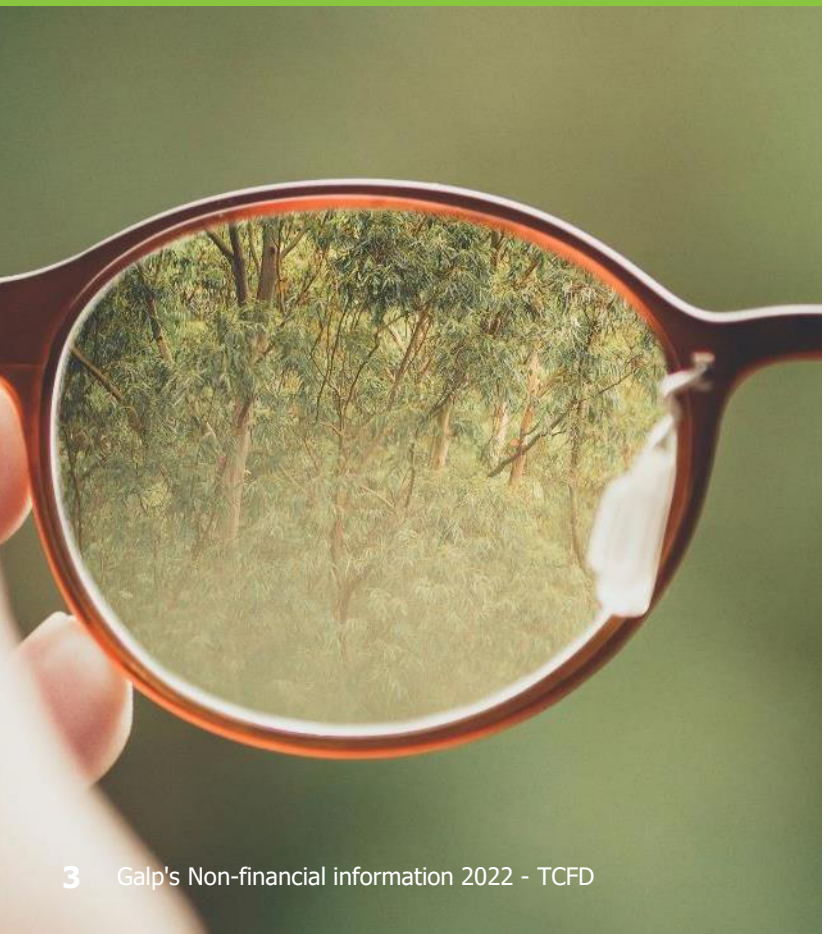
Task Force on Climate-related Financial Disclosures (TCFD)

2022

INDEX

Introduction

GALP REPORTS ITS ALIGNMENT WITH TCFD RECOMMENDA-TIONS **SINCE 2018**



Climate related risks are perceived as one of the fastest deteriorating risks over the next decade. According to the World Economic Forum Global Risks Report 2023, the ranking of the top risks over the long-term (10 years) is dominated by "failure to mitigate climate change", "failure of climate-change adaptation", "natural disasters and extreme weather events", "Biodiversity loss and ecosystem collapse".

Therefore, the mitigation and adaptation to a climate with rising temperatures is one of the biggest challenges that society will have to face in the future, with direct and serious implications for biodiversity, water management, land use and access to energy, among other issues.

There is growing pressure for companies to report on how they are identifying and managing the risks and opportunities arising from climate change, in a context where the physical impacts from extreme weather events around the world is expected to increase, coupled with significant changes in regulation, customer preference, and in the demand and supply of energy resulting from a transition to a low carbon economy.

At Galp, **climate change** has been identified as one of the key risks, and as such, the company recognises the importance of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) as a tool to improve the reporting of climate-related risks and opportunities and provide relevant information for investors, financial institutions and other significant stakeholders. Alignment with the TCFD recommendations is an ongoing improvement process, that started in 2018 when Galp published its first report.

This report was prepared with the aim of providing a transparent overview on how Galp is implementing the recommendations. It identifies several climate-related policies, processes, and practices, implemented by Galp related to addressing different topics on climate-related governance, strategy and risk management. The Company also presents several metrics and targets set towards climate change adaptation and mitigation, including the transition to a low-carbon economy.

The reported information was subject to verification of its alignment with the recommendations of the Task Force on Climate Financial Disclosures by the audit firm PwC.

At Galp, the integration of climate and energy transition related risks and opportunities - over the short, medium and long-term - in the Company's strategic formulation process and investment planning represents a key factor towards a rigorous oversight needed to execute an ambitious decarbonisation strategy.

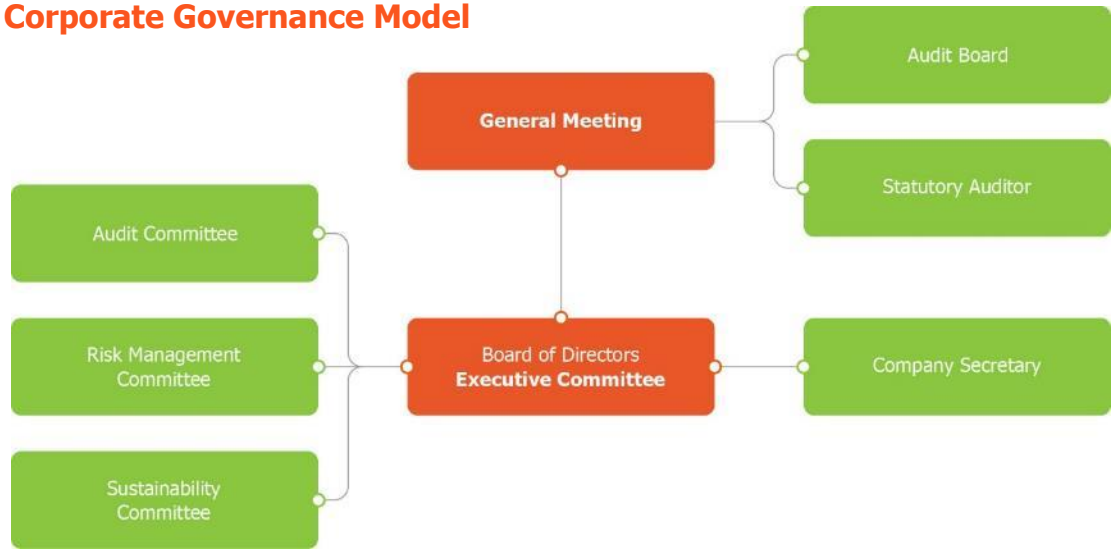
The importance and potential impact of climate-related risks and opportunities in Galp's operations, revenues and the materiality of these topics for society, investors and other stakeholders are overseen by the **Board of Directors** (BoD) and the **Executive Committee**, where the **CEO is the designated member responsible for climate strategy**.

The **Sustainability Committee**, supported by the **Risk Management Committee**, is the board-level committee responsible for climate-related topics, being key in assisting the board in integrating sustainability principles into the decision-making process and ensuring that the main risks and opportunities that we face are identified and continually managed. The current chairman of the Sustainability Committee is also the vice-chairman and the lead independent director of the board, and a member of the Risk Management Committee.

The BoD and the Sustainability Committee, Risk Management Committee, Remuneration Committee and Audit Board have oversight on climate-related issues, including associated risks and opportunities, which are relevant to the delivery of long-term value in the context of the ongoing energy transition.

Furthermore, the **Board of Directors** and the Executive Committee play a central role in overseeing the investment proposals, in order to ensure that they are compatible with the decarbonization and energy transition strategy, measured based on their impact on the carbon metrics and targets. The Board also regularly examines and approves Galp's risk portfolio and appetite, the 10-year business plan that materializes the Company's energy transition strategy, its short- and long-term incentives and oversees the Company's consolidated performance, which includes climate-related disclosures, as reported in the board approved Integrated Report.

