

2025

# TCFD REPORT



raízen

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# INTRODUCTION

For the fifth consecutive year, we are publicly disclosing information about our approach to climate change. This report follows the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), the globally recognized framework for disclosing climate-related risks and opportunities and their connection to strategy, operational performance, and financial results. The report covers fiscal 2025 and includes our principal operations in our Mobility business in Brazil<sup>1</sup> and our Ethanol, Sugar, and Bioenergy (ESB) business, which comprise the assets most material to our financial performance (see the complete list on [page 16](#) of this report).

<sup>1</sup> We ceased consolidating Raízen Paraguay as of December 1, 2024, following a significant reduction in our ownership interest and operational control in the country. Raízen Argentina has also been excluded from the scope of this report, given the specific characteristics of that operation and our focus on material topics.

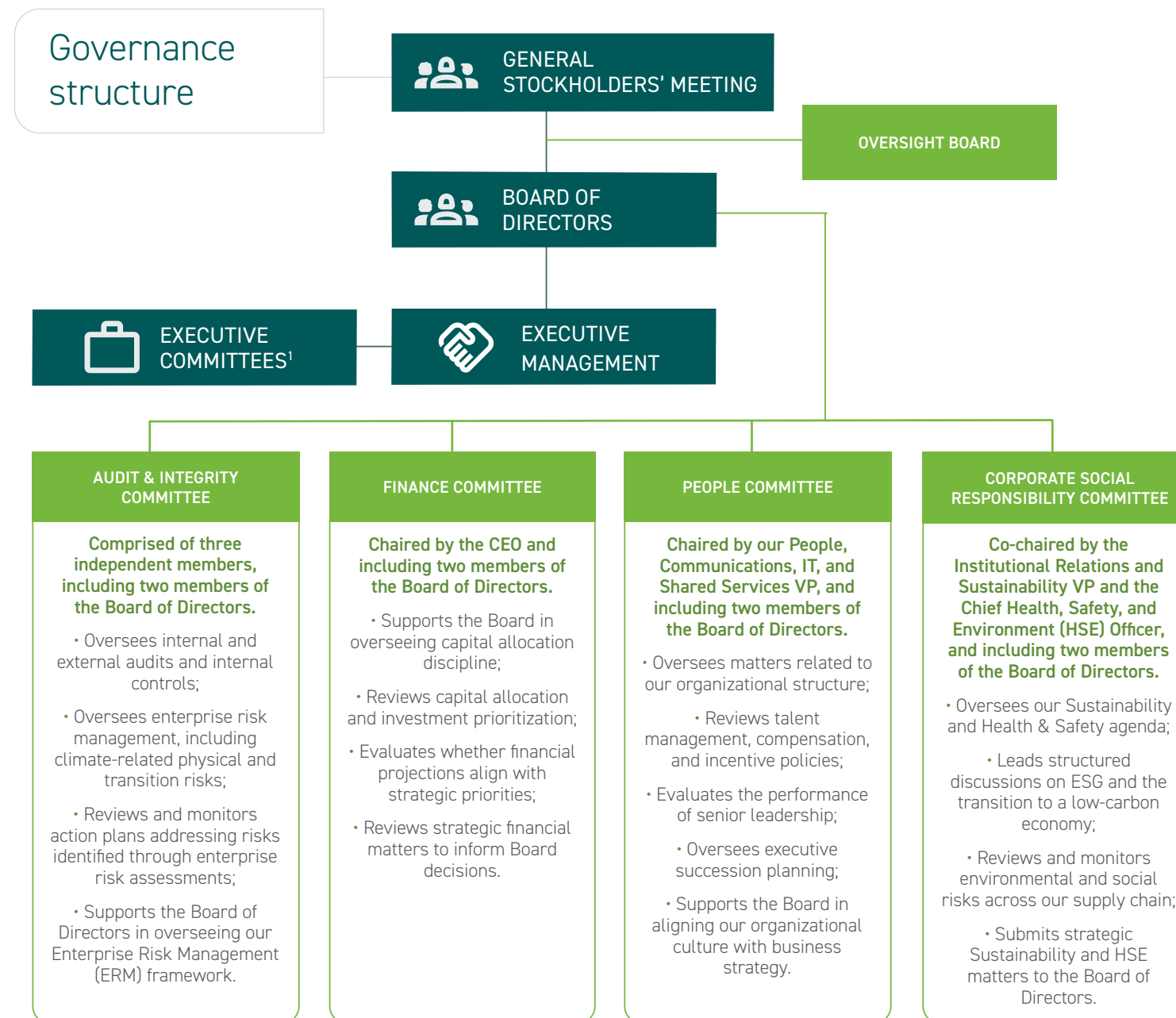


# GOVERNANCE

Corporate governance underpins the responsible, transparent, and strategic management of our business. It ensures that sustainability matters—particularly climate-related issues—are addressed across all levels of the organization with the same rigor applied to other critical business priorities, and that oversight reaches the highest levels of governance.

