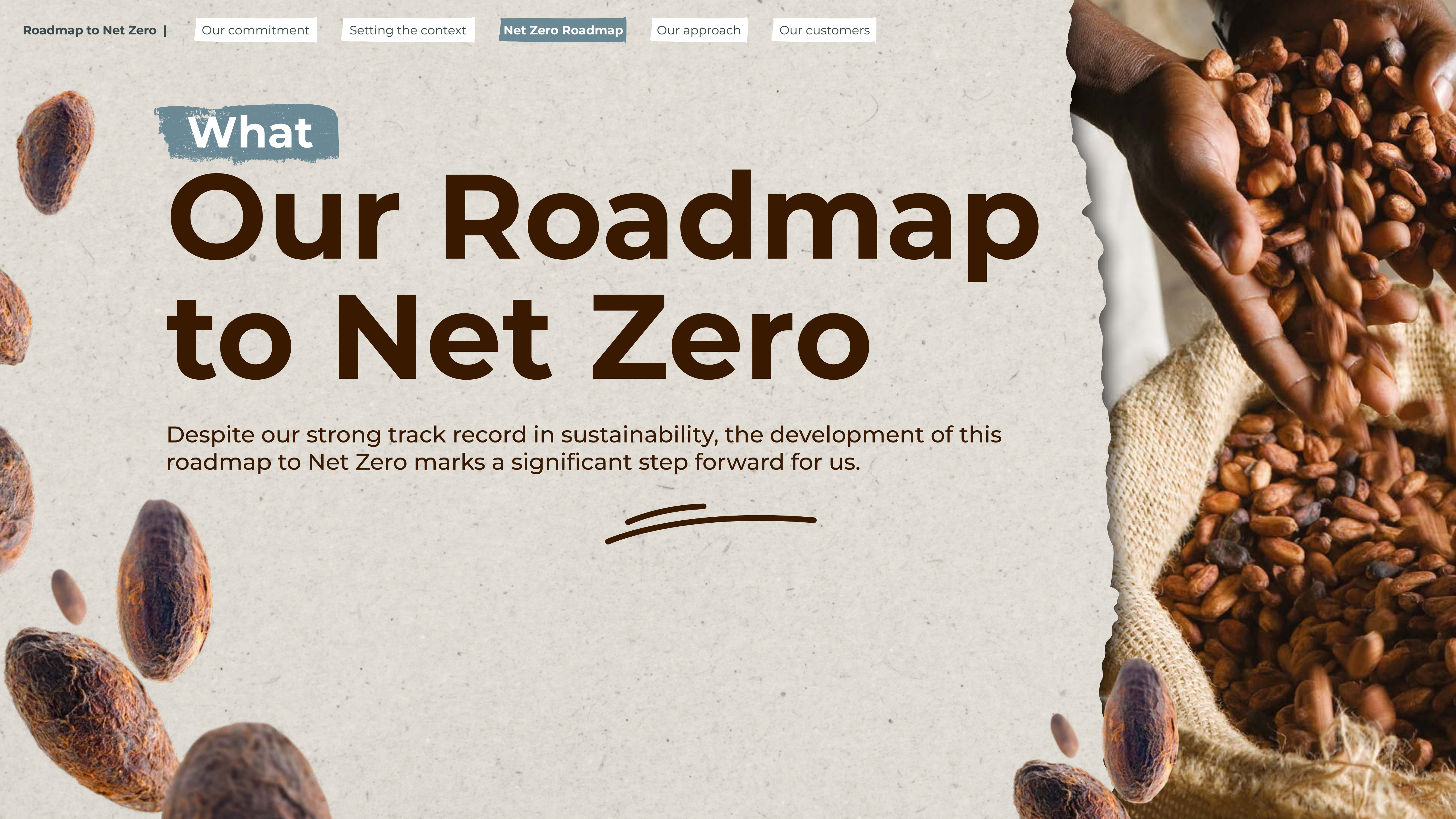
# 2050 NET ZERO



What

# Our Roadmap to Net Zero

Despite our strong track record in sustainability, the development of this roadmap to Net Zero marks a significant step forward for us.





Our roadmap was developed with the support of environmental consultancy Quantis, based on the latest scientific knowledge and widely accepted standards. Internal and external stakeholders and experts participated in a collaborative process that included multiple workshops, action reduction potential modeling, and careful selection and revision of actions, culminating in the validation of our targets by the SBTi.