Corporate Governance Model



Board of Directors

In 2022, the Board of Directors held nine meetings. In some of these meetings, climate and ESG issues were addressed, such as climate risks, decarbonization targets, energy scenarios, ESG regulation and the impact of the war on energy markets.
Throughout the year we promoted several workshops for employees and executive and board members on various topics such as hydrogen, renewables, strategy, among others. A **specific energy transition session** was given to the Board of Directors in mid-2022, involving the Strategy & Sustainability team as well as some specialized external partners, which covered topics on the global energy perspective and response to the energy transition and how Galp contributes, our climate strategy, Galp's ESG performance and just transition journey. This shows the company's commitment to skill all employees, including board members and c-level, on topics related with the energy transition and sustainability, ensuring we are ready and properly prepared to address its upcoming challenges.

Executive Committee

The Executive Committee has day-to-day company management powers, as delegated by the Board of Directors.

Energy transition and decarbonization are priority matters managed directly by the Executive Committee. It is this governance body that proposes to the Board of Directors the climate strategy and objectives and oversee the implementation of that strategy, monitoring the performance of carbon metrics and the fulfillment of the climate targets.

Business and annual investment plans are also overseen by the Executive Committee in order to ensure the alignment with the energy transition and the climate targets.

Sustainability Committee

The Sustainability Committee, composed by three non-executive directors, is the **board level committee responsible for climate-related issues**, being key in assisting the BoD in integrating sustainability principles into the decision-making process and, with the support of the Risk Management Committee, ensuring that the main risks and opportunities that we face are identified and continually managed.

The Committee has the duty of proposing sustainability-related objectives and targets to the board, as well as monitoring and reporting on the performance indicators in the economic, social and environmental areas, including those related to climate change, the energy transition and social responsibility, consistent with the stipulated policies, commitments, objectives and targets.

It also monitors the alignment of Galp's strategic plan with its sustainability commitments, and issues appropriate opinions and recommendations. The current chairman of the sustainability committee is also the vice-chairman of the BoD, the lead independent director of the BoD, and a member of the Risk Management Committee.

In 2022, the Sustainability Committee met six times (4 formal meetings and 2 informal meetings were held) and the following matters were discussed and presented:

- Overview of the energy transition strategy, its risks, opportunities and key emerging areas
- Analysis and discussion of the biodiversity and water risks assessment results
- Analysis of the regulatory context, ESG best practices and trends (e.g EU Taxonomy, TCFD, COP 27 outcomes, disclosure of non-financial information, etc.)
- Analysis and discussion of the sustainability roadmap to 2030
- Analysis and discussion of Galp's sustainability performance and ESG indices positioning, climate ambitions and performance against relevant carbon related targets and KPI
- Overview of Galp's presence in key external engagements on ESG topics to increase our knowledge and capability to answer to the emerging challenges

Chief Sustainability Officer

Galp's Chief Sustainability Officer (CSO) is the Director of the Strategy and Sustainability Department, responsible for corporate management of sustainability risks – including those arising from climate change - and has the power to establish and propose assessment and monitoring methodologies. These methodologies are implemented in a coordinated effort with the business units and Corporate Risk Management team, thereby ensuring that an action plan is established to minimise and mitigate these risks.

Risk Management Committee

The Risk Management Committee, comprising 3 non-executive Board members, is responsible for advising the Board on the oversight and monitoring of Galp's main risks; evaluating the compliance with the tolerance levels and the execution and effectiveness of decided mitigation actions; assessing Galp Group's internal control and risk management systems; issuing appropriate opinions and recommendations; and evaluating compliance with Galp's risk management policy.

It collaborates with the Sustainability Committee in identifying and quantifying climate-related risks. In 2022, the Committee analysed the Risk Profile of the Business Plan 2023-2033 and the Risk Appetite Statement for the strategic objectives inherent in the business plan, including a Carbon Intensity Assessment through sensitivity analysis.

Chief Risk Officer

The Chief Risk Officer (CRO), a member of the BoD and the Executive Committee, ensures, among others, that the strategic action plans that minimise risks are in place, and that risk management appetite and priorities are considered in decision-making.

Audit Board and Audit Committee

The Audit Board supervises internal risk management (including climate-related risk), internal control and internal auditing systems while also controlling the Company's financial information. It also supervises the company's activity, receives and processes reports of irregularities and is the internal body responsible for assessing corporate governance matters. The Audit Committee oversees the supervision of the internal auditing system and reports to the BoD.

Strategy and Sustainability team

The **Strategy and Sustainability team**, with the support of the Risk Management team, when necessary, is responsible for informing these governing bodies and for providing technical support regarding any key climate change-related issues. On a quarterly basis, the Sustainability Committee, Executive Committee and Board of Directors are informed on our carbon metrics performance against targets and are updated on the decarbonisation roadmap status.

Galp is committed to redefining its business, reshaping the portfolio to accelerate the development of low-carbon sources of energy and progressively reducing its operational emissions and the carbon intensity of the energy it produces and sells.

In 2022, we refreshed our **Sustainability Roadmap 2030**, focused on longer-term priorities & ambitions, covering environmental (including climate), social and governance & economic-related topics. Our ambition to become net zero by 2050 is a crucial milestone in this journey.

To ensure that Galp is prepared for potential disruptions in energy transition, its strategic planning includes the conception of a credible but demanding scenario based on a fast-paced transition, with key variables being even further stressed to accommodate more challenging macro conditions with potential to occur in the future.

Galp's strategic planning is periodically reviewed and takes into consideration the risks and opportunities of climate change across three-time horizons (short-, medium- and long-term) and their impact on strategic lines and on competitiveness.

Every year a 10-year business plan is developed, including the short-term outlook and annual budget. **The long-term planning associated with > 10-year cycles is regularly reassessed to incorporate new, relevant data from updated reference scenarios.** Business Plans and relevant investment decisions are accompanied by an analysis of their impact on the Company's emissions and climate-related targets, ensuring that they are aligned with the Company's overall decarbonization and transition strategy.

The main risks for Galp[1]

Climate Change	The physical risks (acute or chronic) associated with climate change may have a potential impact on Galp's activities, causing damage or interruptions and delays in its operations. Transition risks (regulatory and legal, market, technological and reputational risks) will lead to a change in consumer behaviour, reducing demand for hydrocarbons, and potentially affecting their prices; to large investments in technologies supporting the transition; and could drive the creation of "stranded assets".
Cybersecurity	Most of Galp's processes rely heavily on digital systems and data. Any failure in the security of these systems, whether accidental (due to network, hardware or software failures), or resulting from intentional actions (cybercrime), or negligence (internal or due to service providers) may have severe negative impacts on Galp's operations, its customers and suppliers.
Business Continuity	The occurrence of a failure or disruption may disrupt or threaten Galp's critical business processes, impacting human resources, the environment, the value of assets, the revenues and, ultimately, the continuity of Galp's business.
ESG Regulatory Compliance	Any failures by the company, its employees, governing bodies, suppliers/service providers or counterparties relating to compliance with ESG laws and standards, or failure to respond to ESG topics, which are gaining prominence and being increasingly scrutinised by several stakeholders, may have adverse effects on the Company's investment case and reputation.
Hazards & Catastrophic Loss	The nature, technical complexity, and diversity of Galp's Upstream and Industrial operations expose the Company and its communities to a broad spectrum of disruptive health, safety, security and environment risks.
New Project & Business Evaluation	Galp's strategy of developing a set of diversified projects (renewables, battery value chain, green hydrogen, etc.), in line with the energy transition, and that allow capturing synergies with other businesses, may be compromised if the investment options do not meet the defined objectives and/or do not contribute to the fulfillment of Galp's Decarbonisation Roadmap.
Project Execution & Management	The execution of Galp's projects is exposed to several risks (market, liquidity, political, legal, regulatory, technical, commercial, climate and others) that may compromise compliance with budget, deadlines, defined specifications, and its operational reliability.
Reputational & Image	Actual or perceived failures in governance, regulatory compliance, or a lack of understanding of how our operations affect communities and the environment or how the Company is responding to expectations from customers and society, namely in the energy transition arena, which could damage our brand and reputation.
Legal and Regulation	Galp is subject to a wide range of international laws and standards or those of the various countries in which it operates, whether industry-specific, or transversal. Additionally, part of Galp's activity is carried out in emerging or developing economies, with a relatively unstable legal and regulatory framework, which may lead to legislative and regulatory changes that may alter the business context in which Galp operates.
Liquidity & Insurance Management	Galp's ability to access the financial and capital markets to finance its strategy and obtain insurance quotes for its investment projects could be affected by the growing pressure on investors to divest from fossil fuel companies.