The advisory committees supporting the Board of Directors help oversee our corporate strategy, including the integration of climate-related and sustainability considerations into business management. Among these committees, the **Corporate Social Responsibility (CSR) Committee** is responsible for overseeing our sustainability agenda and serves in both an advisory and decision-making capacity in the evaluation, approval, and monitoring of sustainability initiatives. Its responsibilities include initiatives addressing climate change and advancing decarbonization. The committee meets on a quarterly basis.

We report on our sustainability performance each reporting cycle through our Integrated Report, which is prepared in accordance with internationally recognized standards and frameworks, including SASB, GRI, and IIRC guidelines. For more information, refer to our 2025-26 Integrated Report [here](#).



<sup>1</sup> As previously disclosed, in connection with Raízen's financial restructuring and the Out-of-Court Reorganization Plan filed on June 5, 2026, changes to our governance structure may be implemented as appropriate. Additional information is available at [ri.raizen.com.br/en](https://ri.raizen.com.br/en).

# STRATEGY

Climate change has a direct impact on our operations, particularly our agricultural activities. Changes in rainfall patterns, prolonged droughts, and extreme weather events affect sugarcane yields, the availability of natural resources, and the performance of our industrial operations. At the same time, the energy transition is driving demand for lower-carbon solutions, including ethanol, bioenergy, and other biofuels, reinforcing our role in helping decarbonize emissions-intensive sectors.

In response, we have integrated our climate strategy into our enterprise risk management framework and strategic planning process. Identified physical and transition risks inform our strategic priorities, while strategic decisions guide the implementation of mitigation and adaptation measures, as well as initiatives to capture climate-related opportunities. An integrated approach ensures alignment between strategy, risk management, and execution.

We actively participate in industry forums and associations in Brazil and internationally to help advance regulatory and market frameworks that support decarbonization. Through this engagement, we advocate for the value of low-carbon solutions and the sustainability attributes of sugarcane, expand market opportunities, and support sustainable business models across the value chain, particularly as sustainability requirements increasingly become trade barriers.

In addition to decarbonization advocacy, our efforts addressing greenhouse gas (GHG) emissions include annual GHG inventories, product life cycle assessments, climate scenario analysis and modeling, the integration of climate-related risks into our enterprise risk matrix, and projects to reduce our carbon footprint.

## Time horizons

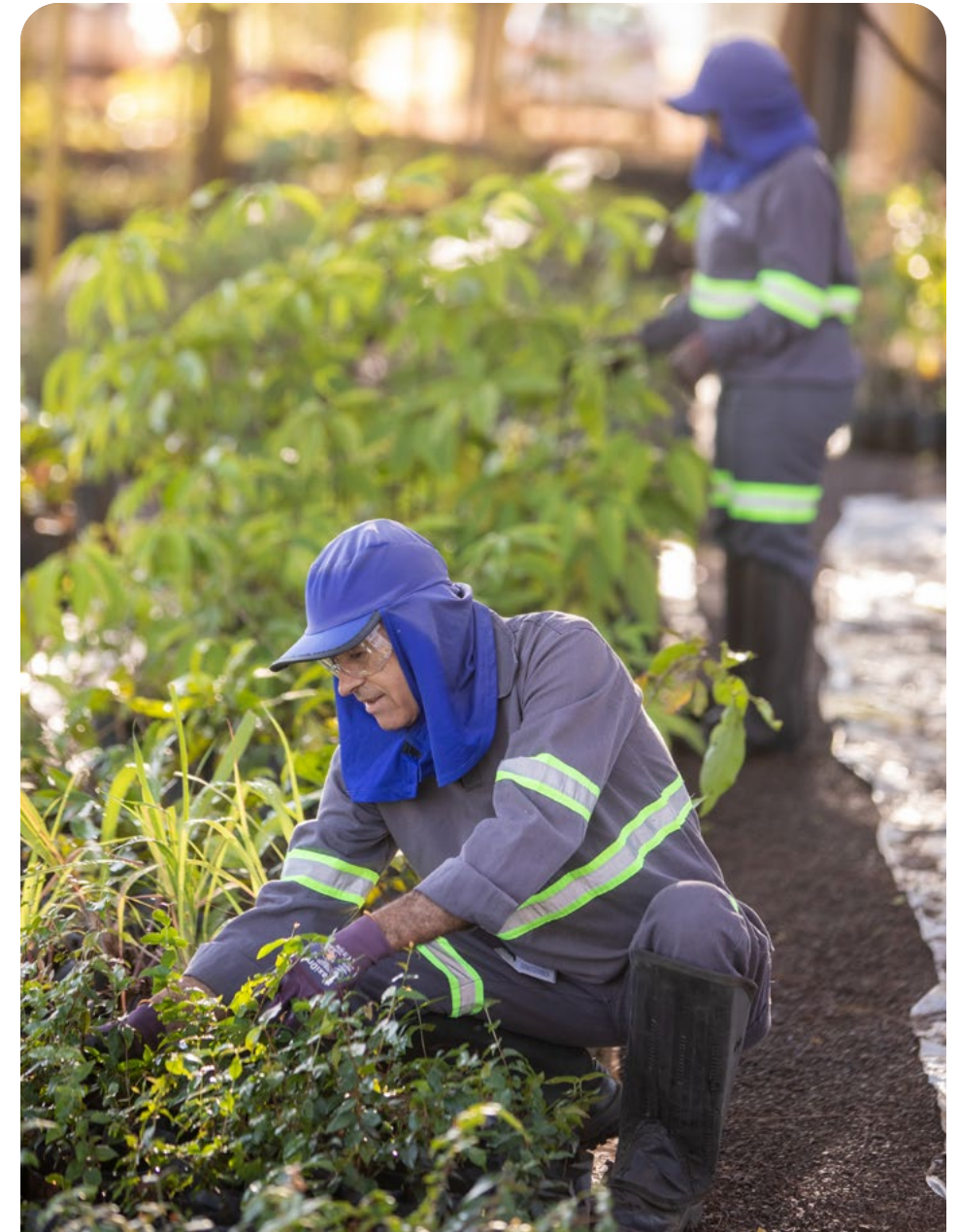
Our approach is structured around three time horizons—short, medium, and long term—and considers both the physical impacts of climate change and the transformations associated with the transition to a low-carbon economy:

- **SHORT TERM (UP TO TWO YEARS)**

Within this time horizon, we prioritize operational efficiency and our ability to respond to changing climate and market conditions. This time horizon aligns with the sugarcane growing cycle, whose key stages are directly influenced by factors such as rainfall patterns, temperature, and extreme weather events. Based on ongoing monitoring, we adapt our crop management practices, enhance waste management, and pursue productivity improvements across both our agricultural and industrial operations. Maintaining close oversight of our operations also enables us to respond quickly to changes in environmental regulations, market conditions, and the evolving expectations of customers, investors, and other stakeholders, strengthening our ability to both mitigate risks and capture emerging opportunities.

- **MEDIUM TERM (THREE TO NINE YEARS)**

For the medium term, our focus is on initiatives that require significant investment and longer planning horizons, and are needed to adapt the business to the key trends shaping the sectors in which we operate.



Initiatives within this time horizon include the deployment of new technologies, infrastructure upgrades, and the development of lower-carbon solutions in response to growing demand for biofuels and alternative energy sources. We also consider factors such as carbon pricing, regulatory developments, and changes across global supply chains, enabling us to anticipate impacts, optimize our portfolio, maintain competitiveness, and capture emerging opportunities.

• **LONG TERM (MORE THAN 10 YEARS)**

Over the long term, we assess structural changes that could reshape both our industry and our value chain. This perspective enables us to evaluate the cumulative effects of today's decisions, including shifts in the energy mix, evolving market structures, and long-term infrastructure development.

To deepen our long-term assessment, we incorporate climate scenarios that evaluate how different global warming pathways could affect the sectors in which we operate and our business model. We use internationally recognized references, including the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA), to assess potential global warming pathways and their implications. These scenarios inform decision-making and deepen our understanding of possible transition pathways.

To assess physical climate risks, we analyze IPCC scenarios representing different greenhouse gas concentration pathways and their projected impacts over time. Specifically, we use the SSP1-2.6 and SSP5-8.5 scenarios to assess how evolving environmental conditions could affect our operations, supply chain, and asset resilience, informing our long-term adaptation planning.

- The SSP1-2.6 scenario (IPCC AR6) represents a future characterized by accelerated decarbonization and sustainable development, supported by strong international cooperation, ambitious climate policies, rapid technological progress, and behavioral changes that limit global warming to approximately 1.5°C. Under this scenario, the lower frequency and severity of extreme weather events, together with greater adaptive capacity, contribute to improved operational stability and long-term predictability.
- The SSP5-8.5 scenario (IPCC AR6) reflects a future in which fossil fuel-intensive development continues, creating significant challenges for both mitigation and adaptation and resulting in global warming exceeding 4°C by 2100. Under these conditions, the increased frequency and severity of extreme weather events could significantly affect our operations while reducing overall adaptive capacity.

