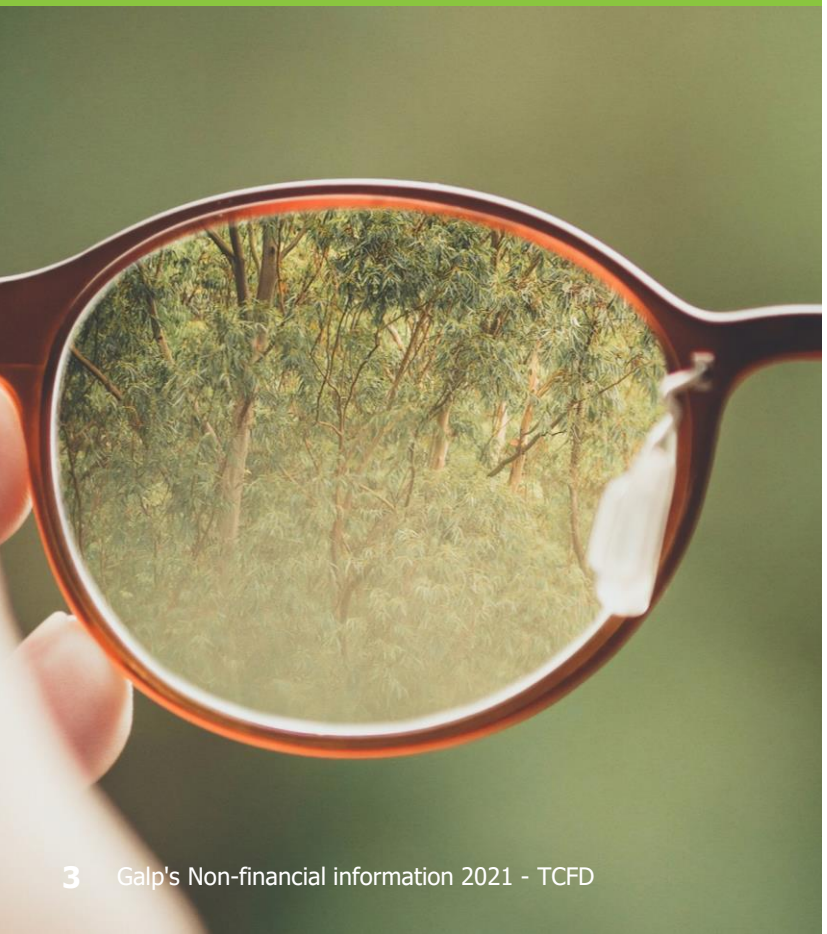
# Task Force on Climate-related Financial Disclosures (TCFD)

## 2021

# INDEX

# Introduction

## GALP REPORTS ITS ALIGNMENT WITH TCFD RECOMMNENDA-TIONS SINCE 2018



Climate related issues are an inescapable, defining subject matter in this century. According to the World Economic Forum Global Risks Report 2022, "climate action failure", "extreme weather", and "biodiversity loss" are perceived to be most severe risks on a global scale, over a 10-year horizon.

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, 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.

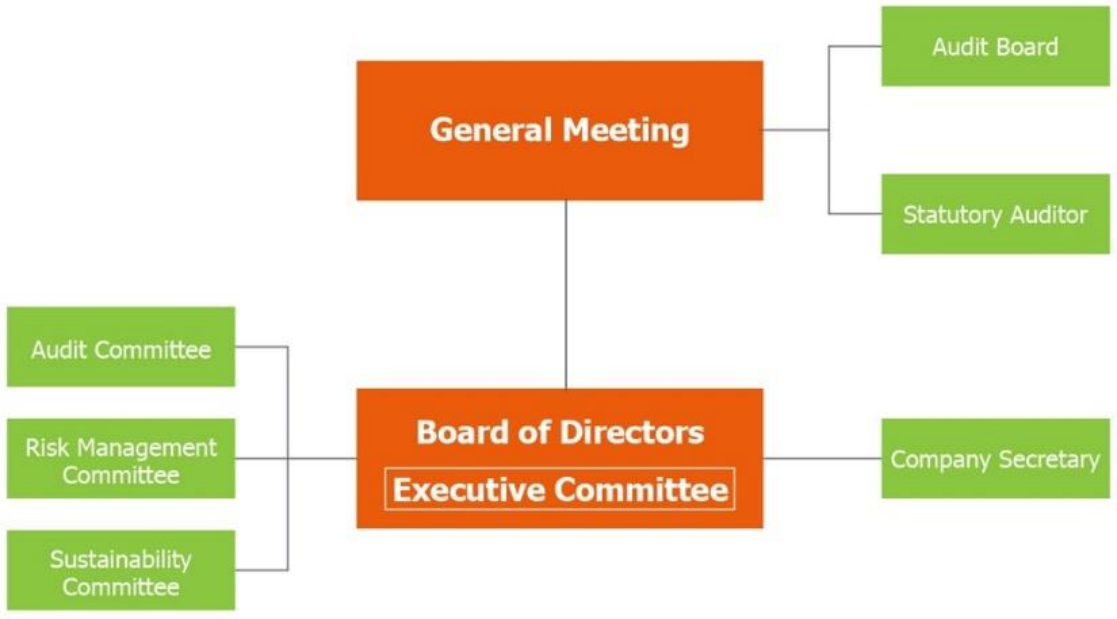
Internally, climate change has been identified as one of the key risks for Galp and as such, the company recognises the importance of the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) as a tool to improve the reporting of climate related-risks and opportunities and provide relevant information for investors, financial institutions and other relevant stakeholders. Alignment with 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.