[1]The selection of the Gap's main risks was based on their risk appetite rating.

The two major TCFD climate-related risks categories - transition risks and physical risks - have been identified, assessed and quantified within the scope of the climate change risk analysis and in the context of Galp's overall risk management process.

At a group level, Galp identified a set of material climate-related risks.

(1) The most recent review of physical risks concluded that the organization has relatively low exposure to **chronic** risks and that the most significant **acute** risks identified are **extreme wind and rain events**. The list of potentially damaging events that could affect our assets include damage to facilities, changes in swell patterns that could disrupt accessibility to ports, interrupt logistics chains and compromise raw material supplies, among others.

(2) Current and emerging national and international climate-related laws and regulations are a risk factor of high importance for OPEX and investment and/or divestment decision-making, as they affect, for example, the project location, the form of exploitation, the means used and the repatriation of capital.

The approval of international agreements and/or new regulations, encouraging the use of low-carbon energies is an additional risk factor for Galp, as the company needs to update its current portfolio. For example, Galp's activities, namely its refining operations (Sines refinery), are directly impacted by increased CO_2 prices, since these are covered by the EU-ETS. The increased ambition in emissions reduction announced by the EU commission recently and the accompanying Fit for 55 legislative package will put increased pressure on CO_2 prices which are likely to rise, as well as on the allocation of free emission allowances, which might decrease.
Furthermore, any failures by the company, its employees, governing bodies, suppliers/service providers or counterparties relating to compliance with ESG laws and standards, or failure to respond to ESG topics, which are gaining prominence and being increasingly scrutinised by several stakeholders, may have adverse effects on the Company's investment case and reputation.

(3) The development of technology and/or the emergence of **disruptive technologies** that support the transition to a lower carbon economy can have a significant impact on Galp's performance. New technologies are an important strategic lever to drive business transformation, especially to researching and developing new renewable energy sources and low carbon-technologies that can affect Galp's competitiveness and ultimately the demand for their products and services from end users.

(4) The dynamics of **supply and demand** in the **market** affect the prices of oil, natural gas, LNG, petroleum products, and electricity variables that influence Galp's performance. In this context, the potential impact on demand for oil and gas, due to changes in consumption patterns, namely by higher demand for low carbon intensity solutions, is a major risk for Galp.

On the other hand, the increase in **prices** of oil, natural gas, CO_2 and electricity may affect the value and profitability of Galp's assets. Even though the prices that the Company charges its clients reflect market prices, they may not be adjusted immediately, and may not entirely reflect the changes in market prices.

(5) Galp can be subject to negative impacts on its **reputation** as a result of a lack of (actual or perceived) compliance with laws and regulations related to climate change and also through stakeholder pressure. Particularly in a context of increasing stakeholder influence, the increased awareness of global society about climate change may lead to a **change in consumer behaviour,** increasing the consumer's preference for alternative fuels (e.g. biofuels) and renewable energy (low carbon electricity). This fact may lead to stigmatization of the Oil & Gas sector and imposes on Galp an increasingly prominent reputation risk.

Negative perception about Galp's climate change strategy, management and performance may also reduce investors' interest in the company (as we are an integrated energy player) and even result on restrictions on access to capital.

Regarding **opportunities**, Galp has also conducted an analysis of climate change related issues that have the potential to generate a substantive positive change in its business operations, revenue, and/or expenditure.

Galp identified several opportunities arising from development and/or expansion of low carbon projects, the ability to diversify business activities and shift in consumer preferences. Our transformational strategy is anchored on three pillars, aimed at turning Galp into a leading player in the energy transition and becoming a net zero company by 2050.

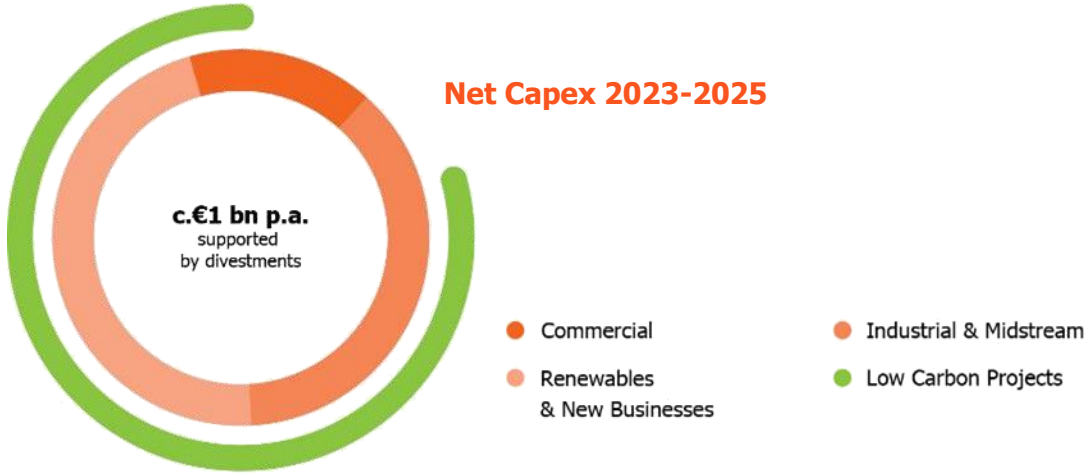
Focused upstream growth
Focusing on selective low cost and low carbon intensity assets

Renewables growth and integration
Developing a competitive platform to support integration across the value chain

Industrial and commercial transformation
Decarbonising projects and new energy solutions to drive transition and sustain long term value

Galp's strategy relies on a clear capital allocation framework, translated into having more than 70% of its 2023-25 net CAPEX (including divestments) invested towards low and zero carbon businesses, which mirror our portfolio's main transformation levers, whilst maintaining our financial discipline and focus on returns.

Net Capex 2023-2025



Key targers and milestones

- development of its 9 GW renewable electricity generation portfolio, aiming at having 4 GW installed capacity by 2025 and 12 GW by 2030
- development of a HVO production unit with a 270 ktpa capacity in the Sines refinery with the capacity of producing advanced biodiesel and SAF
- support customers in this transition, by developing decentralised solar power generation and storage solutions through Galp Solar; increasing the network of public EV charging points, increasing to > 10k by 2025 and supplying low carbon fuels for maritime transport and aviation
- development of green hydrogen solutions, with 100 MW electrolyser capacity with FID in 2023 and up to 700 MW capacity by the end of the decade
- developing a Lithium processing facility in a Joint Venture with Northvolt with an initial annual production capacity of up to 35,000 tons of battery grade lithium hydroxide – a critical material required by the lithium-ion battery manufacturing industry

Capital stewardship

Our capital stewardship is duly ensured through a dynamic and integrated portfolio management, which provides an integrated view of our portfolio, to assess its fit towards our strategic focus and energy transition ambitions and targets. Investment decisions are also subject to a strict evaluation, from screening to approval, and stress tests are performed on several variables, including carbon price, to ensure its resilience against adverse macro conditions.