To evaluate transition risks and opportunities, we use the IEA's Announced Pledges Scenario (APS), Stated Policies Scenario (STEPS), and Net Zero Emissions by 2050 Scenario (NZE), each reflecting different levels of ambition and implementation of global climate policies. These analyses help us assess how regulatory developments, evolving energy demand, and emerging technologies could reshape the business environment, while also identifying opportunities associated with expanding lower-carbon solutions.

WE HAVE INTEGRATED OUR CLIMATE STRATEGY INTO OUR **CORPORATE RISK MANAGEMENT SYSTEM AND STRATEGIC PLANNING PROCESS**





## Risk 1: changes in rainfall patterns and impacts on crop yields

**Time horizon:** short term, with the potential to intensify over the medium and long term

**Business activities exposed to the risk:** sugarcane operations and bioenergy facilities.

Among the key physical risks identified, water stress in certain regions may reduce the availability of water required for both our agricultural and industrial operations. Climate variability also influences a range of operational decisions, including the selection of sugarcane varieties, investment allocation for agricultural infrastructure, and supply chain management. In addition, limited access to water resources may reduce or temporarily disrupt production capacity, directly affecting feedstock processing, industrial efficiency, and ultimately revenue generation throughout the harvest season.

We classify this as a short-term risk (up to two years), with a probable likelihood and high magnitude of impact, even after considering the mitigating effect of our geographically diversified asset base. In response, we continuously monitor this risk, recognizing its potential to recur and intensify as climate change progresses.

### Key actions in response

- We monitor weather conditions and water use in real time through automated weather stations and digital monitoring tools.
- We select drought-tolerant sugarcane varieties with greater water-use efficiency.
- We also invest in water management and soil conservation practices, including fertigation and advanced irrigation techniques, and work to maximize the use of water naturally contained in sugarcane and reduce the need for external water withdrawals.
- In addition, we apply continuous improvement practices to enhance efficiency, reduce operational losses, and modernize and standardize processes, with a particular focus on automation and efficiency.

Together, these initiatives reduce our exposure to operational constraints and strengthen the resilience of our operations under scenarios of increasing pressure on water resources.

EFFICIENT WATER MANAGEMENT AND ADAPTATION TO CLIMATE VARIABILITY  
**STRENGTHEN OPERATIONAL RESILIENCE, REDUCE RISKS TO CROP YIELDS, AND  
 SUPPORT THE LONG-TERM CONTINUITY OF OUR OPERATIONS**

## Risk 2: regulatory changes and loss of competitiveness

**Time horizon:** short term

**Business activities exposed to the risk:** market access, certifications, and sustainability premiums.

The advancement of the global climate agenda and the expansion of fuel-related regulations are establishing more stringent sustainability standards for energy products, including RenovaBio<sup>1</sup> in Brazil and the Renewable Energy Directive (RED II) in the European Union. Failure to fully comply with sustainability and traceability requirements could reduce the price premiums associated with lower-carbon products. We classify this as a short-term risk (up to two years), reflecting sustainability requirements that are already in force and continue to expand across key international markets.

The continued development of regulated carbon markets and the adoption of more ambitious decarbonization targets may also directly affect our competitive position. Based on our scenario modeling, we estimate a potential financial impact of R\$ 30 million, assuming the loss of these premiums in selected international markets during the crop year. At present, the magnitude of impact is classified as low, representing less than 1% of annual revenue. Conversely, failure to comply with mandatory targets—such as Decarbonization Credit (CBIO) purchases by our fuel distribution network—could result in administrative penalties of up to R\$ 500 million, in addition to reputational impacts.

<sup>1</sup> National Biofuels Policy.

<sup>2</sup> Renewable Energy Directive (RED).

<sup>3</sup> Net zero emissions scenario.

### Key actions in response

- We continuously invest in internationally recognized certifications and independent audits to maintain access to global markets that value products with lower environmental impacts.
- We follow developments in climate and energy regulations, actively participating in policy discussions and supporting the advancement of regulatory frameworks that promote biofuels.
- Raízen regularly participates in global forums and initiatives on climate change, the carbon market, and low-carbon fuels.
- Integrating these considerations into our decision-making strengthens our climate governance and positions our portfolio to capture opportunities arising from the energy transition, helping us remain competitive in an evolving regulatory landscape.



WE WORK TO STRENGTHEN THE RESILIENCE OF OUR OPERATIONS AND POSITION OUR **PORTFOLIO TO CAPTURE OPPORTUNITIES ALIGNED WITH THE ENERGY TRANSITION**

## Opportunity 1: increased demand for low-carbon solutions and influence on public policy

Among the principal climate-related opportunities we have identified is the growing demand for renewable fuels and lower-carbon energy solutions. More stringent sustainability requirements in international markets, together with changing consumer preferences and expanding public decarbonization policies, continue to accelerate the replacement of fossil fuels with renewable alternatives.