# Governance

Galp, is aware of the importance and potential impact climate related risks and opportunities in its operations, revenues and of the materiality of these topics for society, investors and other stakeholders.
We recognise the importance of a responsible leadership and of the definition of robust and effective governance mechanisms that integrate key climate and energy transition related challenges into our strategy.
Climate and energy transition related risks and opportunities - over the short, medium and long term - integrate the Company's strategic formulation process and investment planning. These 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, 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 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.



# Governance

The Sustainability Committee, Executive Committee and Board of Directors, are informed on a quarterly basis on our carbon metrics performance against targets and are updated on the decarbonisation roadmap status or any key climate change related issues via a specialized report, prepared by the corporate Strategy and Sustainability team, with the support of the Risk Management team, when necessary.

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.

In 2021, Galp refreshed its strategy and increased its commitment to drive the energy transition and the ambition and scope of its emission reduction targets. This revision was done under the supervision of the Executive Committee and also included the development of GHG related metrics and targets. The new targets were discussed in the Sustainability committee and finally approved by the BoD, along with the other changes to company strategy.

## Sustainability Committee

On 12 April 2019, the Board of Directors established a Sustainability Committee composed of three non-executive directors, with the aim of ensuring the incorporation of sustainability principles into the management of the Group and fostering industry best practices in all its activities, ensuring long-term value creation .

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.

2021

# Activity

SUSTAINABILITY COMMITTEE

For more details about Galp's Governance, please see our 2021 Integrated Report

# Governance

In 2021, the Sustainability Committee met four times and the following matters were discussed and presented:

- Analysis of the regulatory context, ESG best practices and trends (e.g EU Taxonomy, FF55, TCFD, COP 26, disclosure of non-financial information, etc.)
- Overview of the sustainability roadmap for 2022, aligned with best practices and benchmarking with peers and reference performers
- Analysis and discussion of Galp's sustainability performance, climate ambitions and decarbonisation achievements
- Overview of the physical climate and transition risks assessment process
- Development of the energy transition plan, addressing the risks and opportunities of the energy transition

*At the **BoD's meeting on the 17 December 2021**, the Chair of the Sustainability Committee reported on the work done by the Committee during 2021.*

# Governance

## 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 2021, the Committee analysed the Risk Profile of the Business Plan 2022-2032 and the Risk Appetite Statement for the strategic objectives inherent in the business plan, including a Carbon Intensity Assessment through sensitivity analysis. Risk recommendations were issued, namely the implementation of the Climate Risk Management Framework.

## 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.

## Chief Sustainability Officer

Galp's Chief Sustainability Officer is the Head 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, that are implemented in a coordinated effort with the business units and corporate Risk Management & Internal Control department, thereby ensuring that a plan of action is established to mitigate and/or eliminate these risks.

## 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

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 2021, Galp updated its strategy, increasingly focusing on the decarbonisation of its activities and aiming to become net zero by 2050.
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 in 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.
Yearly 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 overall decarbonization and transition strategy.

