



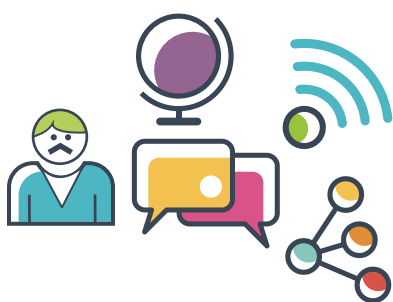
Sustainability report

2023

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1



Presentation of the pension scheme

1 - Foreword

Christophe Iacobbi, Chairman of the Board of Trustees of Ircantec

On behalf of the Trustees of Ircantec, whom I thank for their commitment, and as the Chairman of the Board of Trustees and representative of the employer college, it is my great pleasure to introduce this 2023 sustainability report.

I would like to take the opportunity to share a few beliefs that I have developed during my term of office, which will come to an end in December 2024.

Although the primary mission of Ircantec is to ensure the payment of pensions to members, and to preserve and develop its reserve capital, it must also respect the three pillars of a socially-responsible investment (SRI), which means it must integrate environmental, social and governance criteria into its investment strategies. I remind you that through our different terms of office, all Trustees have had the ambition to implement a demanding, innovative, forward-looking and inspiring SRI policy.

At the end of 2023, reserves (including cash) amounted to €15.5 billion compared to €13.7 billion at the end of 2022, representing an increase of 13.1%. Almost 17% are invested in the environmental transition.

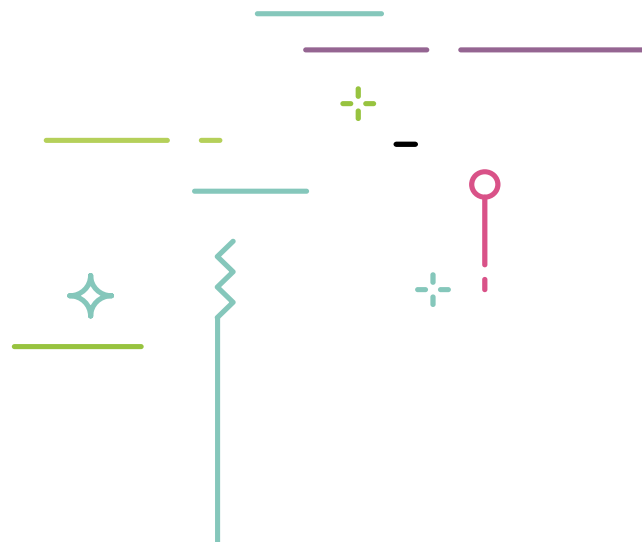
Under the climate policy defined in 2022, Ircantec reinforced its demands and commitments to the environmental transition, as part of a pragmatic and realistic approach to the complexity of the geopolitical and social situations that we are experiencing both nationally and internationally. It is important to keep in mind and respect the principles of feasibility and acceptability so that the climate, biodiversity and social challenges which we aim to rise to can be shared between the greatest number of people.

This is why, in 2023, as part of the SRI event held each year by Ircantec, I wanted the social dimension of the just transition be explored, by asking this intentionally provocative question: "Can a responsible investor generate or be responsible for social inequalities?" The experts invited spoke of the complexity of the concept, due to its multi-factor dimension in terms of the underlying aspects, namely climate, biodiversity, sovereignty, competitiveness, independence, social and societal, as well as its relative nature depending on the time scale, space (within companies, regions, countries, continents, etc.) and historical or ethical contexts.

To my mind, and after these years spent at the head of the Ircantec Board of Trustees, being an investor in the just transition and claiming to be "responsible" is to know how to support business entities in the transformation of their value chain, to help and encourage them to integrate the inherent social and societal changes, without forgetting our financial obligations towards our affiliates.

Without the "just", there will be no environmental transition. This is my conviction, while remaining lucid about the analysis and understanding of business models.

At Ircantec, we hope that tomorrow's world that we aim to mold via our SRI charter will be acceptable and accepted by all of you.