Integrating carbon pricing and targets in investment approval

Galp considers that carbon cost internalization mechanisms such as carbon pricing are one of the most effective ways to simultaneously promote investment to lower carbon intensity solutions, while securing technological neutrality. Anchored on this belief, Galp includes a global carbon price when evaluating investments in new projects or changes in existing ones.

To ensure the resilience of its investments, the Company incorporates and stresses carbon pricing in investment analysis/decisions making, even in geographies without emissions trading schemes in place, considering prices consistent with external long-term energy transition scenarios (>€90/tonne of CO2 by 2025, >€100/tonne of CO2 by 2030, >€150/tonne of CO2 by 2050).

Additionally, Galp always evaluates the impact of the related CO_2 emissions in its decarbonisation targets (production carbon intensity, downstream sales carbon intensity, and operational absolute emissions) before any investment decision. This approach ensures the prioritization of low carbon-emitting projects, keeping Galp on track to achieve its decarbonisation commitments.

As a global integrated energy company, present in several geographies, Galp is exposed to a set of risks which may bring uncertainty to its performance and to the accomplishment of strategic objectives, impacting its reputation and market capitalisation.

The management of these risks is based on a Risk Management Model, implemented through an integrated, continuous, and dynamic process that involves the business units and Galp's corporate areas, and is supported by the Risk Management Policy, the Risk Management Governance Model and the Internal Control Manual, approved by the Board of Directors.

Based on the guidelines established in the Risk Management Policy, Galp identifies, assesses and manages the risks and opportunities inherent to its strategy, including emerging risks and opportunities. **Climate change has been identified as a top risk**.

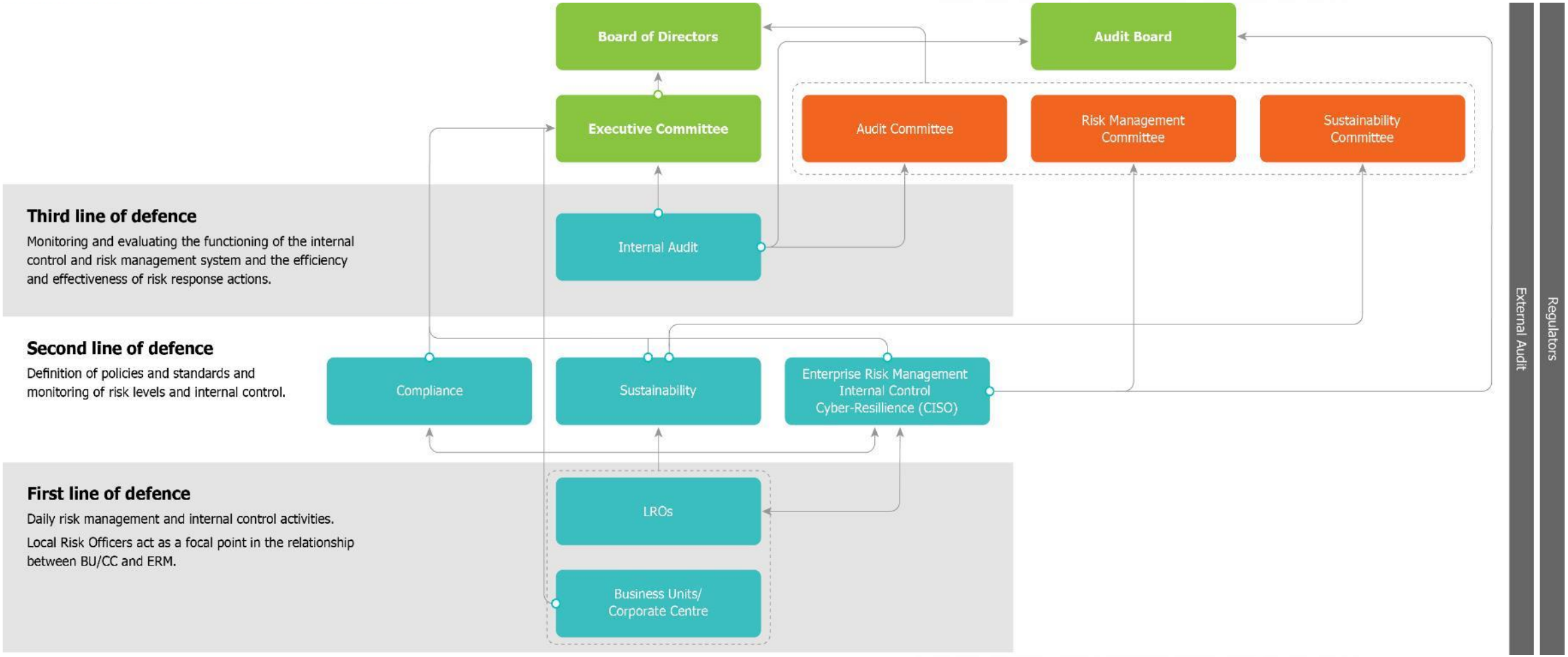
Galp's Risk Management Policy defines objectives, processes and responsibilities that enable Galp to establish a solid risk management structure. It also addresses Galp's commitment to manage the inherent exposure in accordance with the Company's Risk Appetite, ensuring compliance with legislative, regulatory and ethical conduct requirements.

Three lines of defence model

Galp's risk management governance and organisational structure follows the COSO (Committee of Sponsoring Organizations of the Treadway Commission) methodology and is structured according to the **three lines of defence** model that enables a consistent relationship between risk management activities developed at different levels and of different periodicity. It assures that any relevant climate-related risk (or other), identified by those responsible for Organisational Unit (OU) risks and processes with the support of the respective Local Risk Officer (LRO), is analysed and assessed, at the OU level. The LRO is responsible for reporting periodically to the corporate risk department on Business Unit's (BU) risk exposure.

- the **first line of defence** is responsible for the daily risk management and internal control activities. Those responsible for the Organisational Unit risks and processes, for control functions and the LRO must carry out their daily duties in line with the business strategy and the internal rules and procedures, including the Company's Risk Management Policy.
- the **second line of defence** is responsible for defining compliance, risk and internal control standards.
- the **third line of defence** oversees, monitors and evaluates the effectiveness of the risk management and internal control processes.

Three lines of defence model



Risk exposure assessment

Galp has a governance structure, procedures and systems that enable the Company to manage the risks to which it is exposed, so that risk management, including climate-related risk, is an integral part of the decision-making processes.

Some of these risks are sensitive to climate change phenomena and low-carbon economy transition scenarios, particularly those associated with regulation, future trends in demand, commodity price fluctuations and potential increase in competition.