**Short-term**

Up to 1 year
Annual strategic budget

**Medium-term**

Up to 5 years
General strategic cycle

**Long-term**

More than 5 years Long-term strategic cycle

For more details about Galp's Strategy, please see our 2021 Integrated Management Report

# Strategy

## The main risks for Galp*

| | |
|---|---|
| **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 O&G, and will potentially affect fossil fuel prices and could drive the creation of "stranded assets”. |
| **Cyber** | Any failure in the security of the systems, whether accidental or resulting from intentional actions (cybercrime), or negligence may have severe negative impacts for Galp’s operations, its customers and suppliers. |
| **ESG Regulatory Compliance** | Any failures 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. |
| **Performance Management** | The inability to restructure business models through intelligent operational models supported by innovative technologies and, simultaneously, adopt a new paradigm of work model, would undermine Galp's ability to properly executing its strategy, impacting results and financial performance |
| **Portfolio** | Galp's sustainability depends on its ability to reshape its portfolio enabling it to meet its decarbonisation ambition at the pace demanded by the market. |
| **Major Accidents** | 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. |
| **Legal** | Galp is subject to a wide range of national and international laws and standards and 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 changes that may alter the business context in which Galp operates. |
| **Reputational** | 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 the Society, namely on the energy transition arena, could damage our brand and reputation. |
| **Business Continuity** | The nature, technical complexity, and diversity of Galp's operations expose the Company to a wide range of disruptive risks that may give rise to incidents that disrupt or threaten Galp's critical business processes and may impact human resources, the environment, the value of assets and results and, ultimately, the continuity of its business. |
| **Market & Competition** | Galp faces strong competition in all its business segments and its competitive position and financial performance may be harmed. |

* The selection of the Gap’s main risks was based on their risk appetite rating.

# Strategy

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 risks related to climate.

**(1)** The most significant physical risk is the acute risk of being exposed to **extreme wind events** with speeds above those considered during the infrastructure design. The list of potential damaging events that could affect our assets includes damage/destruction of storage tanks in refineries and logistics parks, changes in swell patterns that could disrupt accessibility to ports, interrupt the logistics chain and compromise raw material supplies, among others.

The nature, technical complexity and diversity of Galp's operations means that the acute and chronic physical risks have a very high potential impact on the execution and operations conditions. Galp's main industrial site (Sines refinery) is located by the Atlantic Ocean coast in the south of Portugal and might be threatened by events such as sea level rise and/or wildfires.

**(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 CO2 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 CO2 prices which are likely to rise, as well as on the allocation of free emission allowances, which might decrease.

# Strategy

**(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 and petroleum products, 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 or natural gas 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. If Galp fails in this purpose, there might be reputational risks associated, regarding negative perception of the company by its stakeholders.

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).

# Strategy

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. To manage these opportunities, Galp is allocating 50% of its capex to low carbon initiatives including:

(i) development of a renewable generation portfolio;
(ii) development of HVO production in the Sines refinery;
(iii) the development of a desulphurization unit in the Sines refinery;
(iv) supporting our customers in this transition, by developing decentralised generation solutions;
(v) development of green hydrogen solutions, and;
(vi) assessing the entry into the Li-on battery value chain through lithium chemical processing.

## $CO_2$ Price

Galp also considers a carbon price on GHG emissions in investment analysis and therefore incorporates CO2 and climate related issues in its decision-making process. The Company considers that carbon cost internalisation mechanisms such as carbon pricing are the most effective and efficient way to promote the decarbonisation of the economy on a global scale. A carbon price is considered when evaluating medium and long-term investments, to mitigate risks and maximize opportunities along the value chain. When evaluating investments in new project developments, expansions or upgrades of existing assets, Galp stress tests the impact of the related $CO_2$ emissions in its metrics and targets before any investment decision.

In making this analysis, the Company considers an internal carbon price that changes with time, varying from a present-day value that correlates with the current price of an EU-ETS allowance and increases in time to prices above 200€/tonCO2e in 2050, ensuring the incorporation of a potential global carbon price and its temporal evolution.

# Strategy

By using a dynamic carbon price, Galp demonstrates that it is aware of the future potential changes in regulation, consumer and technological patterns and the risks associated with long-term business plan analysis.

Galp also considers different carbon prices in its scenario analysis, which are based on the international references and forecasts used in scenario modelling. This allows the Company to stress test its long-term strategy and perform sensitivity analysis on the carbon price variable (for more details about Galp's scenario analysis, please see Risk Management section).