2 - Executive Summary

In light of the climate crisis, Ircantec strengthened its commitments in October 2021. The goal is to ensure that its reserves are on course to ensure emissions reductions compatible with a 1.5°C scenario, in line with the projections of the Intergovernmental Panel on Climate Change (IPCC). The IPCC and International Energy Agency (IEA) drew attention to the urgent need for a significant and sustained reduction in greenhouse gas emissions to limit global warming, and stressed the importance of halting the development of fossil fuel in order to comply with the 1.5°C scenario.

To strengthen its responsible investor policy defined in the [SRI charter](#) adopted by Ircantec in 2009, a new 2022-2025 investment roadmap was approved by the Board of Trustees in March 2022.

Ircantec has aimed to implement the best practices and highest standards that will allow it to reduce the emissions of its portfolio of companies. The pension scheme has therefore adopted a strategy to phase out fossil fuels by 2030 and has set itself a target of reducing emissions from its portfolio of companies by 7% per year on average until 2050. This strategy also depends on the engagement and voting policy, with a focus on fossil energies and their financing, as well as financing in favor of the EET

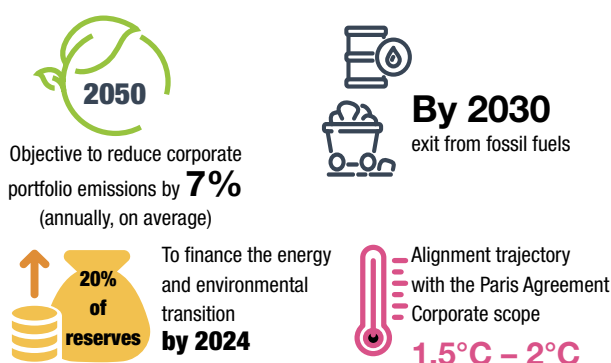
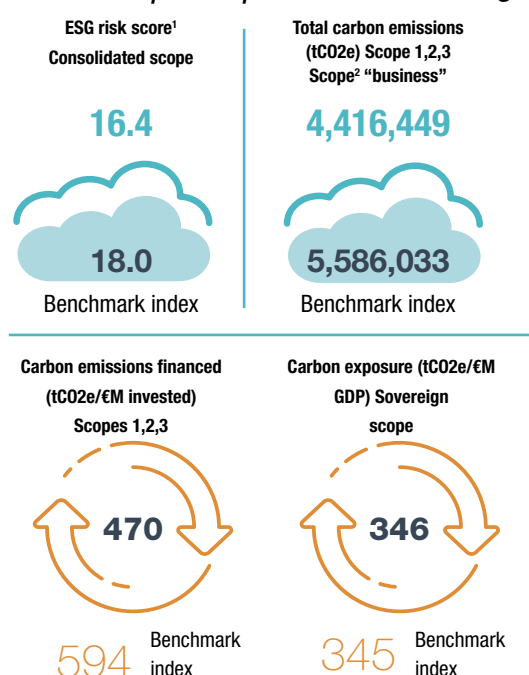
(Energy and environmental transition), with a target objective of 20% of reserves by 2024, corresponding to additional financing of over €1 billion to support the transition.

For 2023, Ircantec worked with asset management companies to continue the deployment of its climate policy, but also to improve the environmental, social and governance (ESG) performance of the funds. Currently, Ircantec uses two providers for non-financial analysis: Sustainalytics for extra-financial and risk ratings, and *Trucost* for measuring carbon emissions from portfolios and other types of footprints.

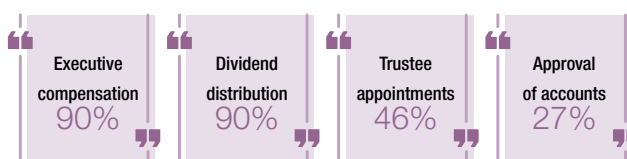
In 2023, Ircantec's portfolio again showed non-financial ratings above its reference index, with its ESG risk score being placed in the "low" risk category and the portfolio exhibiting emissions and carbon intensity indicators below those of the index. The weighted average carbon intensity of Ircantec continued to fall by 11.2% between 2022 and 2023 (after 21.1% in 2022), in line with its commitment to a 7% reduction annually. At the end of 2023, the temperature of the portfolio was assessed as between 1.5°C and 2°C.