In this context, sugarcane ethanol has become an important solution for reducing emissions in the transportation sector. Based on life cycle assessments, it can achieve greenhouse gas emissions of up to 80% lower than gasoline. This potential is also reflected in global projections. According to the **International Energy Agency (IEA)**, the global supply of sustainable fuels could more than double by 2035, driven primarily by liquid biofuels.

Second-generation ethanol (E2G) offers even greater potential because it is produced from residues generated during sugar and ethanol production, creating additional value from existing feedstocks without expanding cropland.

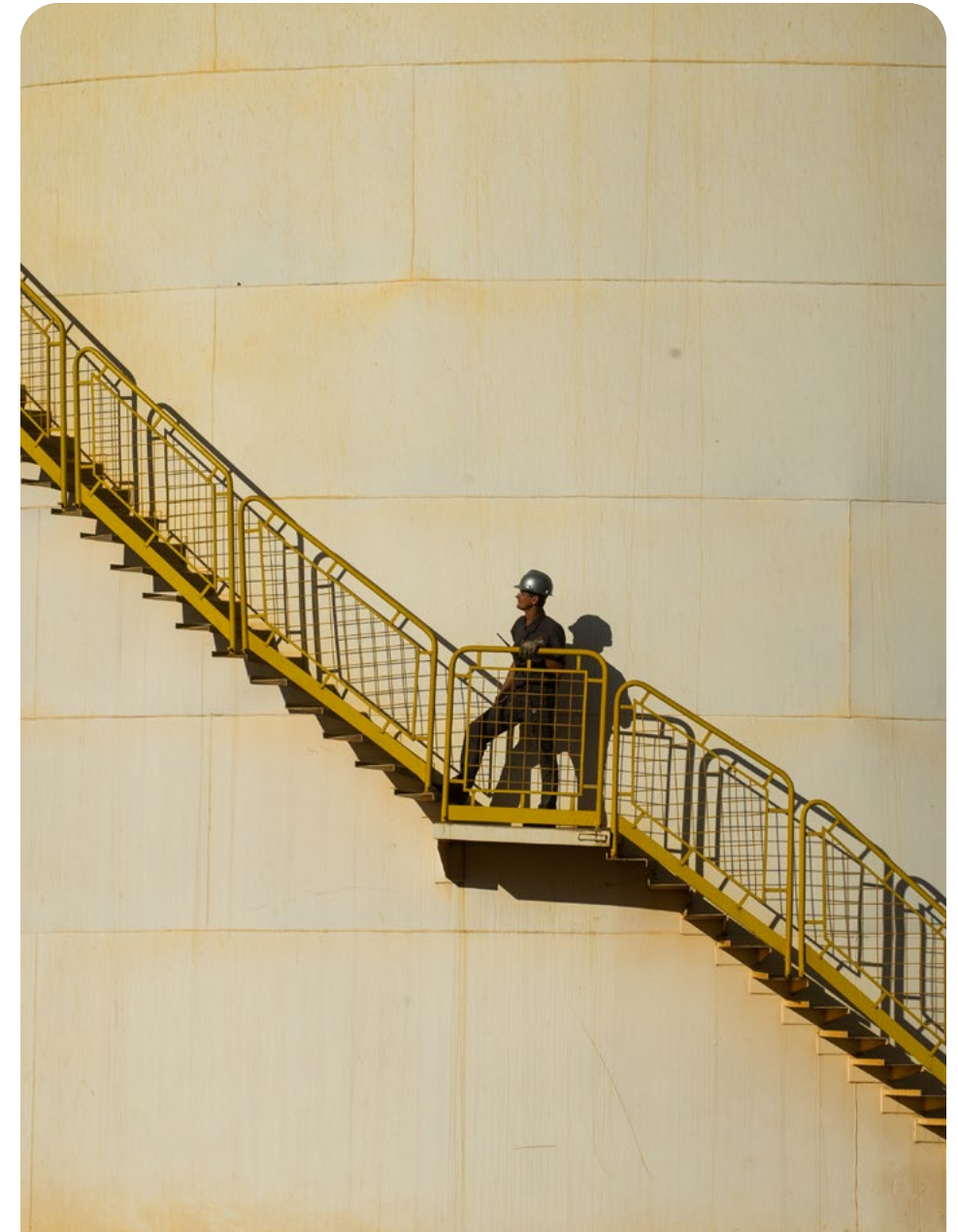
Continued expansion of the biofuels market depends on regulatory progress and access to new markets. Accordingly, we work collaboratively to strengthen the institutional framework, reduce trade barriers, and expand the use of ethanol in emerging applications, including maritime transportation and the production of Sustainable Aviation Fuel (SAF).

These efforts are backed by technical studies and partnerships with specialized institutions, which support our participation in public consultations and regulatory discussions. Through these initiatives, we help foster a more predictable regulatory environment that is aligned with international best practices.