# Risk Management

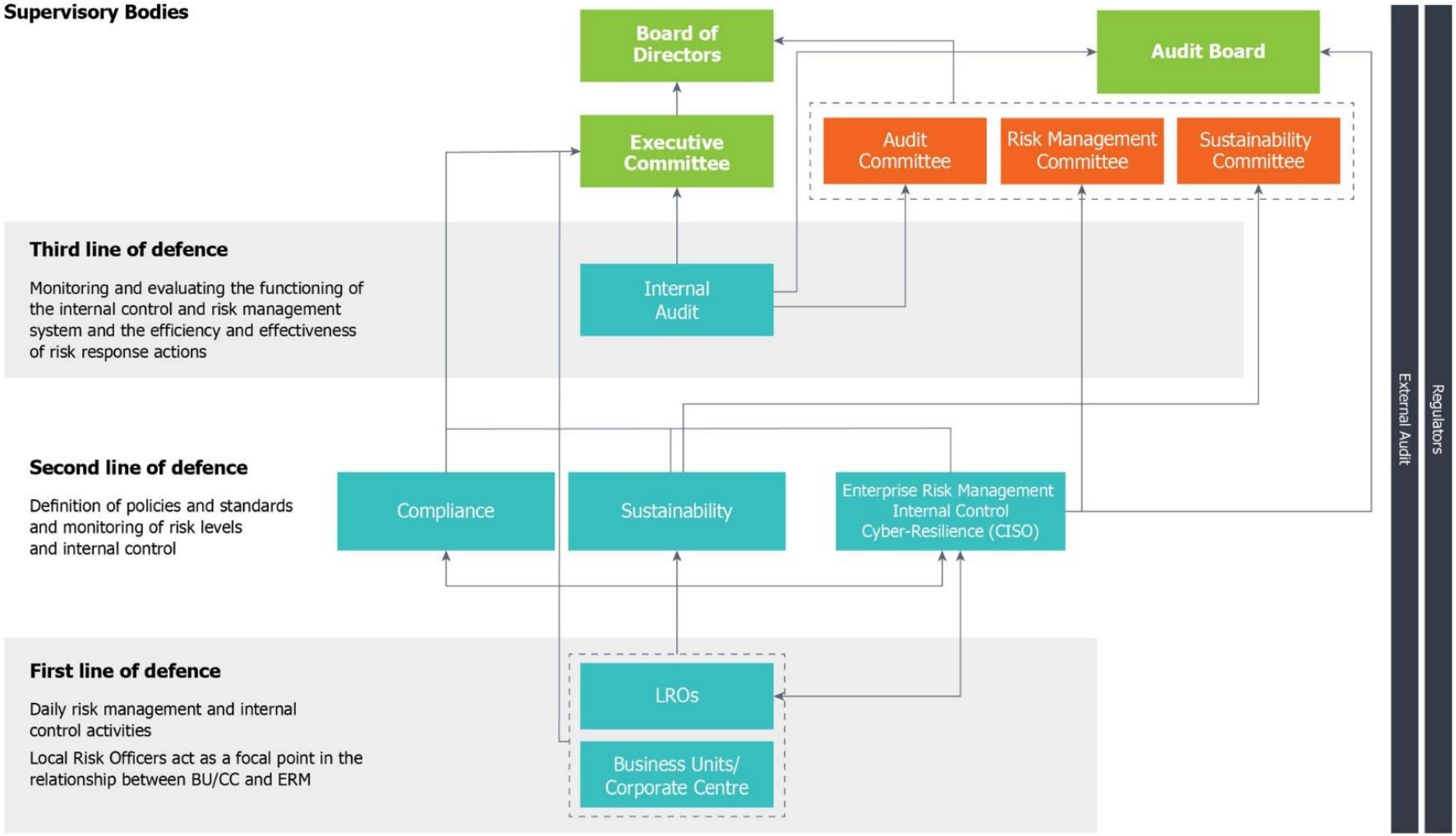
As a global integrated energy company, present in several geographies, Galp is exposed to a set of risks which may bring uncertainty to its performance and to the accomplishment of strategic objectives.

To ensure proper management of these risks, 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.

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.

# Risk Management

## Three lines of defence model



# Risk Management

Galp implemented 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 BU's risk exposure.

- the **first line of defence** is responsible for the daily risk management and internal control activities. Those responsible for 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.