For the 2023 fiscal year, Ircantec opted for the first time to integrate the assessment of the principal adverse impacts (PAI) of its portfolio into the sustainability report.

Snapshot of main indicators 2023



Voting policy Opposition rate to main categories



1. See specific methodology. The ESG risk level represents an unmanaged residual risk level (0 to 100); a score close to 0 corresponds to a lower level of ESG risk than a high score.

2. Note that asset allocations were changed between 2022 and 2023.

3 - Governance

The Board of Trustees

Since the 2008 reform, the Board of Trustees has been in charge of the Pension Scheme's long-term management. As part of a four-year plan and based on preparatory work by Technical and Financial Steering Committee (TFSC), it is responsible for securing the conditions that will achieve the long-term balance of the Scheme. As such, the Trustees, with the technical and operational support of Caisse des Dépôts, are responsible for making decisions concerning Ircantec's responsible investment strategy and monitoring all financial, operational and non-financial risks, including risks and opportunities related to climate change.

The Technical and Financial Steering Committee (TFSC)

Within the Board of Trustees, the TFSC is responsible for preparing its work concerning the investment policy, actuarial management and the long-term solvency of the Pension Scheme. The TFSC's remit includes preparing:

- the annual technical and financial report of the Board of Trustees;
- the internal control report concerning the fiscal year ended, including an assessment of all technical, financial and operational risks.

This work therefore includes matters concerning financial and non-financial management. The topics are debated at meetings of the TFSC, which issues an opinion. All the work presented during meetings of the TFSC is submitted to the Board of Trustees for approval. Within the TFSC, two Trustees are appointed to lead on issues related to voting and shareholder engagement.

Caisse des Dépôts, Scheme Manager

The Caisse des Dépôts (CDC) Social Policy division manages the Institution's assets by delegation. As such, it draws up proposals regarding the investment strategy, supports the Trustees in their strategic thinking and is responsible for implementing the investment policy in line with the general policy decisions issued by the Board of Trustees. The CDC also assists the Board of Trustees in developing its SRI policy and monitors all contracts (with voting, ESG and climate service providers) and mandates (with asset management companies). It regularly reports to the Board of Trustees on the application of SRI principles in investment strategies and ensures that the Trustees have all the information they need to carry out their duties. In 2023, the management service of Caisse des Dépôts has assigned three people on behalf of Ircantec to take charge exclusively and entirely of ESG issues out of a total delegated management team of 9 people on a full-time basis.