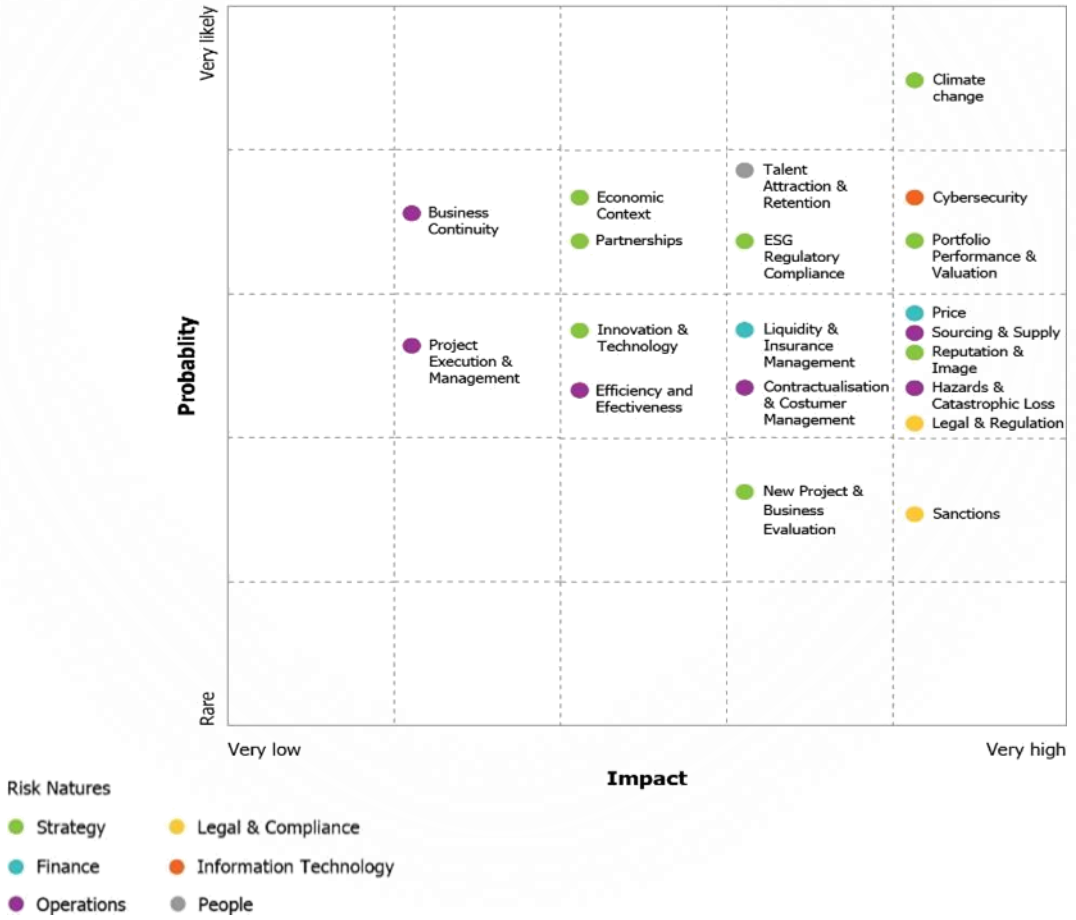
Given the emerging nature of climate change risks in the current energy context, and in accordance with the commitments undertaken, Galp includes Climate Change related risks (including acute or chronic physical risks and transition risks such as market, legal and regulatory, and technological risks), ESG Regulatory Compliance risks and Innovation & Technology risks in the scope of its risk analysis, integrating them into the decision-making process, and ensuring that they are continually managed.

In the identification of risks, Galp considers internal and external factors (e.g., geopolitical, socio-economic, and regulatory, including the ones relative to the carbon market) that may trigger risks or opportunities that, in an adverse or favourable way, may potentially affect its activity, its assets, its financial performance, its competitiveness, and its reputation. This identification process is developed across the company, following the approaches top-down and bottom-up, and includes existing and emerging risks (new trends with rapid and uncertain evolution).

In its strategic planning process, Galp identifies the key risks and opportunities and incorporates them into its business models by assessing, using stochastic models that consider individual risk distributions and correlations between the different risks, the value at risk of the Company's FCF and EBITDA, to evaluate the financial resilience of Galp's portfolio.

Risk Matrix

Risks are prioritized and mapped in a Heat Map (Risk Matrix) along two axis, one materializing the probability of the risk from rare to very likely while the other reflects the impact of the same risk from very low to very high. **This risk analysis and the resulting risk matrix are regularly discussed with the Executive Committee and the Risk Management Committee.**



The Risk Matrix is produced using a methodology defined by Galp that allows the Company to obtain an overview of its main risks, classifying them according to their materiality, characterising them in a comprehensive and robust manner, assessing the probability of occurrence, quantifying their potential impact (in the financial results, shareholder value, business continuity, environment, reputation, quality, health and safety, and human capital dimensions) in each business unit or corporate area, integrating them, and identifying, when appropriate, effective mitigation measures.

Qualitative analysis is based on the risk score that assesses the criticality of the risk. It is calculated by the multiplying the probability of occurrence by the impact in case of occurrence. The probability is rated on a scale of 1.5 (rare) to 5.5 (very likely), and impact on a scale of 1 (very low) to 5 (very high). The impact is assessed in eight dimensions - financial results, shareholder value, continuity of operations, environment, reputation, quality, people's health and safety, and human capital - according to the effects of risk materialisation.

The quantitative analysis is performed using the Expected Financial Impact (EFI) and allows risks to be prioritised according to their monetary impact. EFI is calculated by the financial impact of the risk (quantified in NPV or EBITDA) by probability.

Galp has also been working on identifying **climate-related risks**, considered as strategic risks for the Company**.** Since 2021, these risks **are assessed for all business units and geographies on an annual basis using scenario-based modelling to evaluate the company's climate-related physical and transition risks**. This procedure aims to assess the resilience of the Company's strategy to different climate scenarios and integrate the most relevant associated risks in the risk management framework.

Climate risks assessment

Galp has been working on the identification and quantification of climate-related risks and opportunities, including acute and chronic physical risks, and transition risks.

- **Climate physical risks** (chronic and acute) may cause damage or interruption and delay of operations of Galp's physical assets, some of which are located in regions subject to such phenomena.
  - Chronic: e.g. longer-term shifts in climate patterns like sea level and mean temperatures rise, changes in wind and precipitation patterns, etc
  - Acute: e.g. increase severity of extreme weather events such as cyclones, hurricanes, or floods
- **Climate transition risks** (market, legal and regulatory, technology related and reputational risks) may profoundly affect the Oil & Gas sector due to changes in consumer behaviour, reducing demand and potentially affecting hydrocarbon prices; to the need for large investments in structural technological changes, namely electrification and hydrogen, to support the transition to a lower-carbon, energy efficient economy; and could drive the creation of "stranded assets".

This analysis involved an alignment of Galp's corporate risk and opportunities dictionaries with the categories recommended by the TCFD, the definition of a complete scenario framework considering physical and transition scenarios, with sufficient diversification between them and considering a Paris Agreement aligned well-bellow 2°C and 1.5ºC scenarios.

Risk Taxonomy

The starting point of the risk management process is the identification of risk and opportunities based on the previously defined corporate risk taxonomy.

Galp has a Risk Taxonomy that is a dynamic tool to support risk management, and which systematises Galp's main risks.
The risks are grouped into categories according to their nature:

- Strategy
- Finance
- Operations
- Legal & Compliance
- Information Technology
- People

Note: Physical (acute and chronic) and transition risks are included in risk natures "Strategy" and "Operations".

For the process of identifying and evaluating climate-related opportunities, Galp uses the reference dictionary based on the recommendations of the TCFD. Galp's Risk Taxonomy is aligned with Oil & Gas peers and international standards.

All the values for physical variables were obtained considering the geographic coordinates of the different assets from all business units and the data was collected from reliable sources such as initiatives developed and sponsored by the EU (Copernicus) and the WMO (Cordex).

The LROs and other relevant specialists from all BUs and OUs evaluated impact and probability the relevant physical risks for their units. Transition risks were evaluated at the business and group level. Finally, the expected loss and the climate value at risk were calculated and disaggregated at the level of the different businesses and consolidated at the group level, considering the existing correlation between the different risks, opportunities and geographies.