## Risk exposure assessment

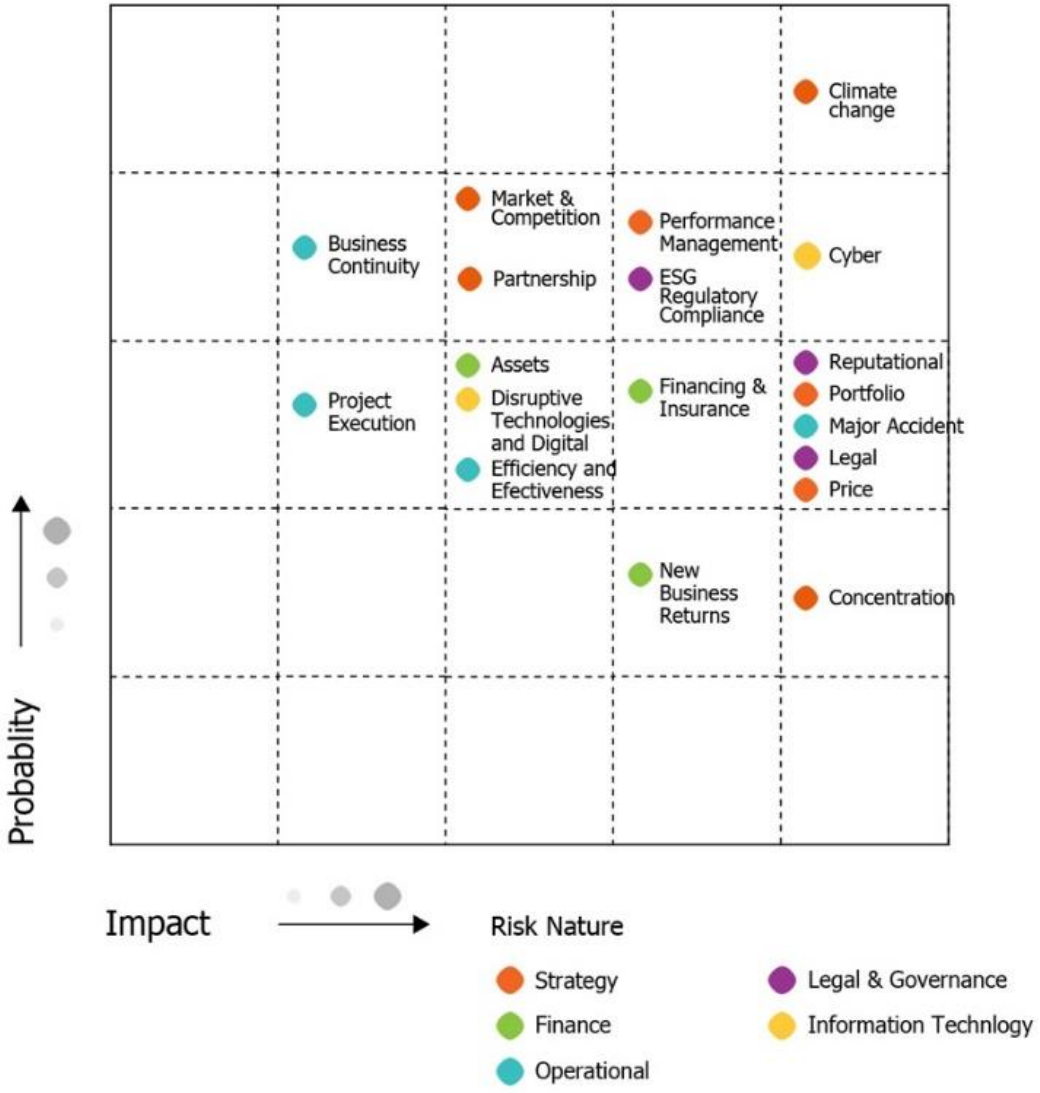
In the identification of risks, Galp considers internal and external factors (e.g., geopolitical, socio-economic, and regulatory, including the ones relative to the carbon market) that may trigger risks or opportunities that, in an adverse or favourable way, may potentially affect its activity, its assets, 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 Management

- 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.

Risks are prioritized and mapped in a **Heat Map (Risk Matrix)**.



# Risk Management

## Climate risks assessment

Galp has been working on the identification and quantification of climate related risks and opportunities, including acute (e.g. increase severity of extreme weather events such as cyclones, hurricanes, or floods) and chronic (e.g. longer-term shifts in climate patterns like sea level and mean temperatures rise, changes in wind and precipitation patterns, etc) physical risks, and transition risks such as regulation related risks, consumer demand (market) risks, technology related and reputational risks. These risks are closely evaluated and monitored and their impact in Galp's operations and value at risk is to be quantified regularly from 2021 onwards.

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 scenario. The main physical and commercial variables were estimated for each scenario, followed by the evaluation of risk parameters by scenario and time horizon (short-, medium- and long-term).