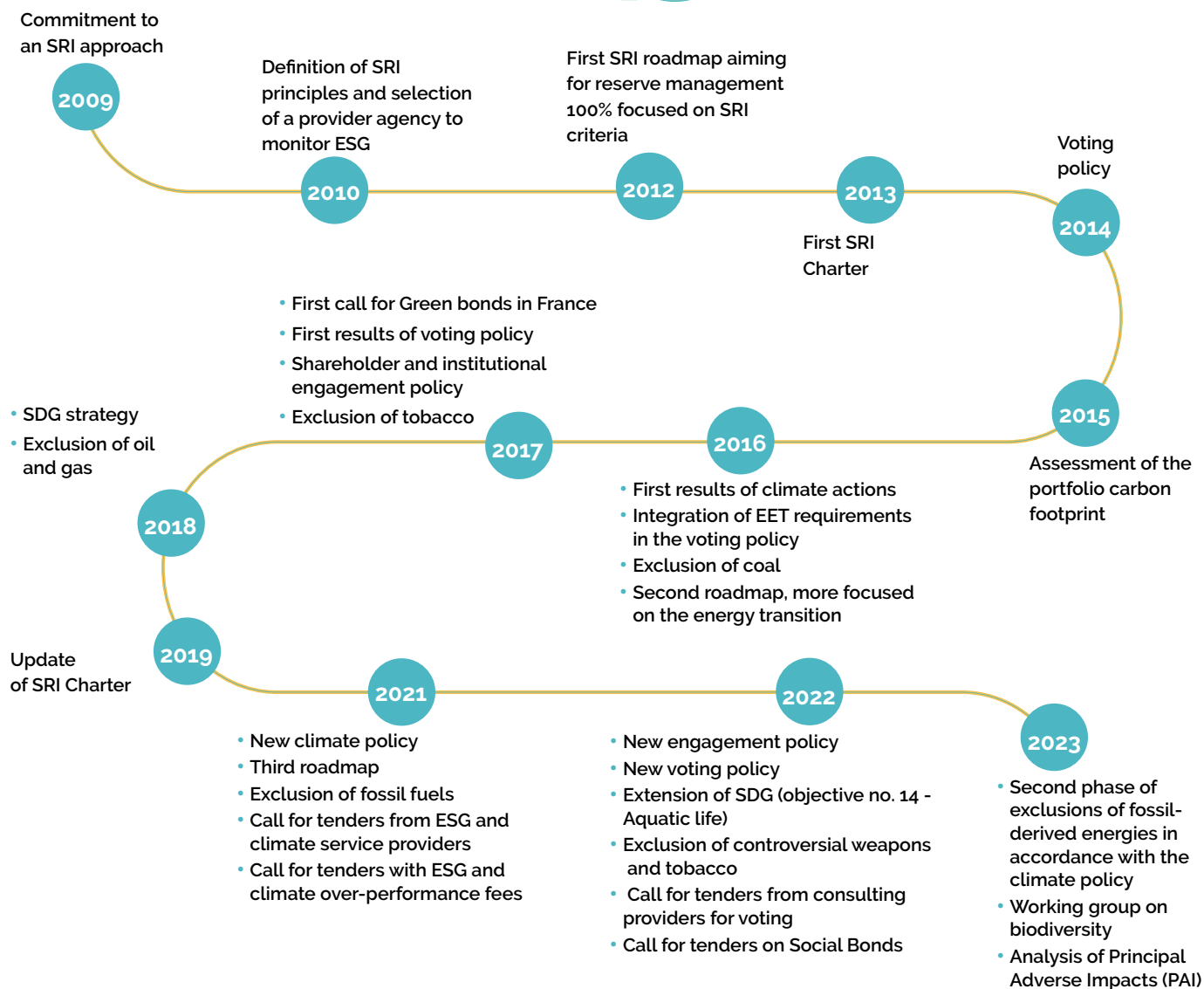
Asset management companies

Asset management companies are selected via calls for tenders, both regarding their financial capabilities and their abilities to meet Ircantec's requirements on SRI subjects. They incorporate Ircantec's SRI principles into their methodology and their investment processes, conduct investments in line with the strategy and principles defined by the Board of Trustees, provide information on the methods used in their management of SRI principles and provide alerts on application difficulties. They also identify and monitor the risks the financial investments may have on the Scheme's image and reputation.





Ircantec's key stages



AWARDS

2013 • IPE Awards – Environment, Social, Governance

2015 • IPE Awards – best pension institution in France

2016 • International award for best investor climate reporting

2019 • Couronnes Instit Invest award – best initiative to incorporate SDGs in the responsible investment policy
• Climate International award for climate-related disclosures

2020 • IPE Real Estate award – France-Belgium
• Couronnes Instit Invest – best initiative to incorporate SDGs in the responsible investment policy

2021 • Couronnes Instit Invest award – best initiative to incorporate SDGs in the responsible investment policy
• IPE Real Estate award – Alternative Strategy