### Key actions in response

- We pursue initiatives to reduce regulatory barriers, promote the use of ethanol in new applications, and expand access to international markets.
- We continue to strengthen systems that validate the environmental attributes of our products through certifications and robust technical evidence.
- We also allocate funding to initiatives that improve energy efficiency and reduce the carbon intensity of our products.
- We actively advocate for the use of ethanol and other renewable feedstocks across multiple sectors, including maritime transportation, aviation, and the chemical industry.

Together, these initiatives position us to capture the structural growth in demand for clean energy, expand our presence in strategic markets, and strengthen the competitiveness of our portfolio as the energy transition accelerates.



## Opportunity 2: value chain engagement and differentiation through climate performance

Beyond the growing demand for lower-carbon solutions, we see significant opportunities in strengthening climate management across our value chain. Rising expectations from customers, investors, and business partners for greater transparency, traceability, and verified environmental performance increase the value of business models that integrate these elements in a structured and consistent manner.

This trend has a direct impact on competitiveness, particularly in international markets and sectors subject to more rigorous regulatory requirements. The ability to measure, disclose, and reduce emissions throughout the product life cycle has become an important competitive differentiator, supporting market access, customer retention, and the development of new business opportunities. In this context, emissions management extends beyond regulatory compliance and becomes a strategic lever for value creation.

We continue to progress on emissions measurement each year through corporate greenhouse gas inventories prepared in accordance with the Greenhouse Gas Protocol (GHG Protocol), the internationally recognized standard for greenhouse gas accounting, and through Life Cycle Assessments (LCA). These tools enable us to identify the principal sources of emissions and prioritize actions to reduce emissions throughout our value chain.

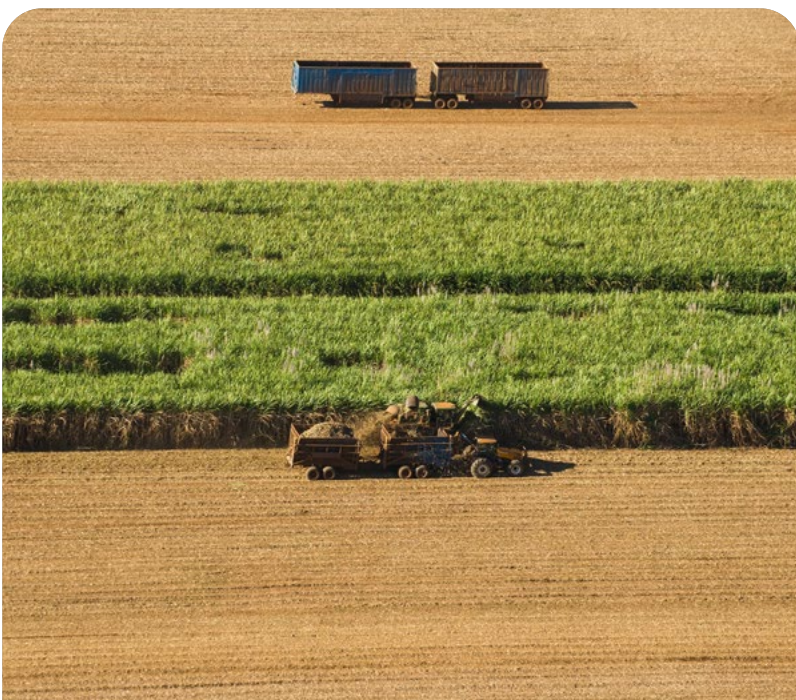
### Key actions in response

- We share information on our environmental performance, certifications, and product attributes to support informed purchasing decisions.
- We periodically report on progress on our climate agenda, increasing transparency and alignment with market expectations.
- The continued advancement of these initiatives strengthens the integration of our climate agenda into our business model and enhances our ability to create value in an environment increasingly shaped by environmental criteria.



# RISK AND OPPORTUNITY MANAGEMENT

Climate-related risks and opportunities are integrated into our Enterprise Risk Matrix, which consolidates the principal factors that may affect our strategy, operations, and results. The matrix is updated periodically, with the latest review completed during the 2025-26 crop year. As part of this process, climate-related issues are assessed with the same level of rigor applied to our other material business risks and are incorporated into our strategic planning process.



## Identification and validation

Our approach to identifying and assessing climate-related risks follows the guidelines established in our Risk Management Policy and considers both physical and transition risks. This process is supported by scenarios developed by internationally recognized organizations, including the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA), and is aligned with established frameworks such as ISO 31000 and ISO 14001. Based on these references, we analyze the potential effects of different global warming pathways, regulatory changes, and market developments, building a forward-looking perspective that supports decision-making.