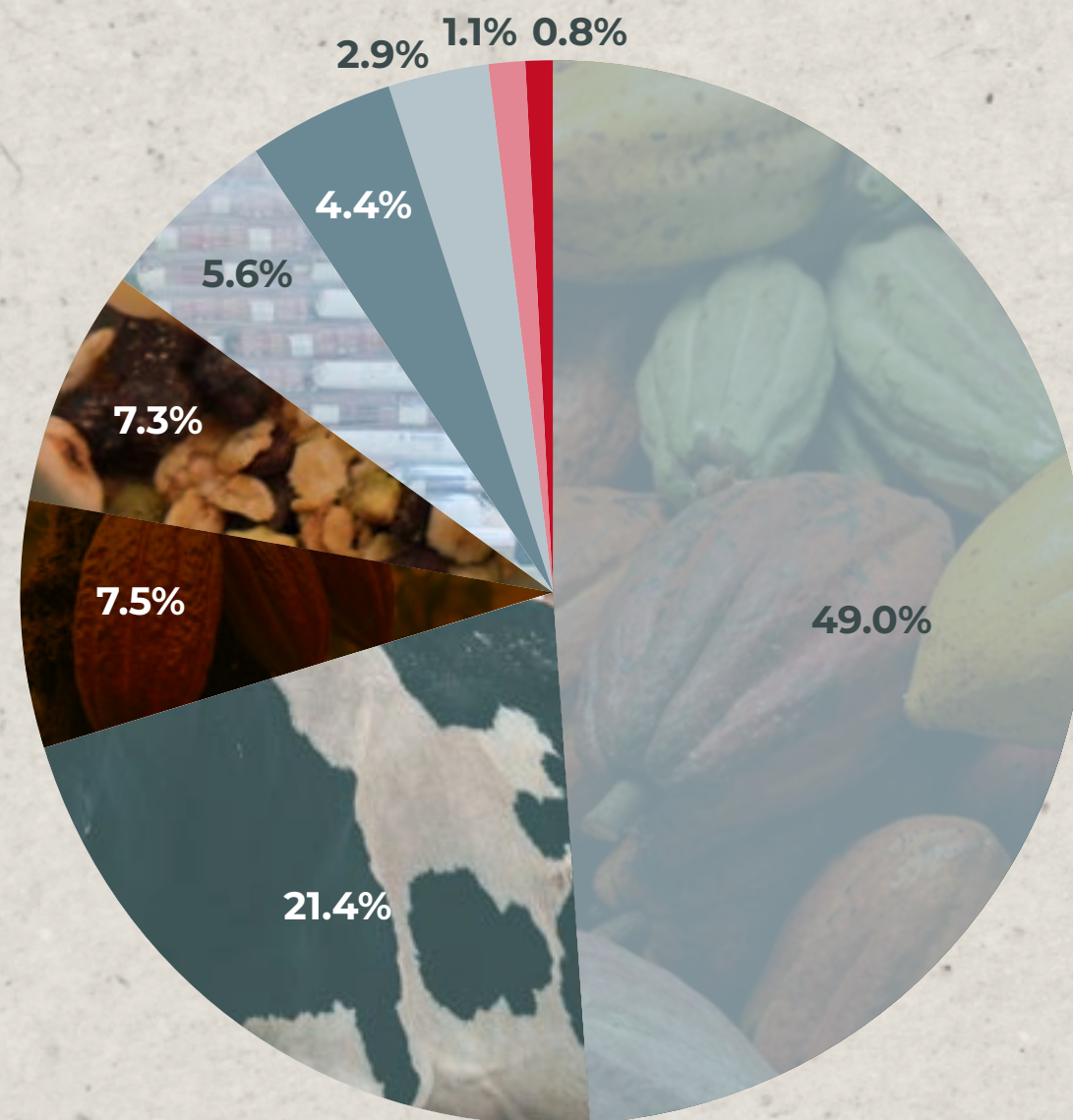
**“Barry Callebaut’s Net Zero Roadmap is holistic and state of the art. After months of work, engaging dozens of stakeholders, and evaluating over 30 impactful decarbonization actions, especially in farming and deforestation around cocoa, we are convinced this roadmap is the perfect guiding star for Barry Callebaut’s journey to Net Zero.”**

Simone Pedrazzini, Managing Director, Switzerland, Quantis



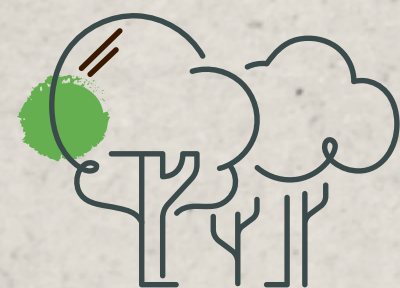
# The footprint\*

Understanding our carbon footprint is an essential first step on our pathway to Net Zero. At Barry Callebaut, most of our footprint lies within our value chain and is composed of the following key elements:



Total footprint: 13.94 mio tCO<sub>2</sub>e (2021/22)

Scope 3 FLAG: 85.2%  
 Scope 3 Non-FLAG: 12.9%  
 Scope 1&2: 1.9%



## FLAG: Forest Land and Agriculture

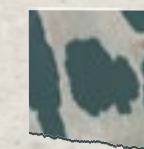
The forest, land and agriculture sector is one of the most affected by the impacts of climate change. But it is also a significant source of emissions. It represents nearly a quarter of global greenhouse gas (GHG) emissions - the largest emitting sector after energy, see our independently assured [Restatement Report](#). Following latest SBTi standards, we are reporting FLAG emissions separately and set a FLAG-specific target for these.

## GHG inventory breakdown for Net Zero roadmap



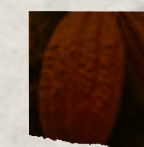
### Cocoa LUC (FLAG)

Land Use Change (LUC) emissions stem from deforestation or biomass loss on land converted to agriculture over the past 20 years. Barry Callebaut has led LUC emissions monitoring via satellite since 2019 (referred to as “dLUC”, direct Land Use Change).



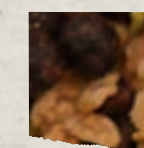
### Dairy Farming & LUC (FLAG)

Dairy farming produces significant methane (CH<sub>4</sub>) and other GHGs from cow digestion and manure. Additionally, when cows are fed with soy, this can involve LUC emissions due to deforestation for soy production.



### Cocoa Farming (FLAG)

The decay of cocoa pod husks is a significant source of GHG emissions, particularly CH<sub>4</sub>. Additional emissions arise from the use of fertilizers and pesticides.



### Other ingredients LUC and farming (FLAG)

Other chocolate ingredients, like sugar, nuts, and oils, are mainly agricultural. Farming these results in emissions from fertilizers and other inputs, and some are also linked to LUC emissions.



### Transport

All forms of transport in the value chain, including cocoa beans, ingredients, and final products from factories and warehouses to customers. Barry Callebaut uses both ocean and road transport.



### Ingredients processing

This includes processing steps by suppliers for agricultural raw materials, excluding in-house cocoa bean processing by Barry Callebaut. For example, turning sugar beets into crystal sugar and fresh milk into milk powder.



### Other

All remaining GHG emissions in the value chain, including those from customer product processing, electricity supply, waste management, and business flights.



### Factories (Scope 2)

Indirect emissions from electricity consumption in factories and offices. In 2021/22, 29 of 66 factories used 100% renewable electricity. A small share of electricity used in office is also reported here.



### Factories (Scope 1)

Direct emissions primarily come from natural gas use in factories for roasting cocoa beans and producing chocolate. A small share of gas used for heating of offices is also included here.