## 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 & Governance
- Information Technology
- Human Resources

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.

# Risk Management

All the values for physical variables were obtained considering the geographic coordinates of the various assets and the data was collected from reliable sources such as initiatives developed and sponsored by the EU (Copernicus) and the WMO (Cordex). Local sources are used as complementary (and back test).

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.

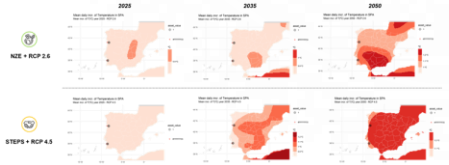
From 2021, and on an annual basis climate-related physical and transition risks are assessed for all business units and geographies by the risks and processes responsible, supported by respective Local Risk Officers using scenario-based modelling comprehending relevant IPCC scenarios (including one 1.5ºC and/or well-bellow-2ºC (WB2C) scenario) for physical variables (RCP 1.9, 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 develop 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.

**Physical variables**

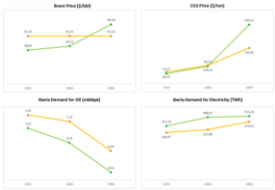
- The **physical variables were obtained for concrete assets taking into account the identification of their geographic coordinates.**
- The **variables collected are aligned with the RCP 2.6 and RCP 4.5** scenarios, which are the existing physical scenarios most closely aligned with the scenarios already used by Galp.

| | Rise of the sea level (m) | | | Average temperature increase (º C) | | | Variation in precipitation (mm) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2025 | 2030 | 2050 | 2025 | 2030 | 2050 | 2025 | 2030 | 2050 |
| RCP 2.6 | 0,00 | 0,00 | 0,03 | 0,60 | 0,64 | 1,03 | 0,16 | 0,29 | 0,34 |
| RCP 4.5 | 0,01 | 0,01 | 0,04 | 0,62 | 0,76 | 1,25 | 0,27 | 0,50 | 0,74 |




**Transition variables**

- Some of the **transition variables were provided by the strategy area for the two scenarios considered (committed and resilience)**. These scenarios are based on IEA scenarios such as SDS and STEPS. The committed scenario is more ambitious than the SDS, and may in the future be aligned with an NZE scenario.
- In addition to the market variables, provided by the strategy area, **the business areas were provided with narratives that explain the scenario from a social, political and regulatory, economic and technological point of view.** These narratives are based on the NZE and STEPS scenarios from the IEA.




Climate Risk Assessment Report

# Metrics and targets

**50%**
of the annual net capex allocated to **low carbon projects** (approx. average annual value 2021-2025)

**No net biodiversity loss**

**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

**2030**

**-40%**
**absolute emissions** from operations

**-40%**
**carbon intensity** from production

**-20%**
**carbon intensity** from downstream sales

Accelerated convergence towards **gender parity**

**2050**

**Zero Net Emissions**
(Scopes 1, 2 and 3)

# Metrics and targets

## 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 (scope 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. 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. This indicator echoes the efforts to decarbonise the Company's portfolio and increased low-carbon offer to its customers, from hydrogen to renewable electricity.

Galp's 2030 targets are the first critical step towards the ambition of becoming a net zero company in 2050. From 2030 onwards, renewable energy production and sales must be strengthened and Galp's operations further decarbonised. By 2050 any residual emissions would be either be captured or neutralised using carbon offsets.

# Metrics and targets

## $CO_2$ metrics

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 taken into account cover all the relevant businesses, value chains and geographies.

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.