From 2021, and on an annual basis, climate-related physical and transition risks are assessed for all business units and geographies, supported by respective Local Risk Officers using scenario-based modelling (including one 1.5ºC and one well-bellow-2ºC scenario) comprehending relevant IPCC scenarios for physical variables (RCP 1.9, RCP 2.6 and RCP 4.5) and in-house or IEA scenarios for market variables. The analysis is performed on short-, medium- and long-term time horizons to ensure these risks are captured and assessed on a time scale compatible with the one of climatic evolution and long-term Company strategy.

The identification and quantification of climate-related risks and opportunities aims to test the resilience of the Company's strategy to different climate scenarios and integrate the most relevant associated risks in the risk management framework.
Following the annual assessment and the analysis of the calculated climate value at risk, Galp prioritizes the risks and develops action plans and mitigation measures according to the expected loss and climate value at risk.
It is also at this stage that decisions are made regarding risk transfer, through contracting of insurance policies. Although the contracts currently established by Galp already include damage caused by climate risks, these are subject to annual review to ensure that they are aligned with risk assessment results.

Water, Biodiversity and Circularity

According with World Economic Forum Global Risks Report 2023, climate- and nature-related risks lead the top 10 risks, by severity, that are expected to manifest over the next decade. Over the next years, the interplay between biodiversity loss, pollution, natural resource consumption, climate change and socioeconomic drivers will make for a dangerous mix.
Galp is aware of increasing risks related to water and biodiversity and on the impact that new, energy transition related projects can have in these dimensions. Therefore, the company regularly conducts water and biodiversity related risk assessments whenever entering new projects and on its current portfolio.

Water-related risks

The company annually reports comprehensive metrics on water consumption and liquid effluents production, including details on water withdrawals, water sources and waste-water (see our website for more details).
Galp promotes an efficient and responsible use of water across all operated operations. In 2022, the assessment scope was updated, including the Commercial B2C business, and covering 100% of Galp operated sites. 31% of Galp operated sites are located in areas with high overall water risk and 3% in areas with extremely high overall water risk, according to the Aqueduct Water Tool, developed by World Resources Institute (WRI). Most of these sites are Service Stations in Spain.

Biodiversity-related risks

All projects are monitored and assessed in terms of their environmental impact, following the mitigation hierarchy (avoid, minimise, restore and offset) in areas where we operate that are near or within sites of globally or nationally relevant biodiversity.
The company also does an annual mapping of biodiversity preservation and protection areas around Galp operated facilities, up to a 50 km radius using the IBAT tool (Integrated Biodiversity Assessment Tool), to identify risks and impacts on biodiversity.

The number of threatened species in areas surrounding our operations is also monitored according to the IUCN Red List. In 2022 Commercial B2C business was included in the assessment scope, covering 100% of Galp operated sites.
Around 32% of Galp operated sites are located in or adjacent to (within 1km radius) high importance biodiversity areas. Most of these sites are Service Stations in Spain. It was also concluded that none of Galp exploration & production, biofuel, cogeneration and refining operations are in or adjacent to high importance biodiversity areas.

More detailed information about water and biodiversity related risks assessment can be consulted in the links below:

- Galp's Risk Screening for Water Use 2022
- Galp's Risk Screening for Biodiversity 2022

Circularity

Galp promotes the use of resources responsibly, seeking ways to improve the sustainable production and consumption model in its operations and throughout its entire value chain. The Company reports annually several metrics related with circularity, such as raw materials and resources consumption and production of reused or recycled waste (see our website for more details).

Sustainable energy portfolio

- Reduce absolute emissions from operations in **40%** by **2030**
- Reduce production-based carbon intensity in **40%** by **2030**
- Reduce downstream sales-based carbon intensity in **20**% by **2030**
- > **70%** of the annual net capex allocated to low carbon projects (approx. average annual value 2023-2025)

Biodiversity

- **Protect Biodiversity** and ensure the sustainable development of our projects
- **No operations** in World Heritage sites and categories I-IV protected areas of the IUCN
- **Avoid all deforestation** of indigenous species and compensate with future reforestation, wherever it is impossible to evade deforestation

Water

- **Effective Water Stewardship** by **2030**

Our 2050 Climate Ambition

Zero Net Emissions

(Scopes 1, 2 and 3)

2030 climate related targets

In 2021, Galp announced targets for 2030 that include reducing both the direct emissions from its operations and the carbon intensities of the energy it sells and produces.
These targets were defined considering the Company's belief in a fast-paced energy transition on which it has anchored its strategy, and the variables used in the emission, sales and production forecasts are aligned with the Company's business plan and associated milestones. Business plans are updated yearly and reflect internal forecasts for the budget and economic outlook for the next 10 years.

All the targets were set in relation to a 2017 baseline, the year when Galp announced the diversification of its portfolio beyond oil and gas, and include:

- **40% reduction in emissions from direct operations (scopes 1 & 2).** This includes Galp's equity share of emissions from all operations and geographies and echoes the efforts the Company is making in increasing efficiency and optimising its infrastructure. This target encompasses a reduction of 50% reduction from the Company's industrial operations in Portugal.

- **40% reduction in the intensity of the energy produced by Galp (scopes 1, 2 & 3).** This metric represents the emissions produced per unit of energy generated in Galp's production portfolio (oil, gas, electricity, hydrogen, biofuels, etc.) and reflects the significant and quick increase in the production of renewable energy from its assets.

- **20% reduction in the intensity of the products sold by Galp (scopes 1, 2 & 3).** This indicator echoes the efforts to decarbonise the Company's portfolio and increased low-carbon offers to its customers, from hydrogen to renewable electricity.

2050 net zero target

The current short and mid-term targets are the first and critical steps toward net zero emissions in 2050. As the energy transition accelerates and society moves towards a low carbon future so will we, and our business plans and portfolio will mirror this progress, however it is challenging to have the same kind of granularity in terms of specific projects and investments for such a distant time horizon, especially since some of the future decarbonisation solutions and technologies may not be technically viable as of today.

Methane

Galp is aware of the increased relevance and urgency of cutting methane emissions to limit global temperature increases. Although the Company's methane emissions have a relatively low weight in its operational emissions representing only 0.4% of its total, Galp aims to reduce methane emissions from its operated assets (25% of total current CH4 emissions) in line with industry expectations. Furthermore, all our CO2 reduction targets are expressed in a CO_2e basis that incorporates the impact of methane. Finally, all of the upstream operators of Galps upstream production are signatories of the OGCI Methane Reduction Initiative .

Performance against targets

	2022	2030 targets
Absolute Emissions **reduction from operations** (Scope 1 & 2 – equity based)	-20% c.3.3 mtonCO_2e	-40%
Carbon Intensity **Production-based approach**	-14% 80.2 gCO_2e/MJ	-40%
Carbon Intensity **Downstream sales-based approach**	-4.0% 73.4 gCO_2e/MJ	-20%

2022 was a challenging year for integrated energy companies given the disruption of markets caused by the ongoing war. As a result, decisions were taken that resulted in the used of higher carbon intensity fuels in the Sines refinery leading in an increase of **absolute emissions**. Another key factor related to that increase is the start-up and commissioning of the Coral FLNG which also resulted in increased emissions in the Upstream business. The Sines refinery should go back to using lower carbon, more efficient fuels as the economic situation normalises and the Coral unit will finish commissioning in 2023 and resume its regular activity as one of the most efficient LNG units in operation, with consumption of 256 kWh per tonne of LNG produced. It is therefore expected that absolute emissions will decrease in 2023.