For physical risks, we assess how extreme weather events and gradual changes in climate conditions may directly affect our operations, particularly given the strong connection between our business and agricultural yields. The principal factors considered include variability in rainfall patterns, periods of drought, rising average temperatures, wildfires, and heavy rainfall, all of which may affect the availability and quality of raw materials, mill efficiency, and operational infrastructure.

For transition risks, we analyze how developments in public policy, carbon pricing mechanisms, technological advances, and changes in consumer and investor preferences may influence the competitiveness and positioning of our products. These insights also inform the identification of opportunities related to the expansion of lower-carbon

solutions, the development of new bioenergy applications, and access to markets with more stringent environmental requirements.

The assessment considers both qualitative and quantitative criteria, including the likelihood of occurrence, the magnitude of impacts, and potential financial, operational, regulatory, and reputational effects. These risks are classified within a matrix that intersects impact and likelihood across short-, medium-, and long-term time horizons. They are then incorporated into our Enterprise Risk Matrix, which is reviewed periodically to ensure methodological consistency and comparability over time.

The results are used to support the prioritization of initiatives, the definition of response actions, capital allocation, and portfolio development. This makes climate management an integral part of our ordinary management and decision-making process.

INTEGRATING CLIMATE-RELATED RISKS AND OPPORTUNITIES INTO OUR CORPORATE MANAGEMENT PROCESSES **STRENGTHENS THE RESILIENCE OF OUR BUSINESS IN THE FACE OF CLIMATE CHANGE**



## Management and mitigation

We manage climate-related risks using an integrated approach, with coordinated involvement from both technical and executive teams and clearly defined responsibilities. For each identified risk, we assign owners to develop, implement, and monitor action plans for mitigation, adaptation, or contingency, as appropriate. This is an ongoing process that includes reporting to our governance bodies, ensuring timely decision-making and the effectiveness of the response measures implemented.

In addition, we conduct periodic assessments of the impacts of climate change and the energy transition on our operations. In 2024, we updated these assessments with the support of a specialized consulting firm, using the most recent reports published by the IPCC and the IEA. We assessed physical risks under different climate scenarios and analyzed the effects of the energy transition under multiple policy and market pathways, in line with the TCFD recommendations. The results are being incorporated into our Enterprise Risk Matrix, further integrating climate-related issues into our risk management process and providing a clearer view of potential financial and operational impacts.

# METRICS

Monitoring greenhouse gas (GHG) emissions is an essential component of our climate strategy. Since the beginning of our operations, we have used our Annual Emissions Inventory as the primary tool for measuring and monitoring GHG emissions. The inventory is prepared in accordance with the Greenhouse Gas Protocol and the Brazilian GHG Protocol Program, covering Scope 1 emissions from direct sources, Scope 2 emissions associated with purchased electricity, and Scope 3 emissions from the wider value chain. It includes both absolute emissions and emissions intensity disclosures, allowing us to monitor business efficiency and the evolution of our climate performance over time. The results are also published in our Disclosures Center, [available here](#), providing all stakeholders with broader access to this information.

In 2025, Scope 1 emissions decreased by 24% compared with 2024. This result was driven primarily by lower diesel consumption in stationary and mobile combustion sources, as well as lower bagasse consumption in our boilers. We also updated the methodology for emissions from solid waste and wastewater, which had been overestimated in previous reporting cycles. Scope 3 emissions, on the other hand, increased slightly, primarily due to the use of sold products category, which is the largest contributor to the inventory. This increase was driven by higher fuel sales. The comparison was performed using the same reporting boundary, excluding divested operations.

In addition to our corporate inventory, we regularly conduct Life Cycle Assessments (LCA) of our main products, including first- and second-generation ethanol, bioenergy, and sugar. The methodology covers all stages up to the gate of our ethanol, sugar, and bioenergy production facilities, allowing us to identify the most significant emission sources, detect critical points in the production chain, and better target mitigation actions. This monitoring also supports the management of product carbon intensity, which is becoming increasingly important for meeting regulatory requirements, obtaining international certifications, and satisfying market access criteria. By monitoring our carbon footprint using recognized methodologies, we can provide more robust evidence supporting the environmental attributes of our products, contribute to emissions reductions, and increase our ability to capture commercial opportunities associated with premium pricing for lower-carbon products.

In addition, we invest in research, development, and innovation focused on solutions and initiatives that increase productivity, improve energy efficiency, and reduce the carbon footprint of our portfolio. Projects addressing our main sources of emissions undergo prior impact assessments, and we prioritize initiatives involving higher reduction potential and lower costs.