**Carbon Footprint[1]**

| | Unit | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| **Direct emissions - Scope 1** | | | | | |
| Total | mton$CO_2$e | 3.7 | 3.7 | 3.6 | 3.2 |
| Upstream | kton$CO_2$e | 452.6 | 456.6 | 496.3 | 490.0 |
| Industrial & Energy Management | kton$CO_2$e | 3222.9 | 3265.5 | 3073.9 | 2682.6 |
| Commercial | kton$CO_2$e | - | - | - | - |
| Renewables & New Businesses | - | - | - | - | - |
| Other | kton$CO_2$e | 5.7 | 5.5 | 4.2 | 4.7 |
| **Indirect emissions – Scope 2 (market based)** | | | | | |
| Total | kton$CO_2$e | 133.5 | 112.5 | 42.0 | 9.1 |
| Upstream | kton$CO_2$e | 9 | 29 | 3 | 0 |
| Industrial & Energy Management | kton$CO_2$e | 117.6 | 98.8 | 35.0 | 8.5 |
| Commercial | kton$CO_2$e | 14.8 | 12.7 | 6.7 | 8.5 |
| Renewables & New Businesses | - | | | - | - |
| Other | kton$CO_2$e | 1.0 | 0.9 | 0.3 | 0.03 |
| **Relevant Scope 3 categories** | | | | | |
| Purchased good and services | mton$CO_2$e | 5.9 | 6.5 | 4.6 | 5.6 |
| Fuel and energy-related activities | mton$CO_2$e | 1.2 | 0.9 | 0.9 | 1.1 |
| Business travel | kton$CO_2$e | 11.2 | 6.2 | 1.8 | 0.5 |
| Transportation and distribution (upstream and downstream) | mton$CO_2$e | 0.7 | 0.7 | 0.3 | 0.3 |
| Processing of sold products | mton$CO_2$e | 1.4 | 1.6 | 1.5 | 1.5 |
| Use of sold products | mton$CO_2$e | 56.9 | 48.4 | 39.6 | 37.8 |
| Investments | mton$CO_2$e | 0.2 | 0.2 | 0.2 | 0 |

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

# Metrics and targets

## Performance against targets

| | 2021 | 2030 targets |
|---|---|---|
| **Absolute Emissions' reduction from operations** (Scope 1 & 2 – equity based) | -26% c.3.1 mton$CO_2$e | -40% |
| **Carbon Intensity Production-based** approach | -13% 81.6 g$CO_2$e/MJ | -40% |
| **Carbon Intensity Downstream sales-based** approach | -3.4% 73.7 g$CO_2$e/MJ | -20% |

In 2021, the positive evolution of Galp's carbon performance is a direct consequence of the restructuring of the Company's industrial infrastructures and the closure of the Matosinhos refinery during the year, as well as the implementation of efficiency projects at the Sines site, and also the use of 100% renewable electricity in all Galp operations in Portugal, which allowed for a significant reduction in operational emissions.
Beyond these factors, the increase in electricity sales and in renewable electricity production contributed to the decrease in the carbon intensities of sales and production, respectively.

### Upstream Carbon intensity

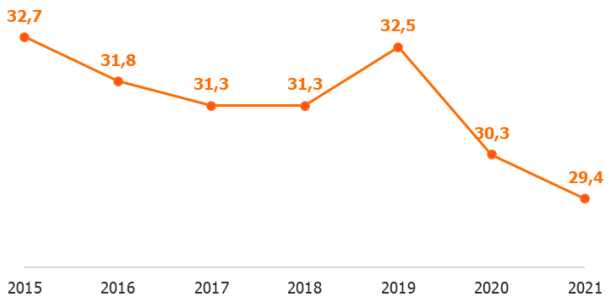
In the Brazilian pre-salt, we have applied sustainable and competitive technologies that enable carbon sequestration and capture by separating carbon dioxide from the natural gas produced. $CO_2$ is then reinjected into the reservoirs, contributing not only to an improvement in operational efficiency but also to reducing the carbon footprint and water consumption, a resource commonly used to improve pressure and stability in reservoirs. Moreover, several of the FPSO operating in Brazil have commissioned a flare recovery gas system that will allow them to further reduce emissions from non-routine flaring events.
Galp is also a subscriber of the World Bank's Zero Routine Flaring by 2030 initiative and is already upholding this commitment.

In 2021, the carbon intensity of our upstream production was of 10.3 kgCO2e/boe, considering direct greenhouse gas emissions from operations and the hydrocarbon production of operated and non-operated assets, on a WI basis.