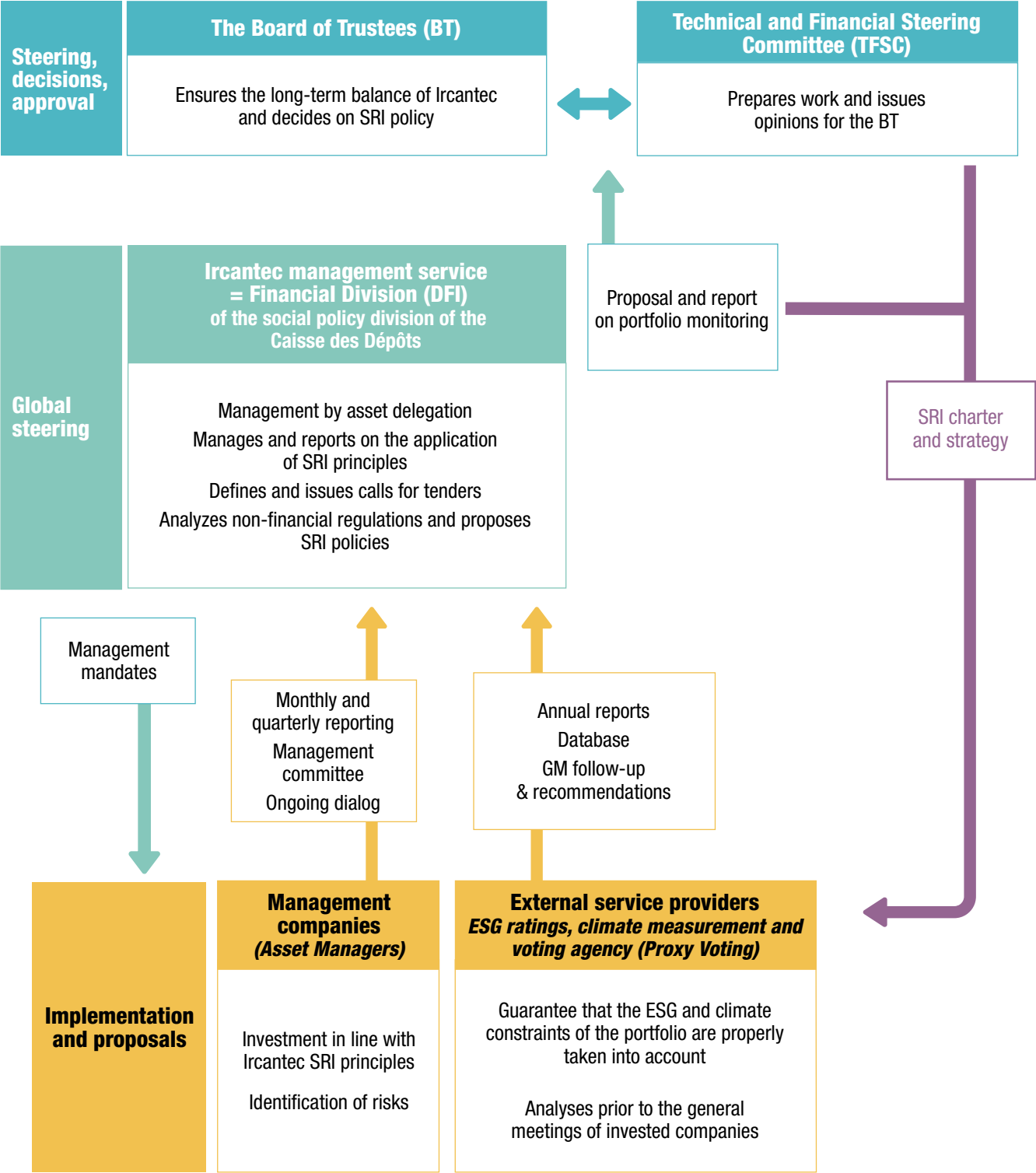
2023 • IPE Real Estate Awards: awards in two categories "Medium Real Estate Investor of the year" and "Social Impact"



Ircantec engagements



Ircantec governance structure



Handling of framework documents concerning the Ircantec SRI policy



SRI charter³

- ◆ General SRI policy, incorporation of ESG criteria in the investment policy and climate policy
- ◆ Application within Ircantec's portfolios
- ◆ Overview in the Sustainability Report (formerly the Climate Action Report)