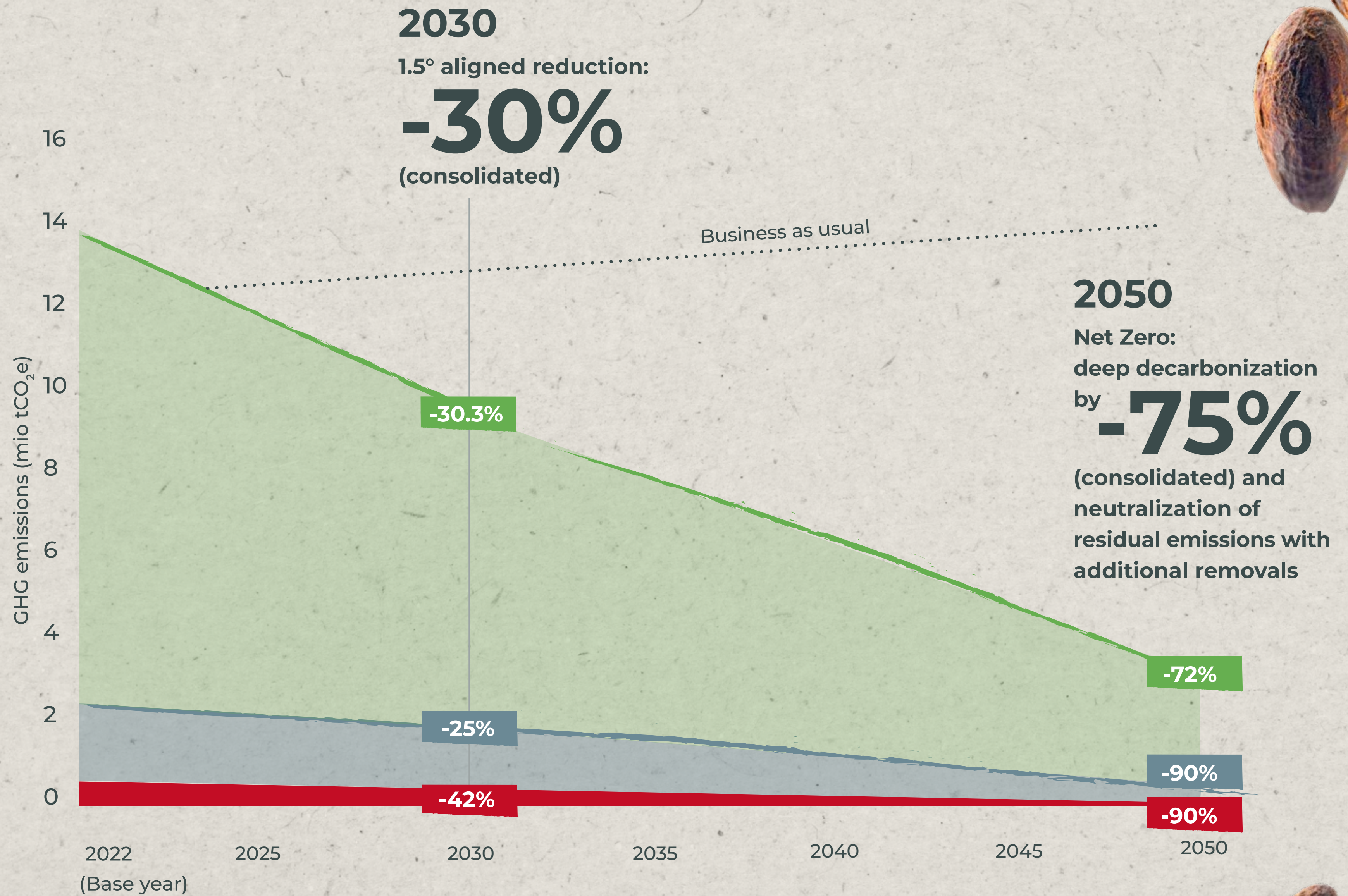
\* **Please note:** As standards, science, monitoring tools around GHG emissions, as well as business operations within BC's reporting scope evolve constantly, we will regularly update and restate our baseline GHG emissions to ensure consistent performance tracking over time. Previous calculations underestimated our overall carbon footprint, the main reason being improvements in calculations for GHG emissions from cocoa land use change (LUC) and land management. For more information, please see our [Restatement Report](#) as well as our [Recalculation policy](#).



# Targets\* & Roadmap

Our roadmap outlines our commitment to align with the 1.5°C pathway by 2030 and achieve Net Zero by 2050.

- Scope 3 FLAG
- Scope 3 Non-FLAG
- Scope 1&2



\* Please note: As validated by SBTi, our Net Zero target covers 100% of our total emissions across all scopes. For our 2030 target, we exclude Category 10 (Processing of sold products) from our target boundary.



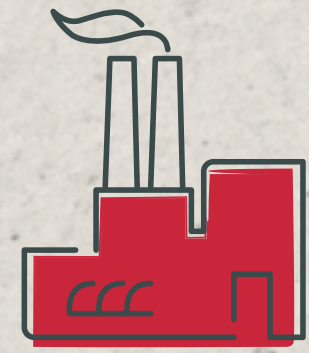
**How**

# Our approach to reach Net Zero

To determine how we will reach our ambitious targets, more than 30 reduction levers across five key areas were modeled with a cost-benefit analysis.

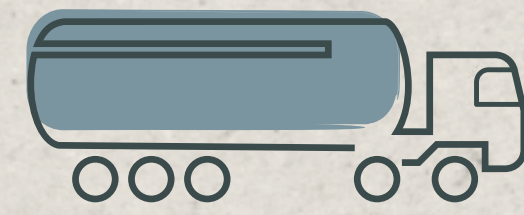


In the following section, we highlight the reduction potential in key areas where we will concentrate our efforts to accelerate carbon reduction, with a focus on the main levers driving these changes.