**Scope 1 direct emissions (tCO<sub>2</sub>e)**

	2023	2024	2025	Change between 2024 and 2025 (%)
Mobile combustion	326,458.43	314,340.25	237,549.14	-24
Stationary combustion	412,424.69	396,470.36	305,968.23	-23
Agricultural emissions and land use change	916,877.43	842,069.32	647,574.90	-23
Fugitive emissions	20,950.80	33,136.74	21,187.97	-36
Solid waste and wastewater	237,840.84	335,146.70	46,527.84	-86
Biogenic emissions <sup>1</sup>	22,961,982.81	23,862,702.17	17,596,491.70	-26

<sup>1</sup> Biogenic emissions include emissions from all categories presented in the table above, including the Industrial Processes category, which totaled 1,787,139.09 tCO<sub>2</sub>e of biogenic emissions.

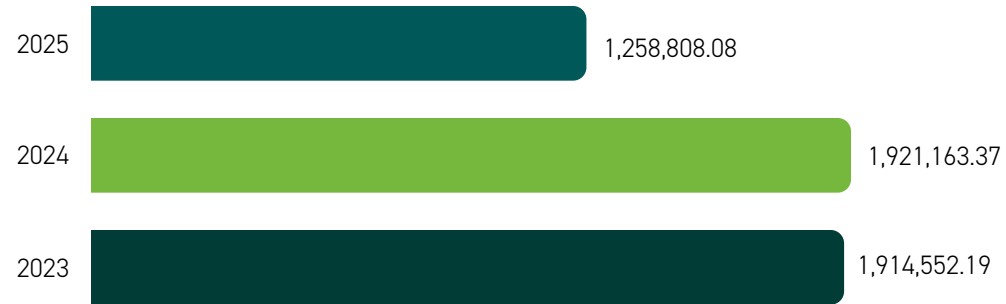
**Scope 2 indirect emissions (in tCO<sub>2</sub>e)**

	2023	2024	2025	Change between 2024 and 2025 (%)
Electricity purchased from the grid	4,858.91	8,236.17	8,447.00	3

**Scope 3 indirect emissions (in tCO<sub>2</sub>e)**

	2023	2024	2025	Change between 2024 and 2025 (%)
Purchased goods and services	4,729.76	13,540.75	7,279.85	-46
Franchises	3,038.59	69.86	64.87	-7
Fuel- and energy-related activities not included in Scope 1 or Scope 2	92,483.93	82,937.71	62,825.34	-24
Waste generated in operations	17,937.59	5,963.15	3,917.67	-34
Commuting	30,818.98	29,973.70	18,264.16	-39
Transportation and distribution (upstream)	304,013.91	282,022.53	208,343.56	-26
Use of sold products	48,602,142.13	40,098,256.83	41,448,638.88	3
Biogenic emissions	12,172,338.19	13,274,832.08	13,110,297.67	-1

**Scope 1 direct emissions (tCO<sub>2</sub>e)**



**Scope 1 biogenic emissions (in tCO<sub>2</sub>e)**



**Scope 2 indirect emissions (in tCO<sub>2</sub>e)**



**Scope 3 biogenic emissions (in tCO<sub>2</sub>e)**



**Scope 3 indirect emissions (in tCO<sub>2</sub>e)**



**Total emissions (in tCO<sub>2</sub>e)**



# APPENDICES

## Assets included in the scope of this report

### Ethanol, Sugar, and Bioenergy (EAB)

- Ethanol, sugar, and bioenergy mills
- Barra (Barra Bonita – SP)
- Benalcool (Bento de Abreu – SP)
- Bonfim (Guariba – SP) – includes the second E2G plant and a biogas plant
- Costa Pinto (Piracicaba – SP) – includes the first E2G plant
- Destivale (Araçatuba – SP)
- Diamante (Jaú – SP)
- Gasa (Andradina – SP)
- Ipaussu (Ipaussu – SP)
- Junqueira (Igarapava – SP)
- Macaraí (Macaraí – SP)
- MB (Morro Agudo – SP)
- Mundial (Mirandópolis – SP)
- Paraguaçu (Paraguaçu – SP)
- Paraíso (Brotas – SP)
- Rafard (Rafard – SP)
- Santa Cândida (Bocaina – SP)
- Serra (Ibaté – SP)
- São Francisco (Elias Fausto – SP)
- Tarumã (Tarumã – SP)
- Univalem (Valparaíso – SP)

- Vale do Rosário Mill (Morro Agudo - SP)
- Zanin (Araraquara – SP)
- Lagoa da Prata (Lagoa da Prata – MG)
- Caarapó (Caarapó – MS)
- Jataí (Jataí – GO)

### Mobility

- 6,734 Shell-branded service stations
- More than 1,700 Shell Select and Shell Café stores
- More than 70 fuel distribution terminals
- 68 airport fueling stations



# CREDITS

## General coordination

Raízen

## Project management and art direction

Grupo Report

## Writing

Ravi Comunicação para Sustentabilidade

## Translation

Latam Translations



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