Both the **sales** and **production carbon intensities** decreased in relation to the previous year benifiting from increased renewable energy and biofuels production. The sales carbon intensity also benifited from changes in refining output and increased gas sales and incorporation of biofuels into road fuels.

Upstream carbon intensity

The upstream carbon intensity was at 10.1 kgCO_2e/boe in 2022, almost half the value of the industry average 18.3 kgCO_2e/boe reported by OGCI.
The Upstream carbon intensity only takes into account emissions from upstream processes. This means that, in the case of the Coral FLNG emissions, the emissions from midstream processes such as secondary liquid separation, condensate fractionation and operations associated with the processes used to obtain Liquefied Natural Gas (LNG) are excluded from this scope.

Refining carbon intensity

Despite all the challenges posed by the ongoing energy crisis, the Sines Refinery continued focused on improving the efficiency of its operations. In 2022, we invested in several energy efficiency projects which reduce energy consumption and reduce emissions, including replacing boilers in the FCC unit, upgrading exchangers to more efficient technologies and replacing reactors with models that allow higher yields and lower energy usage. When fully implemented, these projects will allow reductions of > 90 kton CO2e/year.

The installation maintained the continuous improvement trend of the installation with a 10% reduction in carbon intensity in relation to 2015 to 30.4 kgCO_2/CWT.

Dedicated teams continuously work on identifying and implementing opportunities and synergies that lead to improvements of the efficiency and reduction of emission from our facilities. At the moment, 6 projects have been identified and are scheduled to be implemented by 2025, which will avoid > 90 ktonCO_2e/year.

Galp's Carbon Footprint

Our carbon footprint and intensity metrics are calculated and externally audited[1] on a yearly basis, while the performance against targets is also monitored and communicated every trimester. They follow the methodological framework established by The Greenhouse Gas Protocol, supplemented by the relevant sector-specific guidelines by IPIECA, and the emissions considered cover all the relevant businesses, value chains and geographies.

Carbon Footprint[1]

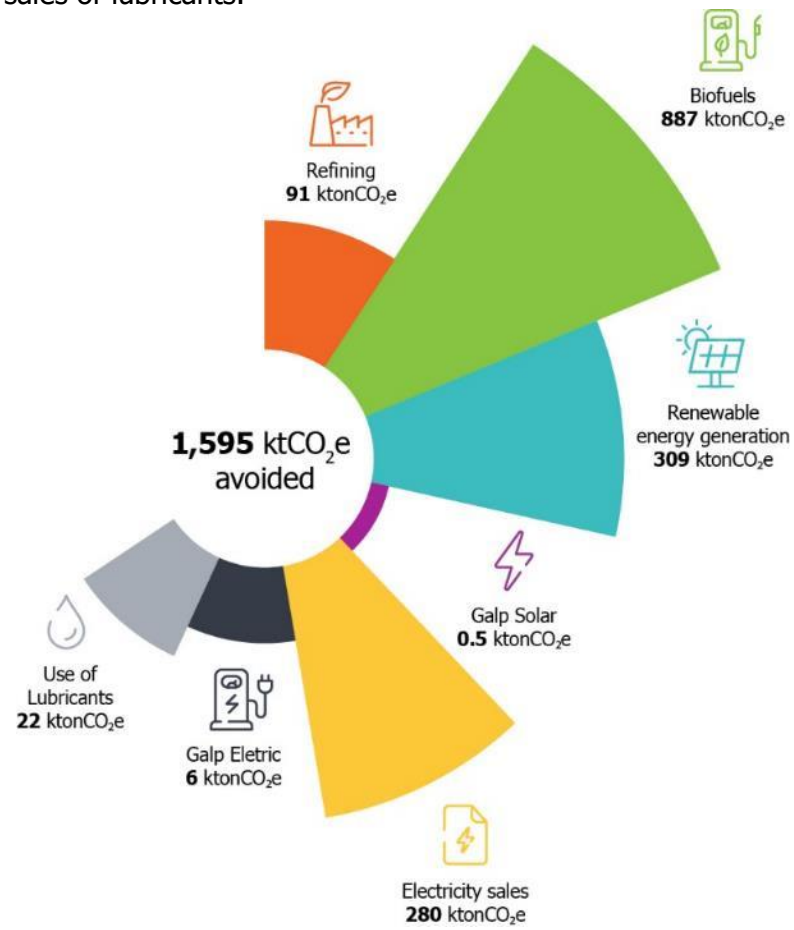
	Unit	2019	2020	2021	2022
Direct emissions - Scope 1					
Total	**mtonCO_2e**	3.7	3.6	3.2	3.4
Upstream	ktonCO_2e	456.6	496.3	490.0	733
Industrial & Midstream	ktonCO_2e	3265.5	3073.9	2682.6	2704
Commercial	ktonCO_2e	-	-	-	0.2
Renewables & New Businesses	-	-	-	-	-
Other	ktonCO_2e	5.5	4.2	4.7	5.2
Indirect emissions – Scope 2 (market based)					
Total	**ktonCO_2e**	112.5	42.0	9.1	9.1
Upstream	ktonCO_2e	29	3	0	0
Industrial & Midstream	ktonCO_2e	98.8	35.0	0.6	0.6
Commercial	ktonCO_2e	12.7	6.7	8.5	8.5
Renewables & New Businesses	-	-	-	-	-
Other	ktonCO_2e	0.9	0.3	0.03	0.03
Relevant Scope 3 categories					
Purchased good and services	mtonCO_2e	6.5	4.6	5.6	4.7
Fuel and energy-related activities	mtonCO_2e	0.9	0.9	1.1	1.0
Business travel	ktonCO_2e	6.2	1.8	0.5	2.4
Transportation and distribution (upstream+downstream)	mtonCO_2e	0.7	0.3	0.3	0.6
Processing of sold products	mtonCO_2e	1.6	1.5	1.5	1.3
Use of sold products	mtonCO_2e	48.4	39.6	37.8	38.6
Investments	mtonCO_2e	0.2	0.2	0	0

[1] Reasonable assurance on scopes 1 and 2 emissions and limited assurance on scope 3 emissions

Note: In 2021 Galp revised its carbon footprint boundaries to better align it with the emissions values used in the calculation of the carbon intensity metrics. Therefore, the emissions from non-operated Upstream assets were included in the scope 1 and 2 emissions calculation (previously accounted in Scope 3 – Category 15 – Investments). The calculation of the Scope 3 – Category 11: Use of sold product emissions is now aligned with IPIECA's throughput method, meaning that emissions from all refinery output are being considered in the calculation of this category. The calculation of Scope 3 – Category 10: Processing of sold products was also changed to reflect the processing of sold crude in third party refineries.

Avoided emissions

In 2022, Galp avoided the emission of approximately 1,600 ktonCO$_2$e through the implementation of energy efficiency measures in the refinery, the integration of biofuels, the production and sale of renewable energy, the supply of decentralised energy production and storage equipment, the delivery of electricity for electric mobility and sales of lubricants.