# Metrics and targets

## Refining intensity

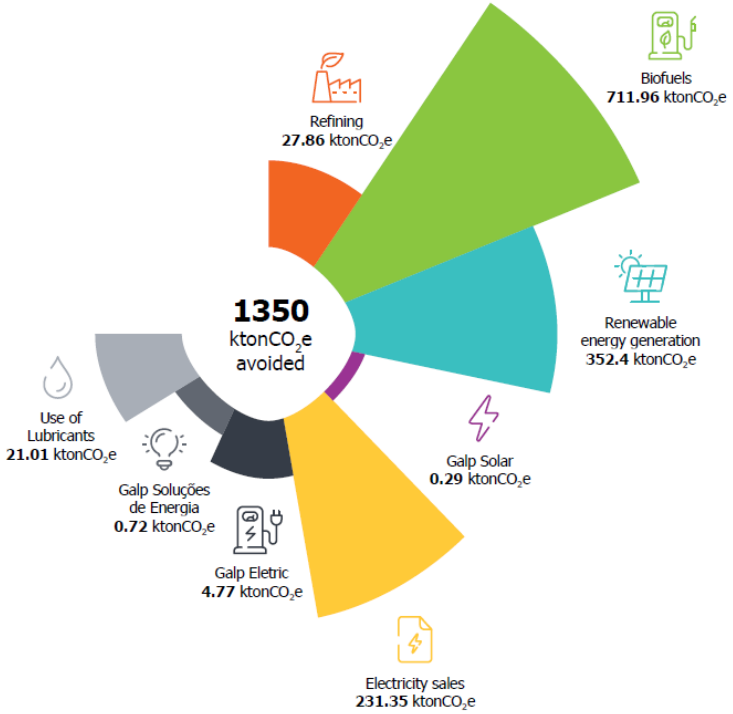
2021 was marked by the closure of the Matosinhos refinery and the continuing execution of efficiency projects at the Sines facility. The implementation of projects such as excess air control in the furnaces, and the debottlenecking of the catalytic reforming unit which allowed for the saving of 22.6 ktonCO$_2$e/year, and maintained the continuous improvement trend of the installation with a 10% reduction in carbon intensity in relation to 2015 to 29.4 kgCO$_2$/CWT.




Dedicated teams continuously work on identifying and implementing measures that lead to improvements of the efficiency of our facilities. At the moment, several projects have been identified and are scheduled to be implemented by 2025, with an estimated investment of €32 m which will materialize energy savings of 113 GJ/h and avoid 53 ktonCO$_2$e/year.

## Avoided emissions

In 2021, Galp avoided the emission of approximately 1,350 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 energy efficiency services, and the delivery of electricity for electric mobility.



# Metrics and targets

## Water and biodiversity

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.

**Protecting water resources**

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 operations, monitoring water risks in 100% of them. In 2021, the water risk assessment tool was updated, guarantying a more accurate and transparent report. From the global universe of Galp's facilities, 19% are located in areas with high overall water risk and 9% in areas with extremely high overall water risk, according to the Aqueduct Water Tool, developed by World Resources Institute (WRI).

More detailed information can be consulted in Galp's Risk Screening for Water Use 2021 (link here).

**Protecting biodiversity, habitats and species**

All projects are monitored and assessed in terms of their environmental impact, following the mitigation hierarchy (avoid, minimise, restore and compensate) 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 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.

Only 4 out of the 85 Galp sites, equivalent to 4.7%, are located (in situ) in areas of significant biodiversity relevance: ParkAlgar Solar Park and Mitrena and CLCM Storage Facilities in Portugal and the LNG Plant (Rovuma) in Mozambique.

More detailed information can be consulted in Galp's Biodiversity Risk Assessment 2021 (link here).

# Metrics and targets

## 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 with decarbonisation and with driving the energy transition is mirrored by its Remuneration Policy, which aims to reinforce the values, enable skills, abilities, and behaviours, in view of 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 (see Remuneration Policy).

From 2022 onwards, all employees' incentives will have emissions and energy transition related KPIs, while hydrocarbon production related metrics are no longer featured as weighting factors.

The short-term incentive, which represents annual variable remuneration for all employees, has targets for installed renewable electricity generation capacity, reduction of absolute operational emissions (scopes 1 and 2) and reduction of the carbon intensity of downstream sales, which materialize emission reductions across all of the Company's operations and value chains and the successful execution of its transition strategy. In total, these correspond to 30% of the weighting of the incentive which materializes Galp's commitment and with the decarbonization of its operations and portfolio and represents a six-fold increase of the weight of energy transition related objectives from 5% in 2019.

A carbon reduction KPI related with the reduction of the production carbon intensity and operational emissions represents 25% of the weight in the tri-annual long-term incentive, which applies to managers responsible for executing the Company's strategy.

# References

Galp recommends the reading of the following references as a complement to the information disclosed in this document:

- Galp's Integrated Management Report 2021
- Galp's Corporate Governance Report 2021
- Galp's Answer to CDP Climate Change 2021
- Galp's Non-financial information - GRI standards 2021
- Galp's website | Energy and Climate
- Galp's website | Climate Change and Energy Transition
- Galp's website | Low Carbon Initiatives
- Galp's website | Carbon Metrics
- Galp's website | Polices
- Galp's Sustainability – Our Commitments
- Galp's Capital Markets Day 2021
- Galp's Interactive Indicators