**SCOPE 1&2**

Renewable electricity for our own production sites, energy efficiency, R&D for lower carbon production and products



**SCOPE 3 NON-FLAG**

Low carbon transport, supplier engagement with a focus on the processing of non-cocoa ingredients



**SCOPE 3 FLAG**

Selective sourcing, agroforestry (cocoa), EUDR & forest positive (multiple ingredients), low-carbon farming (dairy and multiple other ingredients), R&D for improved climate smart production (multiple ingredients)



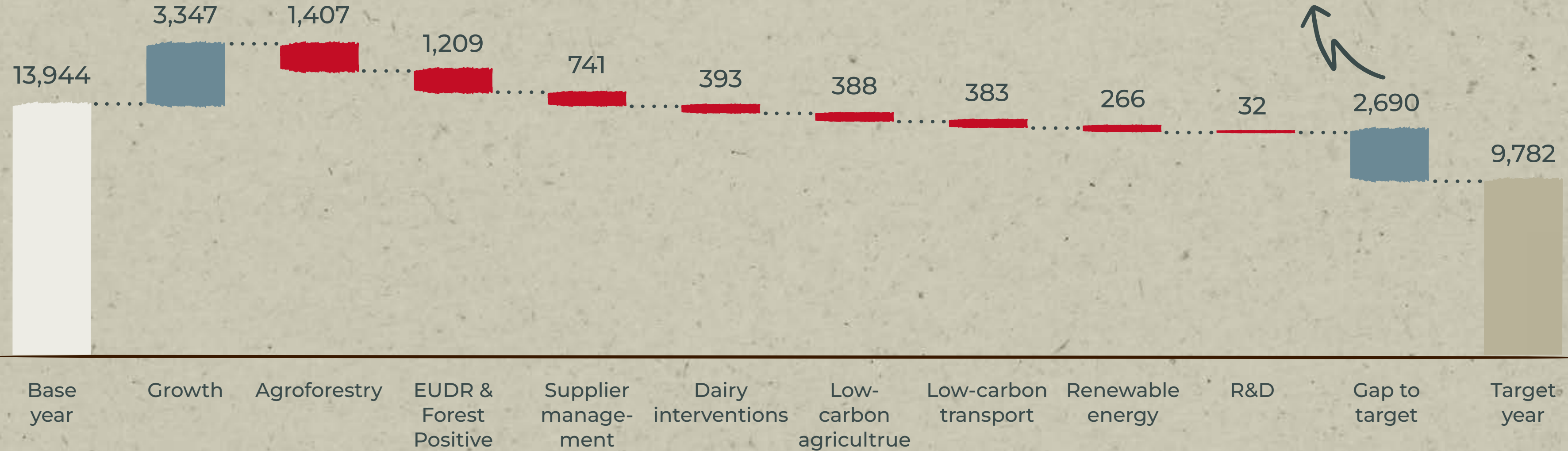
**“Becoming a Net Zero company is a monumental challenge requiring a strategic approach, deep ongoing commitment, and continuous exploration of new solutions and partnerships. Our Net Zero Roadmap, supported by experts, scientists and leaders across and beyond Barry Callebaut, provides a perfect base to accelerate into the next phase of our journey. It is innovative, technically sound and cost effective. Now, we are eager to put it into practice, together with our customers.”**  
Tilmann Silber, Head of Net Zero





## How will we meet our 2030 targets?

GHG emissions in k tCO<sub>2</sub>e)



Our current roadmap includes a “gap to target”. We aim to close this gap over time by exploring new innovative decarbonization levers that have not yet been modeled for our current roadmap. Such levers might include, for example, additional low-carbon farming practices, novel ingredients, and also the effects of our recently launched Future Farming Initiative.

## Overview of levers

### Agroforestry

On-farm agroforestry plays a pivotal role in mitigating climate change by sequestering carbon from the atmosphere. In line with our **forest positive commitment**, we will further increase and optimize our different agroforestry systems, which have the potential to achieve significant carbon removals.

### EUDR & Forest Positive

Barry Callebaut’s commitment to traceability and no-deforestation efforts began long ago and has now reached a pivotal moment with the implementation of the EU Deforestation Regulation (EUDR). Implementing EUDR provides the most significant lever for long-term reduction, as it ensures that no newly-deforested farms enter our supply chain. Additionally, we will enhance productivity through farm rejuvenation, good agricultural practices, and the adoption of higher-yielding cocoa varieties. The carbon-related impact will be significant by 2030, and we expect it to further grow until 2050, due to the way Land Use Change emissions are accounted for under international standards.

### Low-carbon agriculture

This lever includes a range of activities focused on applying regenerative practices in the production of key raw materials. These practices include using low-carbon fertilizers produced with renewable energy, improving crop nutrient management, managing compost properly with cocoa biowaste, and enhancing soil management practices, such as low or no-till methods for cow feed and sugar beet production. Additionally, it involves optimizing crop nutrient management in the production of sugar and palm oil.