- **Efficiency projects in the Sines refinery:** In 2022 Galp invested 5.5 M€ in energy efficiency projects which reduce energy consumption and reduce emissions, including replacing boilers in the FCC unit, upgrading exchangers to more efficient technologies and replacing reactors with models that allow higher yields and lower energy usage. When fully implemented, these projects will allow reductions of > 90 kton CO2e/year.
- **Integration of biofuels into road fuels:** During the year c.306 000 m3 of biofuels were integrated in the diesel (biodiesel and HVO) and gasoline (bioethanol) sold by the Company in Iberia. This represents approximately 887 ktons of avoided CO2 emissions on a life cycle basis, when compared to a fossil equivalent.
- **Production of renewable electricity:** 1.4 GWp Galp already has in operation and generated c.1930 GWh during 2022 which translated into c. 309 ktCO2e of avoided emissions in comparison to the amount emitted by the production of an equivalent amount of electricity in the location where it was generated.
- **Sales of electricity:** Galp's electricity offer to its customers includes 100% renewable electricity options. In 2022 the electricity sold by the company in Portugal avoided c.280 kton CO2 when compared to the emissions from the same amount if consumed from the regulated market (universal service).
- **Sales of equipment for decentralized electricity production and storage:** The equipments sold by Galp solar are estimated to have produced c. 17 GWh and avoided 2.4 ktCO2e in comparison to the same amount of electricity purchased from the grid in the locations where the sales took place.
- **Galp electric (mobility):** Electricity sales for mobility in 2022 climbed to 7.7 GWh and avoided an estimated 6 ktons of CO2e emissions when compared to the same energy used on an ICE vehicle, on a life cycle basis
- **Lubricants:** In 2022, Galp's engine lubricants improved the efficiency and performance of our customers' vehicles engines, avoiding the emission of c. 21 ktonCO2e.

Other relevant metrics

Galp discloses its ESG performance in key areas in accordance with several ESG reporting standards. To facilitate the access to information, the table on this page summarizes relevant metrics, including the ones used to set and monitor targets related with:

- GHG emissions
- Water usage
- Biodiversity
- Renewables installed capacity
- Biofuels production and electricity production
- Investment in R&D

Other relevant metrics

	Unit	2019	2020	2021	2022
Other emissions related metrics					
Scope 1+2 emissions - equity	kton CO_2e	3 740	3 499	3 063	3 298
Scope 1 emissions under EU-ETS	kton CO_2e	3 259	30 64	2 674	2 664
Scope 1 emissions - Methane	tonCH_4	780	682	491	1318
Carbon intensity – Sales	gCO_2e/MJ	74.8	74.9	73.67	73.4
Carbon intensity – Production	gCO_2e/MJ	87.4	82.5	81.7	80.2
Carbon intensity - Upstream	kgCO_2e/boe	9.4	9.9	10.3	10.1
Flared gas – Upstream	Mm^3	50.0	40.2	34.5	116.6
Other environment related metrics					
Total water withdrawal	10^3m^3	10 774	9 881	9 435	9 343
Total freshwater withdrawal	10^3m^3	10 380	9 743	9 321	9 219
Freshwater withdrawals in regions of high or extremely high baseline water stress	10^3m^3	-	-	-	8 078
Total water recycled	%	13	15	14	14
Sites in World Heritage UNESCO areas	No.	0	0	0	0
Sites in IUCN Category I-IV areas	No.	0	0	0	2[x]
Sites with Biodiversity Net Positive Impact plans in place	No.	-	-	-	1
Renewable Energy production metrics					
Biofuels produced	kton	23	51	31	126
Renewable installed capacity	MW	12	926	963	1363
Investment related metrics					
EU Taxonomy CapEX[1]	%	-	-	10.5	33.5
Investment in R&D	M€	18.9	14.6	16.9	29.7

[x]In 2022 Commercial B2C business was included in the assessment scope, therefore there are 2 Service Stations inside the boundaries of a IUCN Category IV protected area.
[1]The 2021 value refers to eligible CapEX. The 2022 value refers to eligible and aligned CapEX.

Climate related incentives

The Remuneration Committee is responsible for setting the amount of remuneration owed to the members of Galp's corporate bodies, approves the Remuneration Policy, which includes criteria for attributing and measuring the variable component of their remuneration.

Galp's commitment to decarbonisation and with driving the energy transition is mirrored by its Remuneration Policy, which aims to reinforce the values, enable skills, abilities, and behaviours, given the Company's culture, long-term interest, strategy and sustainability. Currently, both short-term and long-term incentives for Executive Committee directors and CEO have the carbon intensity index as a KPI.

The remuneration policy of members of the Galp's corporate bodies is reviewed annually and made publicly available (link here).

From 2022 onwards, hydrocarbon production-related metrics are no longer featured as weighting factors in employees' incentives. The performance scorecard was reviewed in 2022 to give more empowerment to ESG-related metrics, that now weight 25% of all annual performance indicators, covering safety and decarbonisation KPIs. In addition, 20% of the employees' scorecard is allocated to the completion of strategic milestones that include, among others, topics related to cybersecurity and low-carbon projects like electrification and H2.

For the Executive Committee, safety and decarbonisation KPIs are also included in the short-term incentive scorecard, with a combined weight of 15%. As the BoD member responsible for climate strategy, the CEO has his long-term incentive, materialized by the right to a set of Galp shares attributable after 3 years, closely correlated with the decarbonisation of the company.

Objective Key Results (OKR)

OKR methodology has recently been implemented in all business units with the aim to engage the wider organisation in delivering Galp's strategic milestones. By leveraging visibility on what matters, teams worked with high focus and recognized their efforts in Galp's results. Some of the sustainability related OKRs present in the business units' scorecards are related with safety, decarbonisation projects and carbon offsets strategy, increase renewables capacity and production, among others.

TCFD Recommendations

Governance	
a) Describe the board's oversight of climate-related risks and opportunities	**TCDF Report 2022** - Page 4-6 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050; Part I – 2.4 How we manage risk) Galp's Corporate Governance Report 2022 Galp's Answer to CDP Climate Change 2022 Galp's website | Our Journey to Net Zero by 2050 Galp's website | Polices
b) Describe management's role in assessing and managing climate-related risks and opportunities	**TCDF Report 2022** - Page 4-6 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050; Part I – 2.4 How we manage risk) Galp's Answer to CDP Climate Change 2022 Galp's website | Our Journey to Net Zero by 2050
Strategy	
a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	**TCDF Report 2022** - Page 7-11 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050; Part I – 2.4 How we manage risk) Galp's Corporate Governance Report 2022 Galp's Answer to CDP Climate Change 2022
b) Describe the impact of climate related risks and opportunities on the organization's businesses, strategy, and financial planning	**TCDF Report 2022** - Page 7-11 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050; Part I – 2. Strategic framework) Galp's Corporate Governance Report 2022 Galp's Answer to CDP Climate Change 2022 Galp's website | Our Journey to Net Zero by 2050
c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	

TCFD Recommendations

Risk Management	
a) Describe the organization's processes for identifying and assessing climate-related risks	**TCDF Report 2022** - Page 12-17 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050 & 2. Preserve and restore our planet; Part I – 2.4 How we manage risk) Galp's Corporate Governance Report 2022 Galp's Answer to CDP Climate Change 2022 Galp's website | Our Journey to Net Zero by 2050 Galp's website | Preserve our planet
b) Describe the organization's processes for managing climate-related risks	
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	
Metrics and Targets	
a) Disclose the metrics used by the organization to assess climate related risks and opportunities in line with its strategy and risk management process	**TCDF Report 2022** - Page 18-24 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050 & 2. Preserve and restore our planet; Part I – 2.3 Our approach to ESG) Galp's Answer to CDP Climate Change 2022 Galp's website | Our Journey to Net Zero by 2050 Galp's website | Preserve our planet
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	**TCDF Report 2022** - Page 18-24 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050) Galp's Answer to CDP Climate Change 2022 Galp's website | Our Journey to Net Zero by 2050
c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	**TCDF Report 2022** - Page 18-24 Galp's Integrated Management Report 2022 (Part II – 1. Our Journey to Net Zero by 2050 & 2. Preserve and restore our planet; Part I – 2.3 Our approach to ESG) Galp's Answer to CDP Climate Change 2022 Galp's website | Our Journey to Net Zero by 2050 Galp's website | Preserve our planet

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