Voting policy⁴

- ◆ Improving the governance of companies in which Ircantec is a shareholder
- ◆ Implementation in the voting rules reviewed annually
- ◆ Voting report⁵



Stewardship policy⁶

- ◆ Dialog with issuers and participation in collective marketplace initiatives
- ◆ Definition of the main stewardship themes
- ◆ Engagement report

4 - Importance of sustainability in the roadmap

The Ircantec investment roadmap for 2022-2025 adopted by the Board of Trustees in March 2022 is the continuation of the previous 2016-2021 roadmap, as our objectives are long-term. It extends SRI commitments with a portfolio temperature management target of 1.5°C (instead of 2°C previously), and an update to the SRI Charter. In line with the objectives set out in this roadmap, a new asset allocation was also adopted in December 2022. This aims to secure the yield of the medium and long-term reserves portfolio, while ensuring observance with prudential solvability restrictions.

Our three main guidelines

In the continuity of the long-term objectives of the previous roadmap and by incorporating the major topics of tomorrow, these three guidelines structure the investment of Ircantec reserves for the 2022-2025 period.



- 1. Optimize the yield to risk ratio as a long-term investor**, in a backdrop of growing reserves and to the limit of risks accepted by the Institution, in line with its responsible investment charter.

a. Diversify the investment vehicles in line with the investment horizon and the accepted level of risk;

b. Strengthen the financial and non-financial management of portfolios: regularly monitor portfolios; actively manage risks and develop risk indicators; in accordance with the commitments of the climate policy, continue the dynamics of financing companies or projects that are developing solutions in favor of the EET and contributing to a just transition; strengthen non-financial requirements in the selection of funds.



- 2. Strengthen the responsible investor approach** by consolidating the Scheme's SRI policy and ensuring its effectiveness in the management of reserves.

a. Expand the SRI approach across all asset classes: regularly update the [three key SRI documents](#) (SRI charter, voting policy, stewardship policy) to incorporate new emerging topics (biodiversity, themes arising from the social impact of the health crisis, etc.). Ircantec's sectoral exclusion policies apply to all asset classes and will be regularly updated to support its SRI approach over the long term and ensure that its policy remains relevant to future issues;

³ https://www.ircantec.retraites.fr/sites/default/files/Charte_ISR24-01v1.pdf

⁴ https://www.ircantec.retraites.fr/sites/default/files/Polit_Vote24-04v1.pdf

⁵ https://www.ircantec.retraites.fr/sites/default/files/Bilan_PolitiqueVote23V2.pdf

⁶ https://www.ircantec.retraites.fr/sites/default/files/Politique_Engagement_22-12.pdf

b. Integrate and reinforce the issues of tomorrow: strengthen our climate efforts by adopting an investment strategy that is compatible with a 1.5°C scenario given the climate emergency, while ensuring the social dimension of the transition; integrate biodiversity issues into portfolios using a similar approach.



3. Strengthen its position as a reference investor in the private pension field by communicating transparently on the achievements of the Scheme and on its responsible investor policy.

a. Report on progress: draft and communicate annual ESG analysis and Engagement Reports in a sustainable transformation report developed with its service providers which takes into account the latest regulations; promote the results in terms of financial and non-financial performance; represent the Scheme in marketplace bodies to influence its ecosystem and increase its visibility;

b. Inform stakeholders: communicate externally on the Scheme's achievements to target audiences (affiliates, beneficiaries, other pension schemes, institutional investors), train decision-makers (trustees) and the management service.

As part of its new roadmap, the management service strengthened the oversight of annual decarbonization objectives of each Ircantec fund, to arrive at an overall target of 7% per year. With service agreements (ESG and climate) as well as access to ESG and climate databases, the management service closely monitors the SRI performance of each dedicated fund to ensure compliance with Ircantec's non-financial objectives.