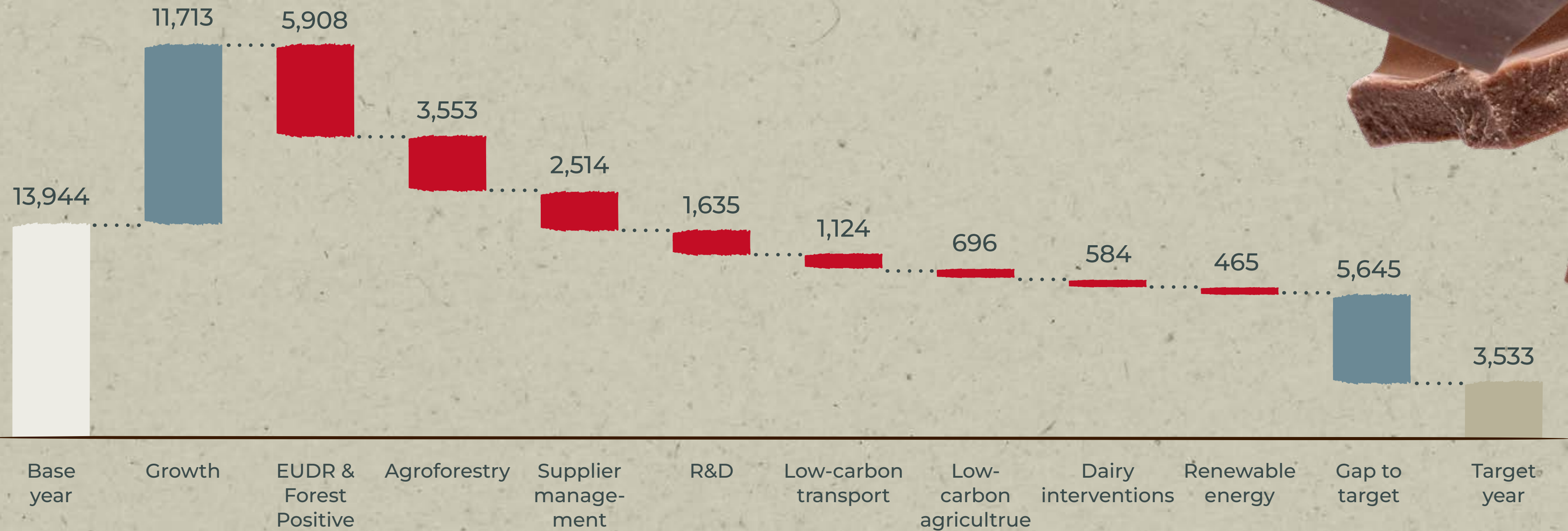
### Dairy interventions

Cow manure produces methane (CH<sub>4</sub>), a potent greenhouse gas, making improved manure management a significant opportunity for carbon reduction. This includes practices like reducing storage time and using technologies such as covered lagoons. Additionally, incorporating feed additives can further reduce CH<sub>4</sub> emissions. We will accelerate efforts in this area across our dairy supply chain.



## How will we meet our 2050 targets?

GHG emissions in k tCO<sub>2</sub>e



### Overview of levers continued

#### Supplier management

In our systematic supplier engagement, we will place even greater emphasis on securing their commitment to, and actions toward, decarbonization, particularly in the processing of agricultural raw materials.

#### R&D

By strengthening R&D activities at the farm and product levels, we can further reduce our carbon footprint. This could involve accelerating the search for dairy alternatives or new cocoa varieties.

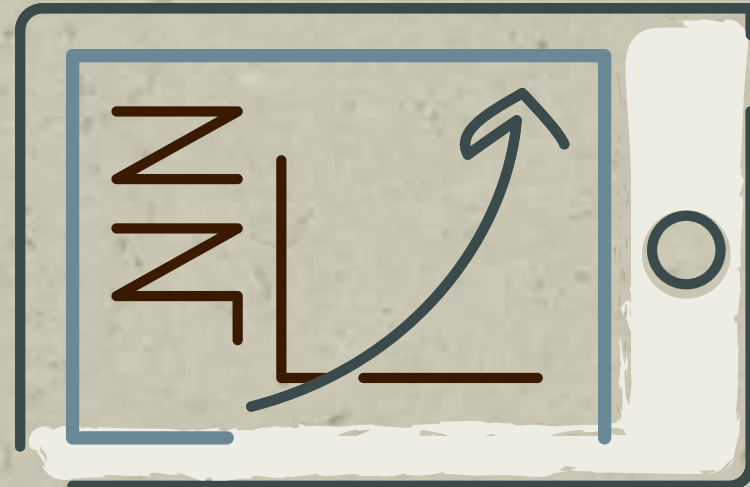
#### Low-carbon transport

Activities in this area include improving efficiency through network redesign related to warehouse locations and maximizing payloads in trucks. Additionally, switching to electric vehicles and biofuel-powered ships, along with utilizing return journeys of inbound lorries for a portion of outbound shipments, are important elements.

#### Renewable energy

At our production sites, we will accelerate the use of renewable electricity, whether purchased or generated on-site. Further, we will reduce and replace the use of natural gas by maximizing waste heat recovery, shifting to heat pumps for heat generation and by the use of biomass/biogas.





## Business model and governance

Decoupling our business growth from GHG emissions is a collective effort with transformational elements. Our governance to reach Net Zero is therefore based on the integration of the targets throughout the company structure – from the CEO to various departments and the subsidiaries. A central function, the “Head of Net Zero” coordinates and aligns all these efforts. However, the engagement is not limited to Barry Callebaut only, as we are depending on our supply chain partners and customers to pull in the same direction.

We will continue to invest in R&D to uncover additional opportunities for cost-effective decarbonization, explore new farming methods, novel ingredients, and other innovative business approaches as we transition to a Net Zero future.



Together

# Partnering with our customers

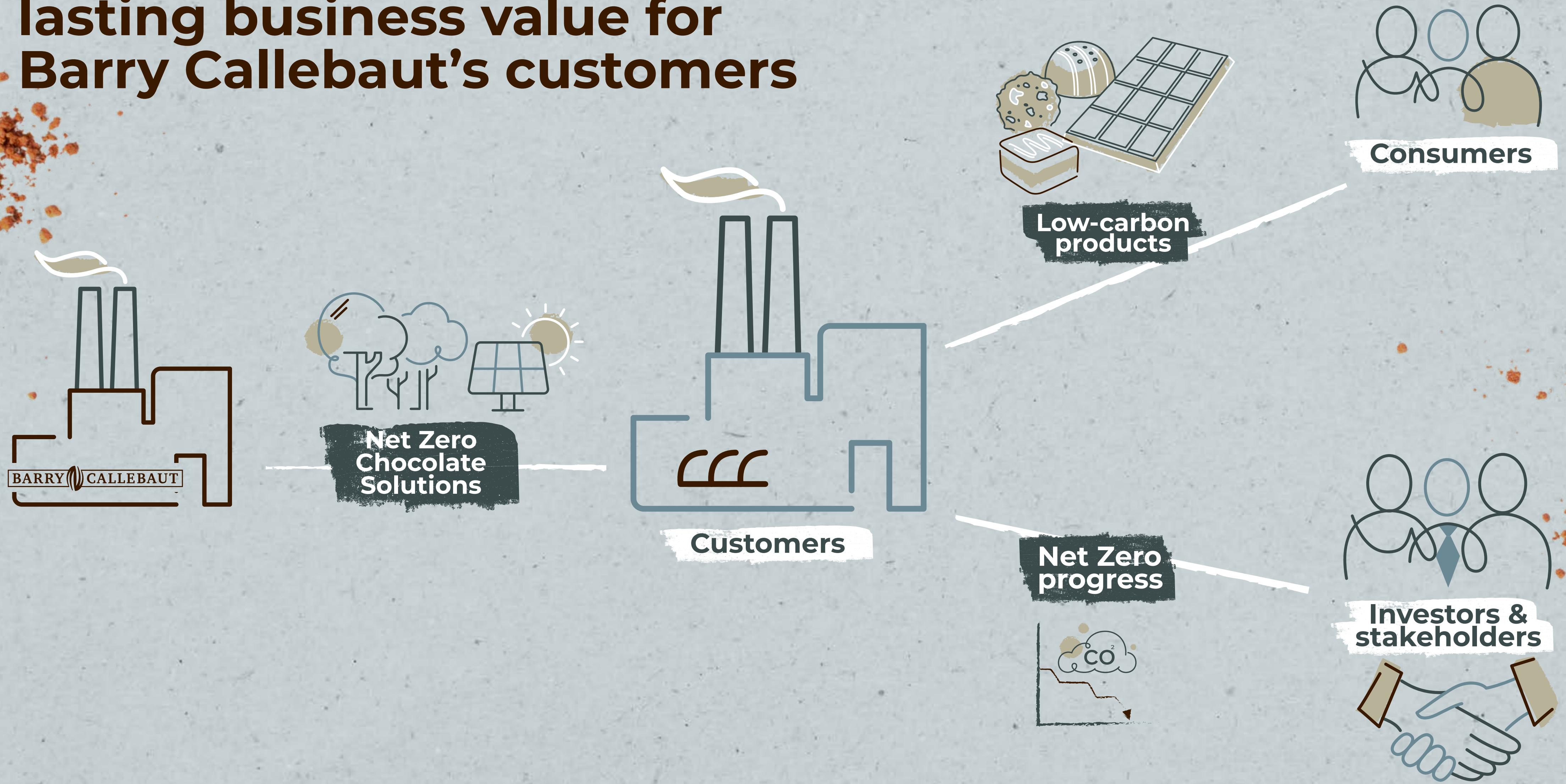
We support our customers in reaching their climate targets.

Our Net Zero Chocolate Solutions provide comprehensive, end-to-end coverage of all major emission sources, from farming to our customers' doors.





# Net Zero Chocolate Solutions create lasting business value for Barry Callebaut's customers

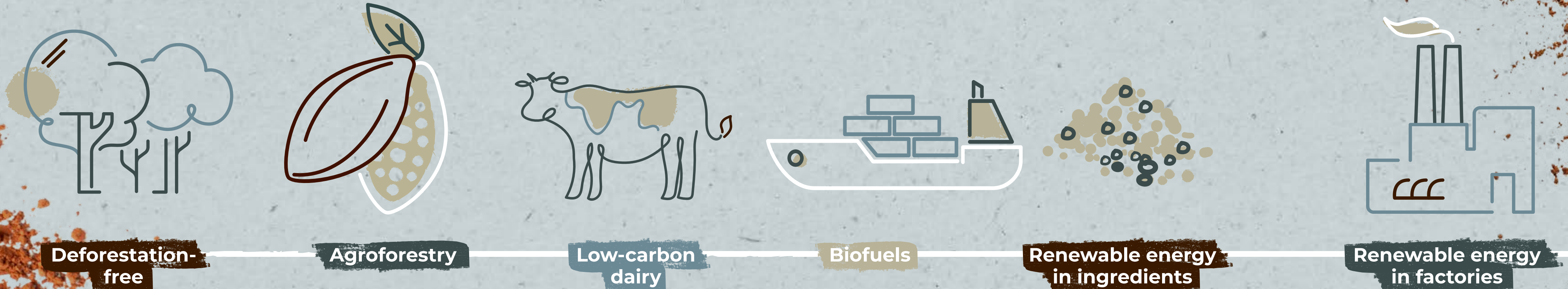




# Barry Callebaut's Net Zero Chocolate Solutions

Our solutions are impactful, affordable, holistic, and verified

6 climate actions, covering products from cradle to gate



We offer various options to accommodate the different ambitions and targets of our customers. We also support the development and provision of claims, based on trustworthy, complete and verified data.

We have long-standing customer partnerships to decarbonize cocoa. With our Net Zero Chocolate Solutions, we are now offering a fully integrated, end-to-end decarbonization program, covering all relevant elements of chocolate products, including dairy and other non-cocoa ingredients, transportation, and manufacturing.

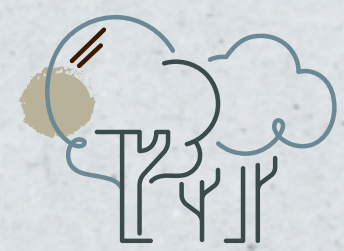


## The journey has already begun

Partnering to reach shared targets

### Nestlé x Barry Callebaut:

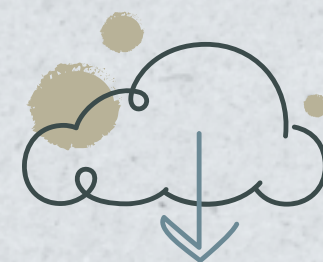
In a long-term partnership with Nestlé, we are rolling out 11,500 hectares of agroforestry, including payments for ecosystem services (PES) to more than 6,000 farmers in Côte d'Ivoire. The program aims to remove 1.3 million tons of CO<sub>2</sub>e over 25 years, simultaneously contributing to the removal of carbon within our own and Nestlé's supply chain. This agroforestry insetting approach aligns with the Science Based Targets Initiative (SBTi), as well as [SustainCERT](#) verification.



**11,500**  
hectares of  
agroforestry



**6,000**  
farmers in  
Côte d'Ivoire



**1.3 million**  
tons of CO<sub>2</sub>e  
over 25 years

**More to come**



**Mitigating climate change is a huge global challenge affecting all of us. Join us in this collaborative effort, for a livable future on planet earth. For more information and to discuss options, please get in touch via the contacts on the right.**

## **References, further information and contacts**

- **Restatement Report** on Greenhouse Gas Emissions 2021/22 & 2022/23
- **Recalculation Policy** for Greenhouse Gas Emissions
- **Methodology** of Corporate Carbon Footprint Calculation
- **Forever Chocolate** – our plan to make sustainable chocolate the norm

Going forward, we will publish our externally assured progress on a yearly basis.

## **Contacts:**

- For Media:  
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[www.barry-callebaut.com](http://www.barry-callebaut.com)

**General note:** Please note that this document will be periodically updated to reflect ongoing developments and evolving strategies.