5 - Training of Trustees

New trustees complete several training modules specifically developed for Ircantec over a period of three days, addressing technical and financial management, financial management styles, as well as the integration of SRI and Climate dimensions. The training is given by the Caisse des Dépôts management team. All Trustees also receive support to understand the regulatory changes impacting the financial and non-financial management of the Institution as necessary. Furthermore, they have the opportunity to participate in numerous conferences given by peers or experts on financial and non-financial topics, such as the conferences accessible online held by Novethic (Caisse des Dépôts Group) on SRI topics. Ircantec's membership in several organizations also gives it the opportunity to participate in technical and training-related discussions as part of small committees (Novethic Investors circle, Forum pour l'Investissement Responsable (FIR).

To support administrators, the staff of the management service regularly attend training (biodiversity, European regulations) and participate in peer or expert conferences in its role of remaining informed of the latest marketplace initiatives and practices.

6 - Alignment of compensation with sustainability risks

The Trustees of Ircantec do not receive any compensation. Discussions were initiated on how sustainability risks could be better integrated into the compensation components of other stakeholders (management service, asset management companies). Starting in 2024, individual SRI objectives will be defined and applied to the variable compensation of positions in the management service. It should be noted that asset management companies are also concerned by the SFDR directive (Sustainable Finance Disclosure Regulation) and that most of them are also working to better align the compensation of their staff with sustainability objectives.

7 - Transparency, communication, and teaching for stakeholders

For almost ten years, Ircantec has bolstered its SRI communication with its peers and affiliates using a variety of communication methods: publications, website, social media, videos and events. The aim is to convey the idea that choosing a socially responsible financial management policy actively contributes to protecting the Institution's reserves, in line with its value of intergenerational solidarity. The intent is to present the Institution's actions in an educational and tangible way.

As part of its new climate policy adopted in October 2021, Ircantec sought to reinforce this transparency to demonstrate the effectiveness of its engagements, through the annual publication of all securities held in dedicated fund portfolios on its website. Since 2022, portfolio positions as of December 31 are published on the Ircantec website, along with the list of company stocks it has exited following the implementation of the exclusion policy.

Communication with all stakeholders is done via the institution's website www.ircantec.retraites.fr, where a section is dedicated to Ircantec engagements in terms of SRI. [All publications](#) are available in French and English: SRI charter, sustainability report, voting report, climate policy, etc.). Specific information channels are used for certain target audiences.

Communication to affiliate retirees

This target audience receives publications from *Ircantec News*, the format of which changed in 2023. An annual hard-copy review completed with a special edition solely intended for audiences eligible for the Scheme's social actions, the creation of a practical guide to occasionally promote social aid by targeted hard-copy distribution, [a continued dedicated section on the website](#), with monthly updates and a push communication via bi-monthly electronic newsletter. The climate strategy and Scheme actions in terms of responsible investment are regularly reported on in these media.

Communication to contributors in active employment

[The Ircantec YouTube channel](#) proposes tutorials and practical videos to simplify formalities, as well as institutional videos (presentation of the Scheme, review of SRI events). This communication is supplemented with an annual e-letter.

Communication to decision-makers

This target audience includes major employer accounts, elected officials, institutions. It receives press releases, annual activity and sustainability reports, which present the various ESG and climate metrics while meeting regulatory requirements.

Communication to elected officials

Aside institutional communication, Ircantec's participation in the 2023 Mayors and Local Authorities Convention and in particular, a total of 295 individual interviews at the Institution's eco-friendly booth, enables us to maintain links with this audience.

Communication to investor peers and asset management companies

This target audience also receives some institutional communication, while being invited to an event dedicated to responsible finance. In December 2023, the theme was: "Can a responsible investor generate or be responsible for social inequalities?" Over 80 people attended the event (SRI management experts, institutional investors, etc.)

8 - Presentation of the portfolio

At the end of December 2023, Ircantec's reserves portfolio comprised various asset classes:

- The stocks listed include traditional management activities in Europe and World regions, systematically active management in Europe and OECD countries, passive management with the aim of replicating an index aligned on the Paris Agreement objectives (Paris Aligned Benchmark) and topical management actions (mainly Energy Transition);

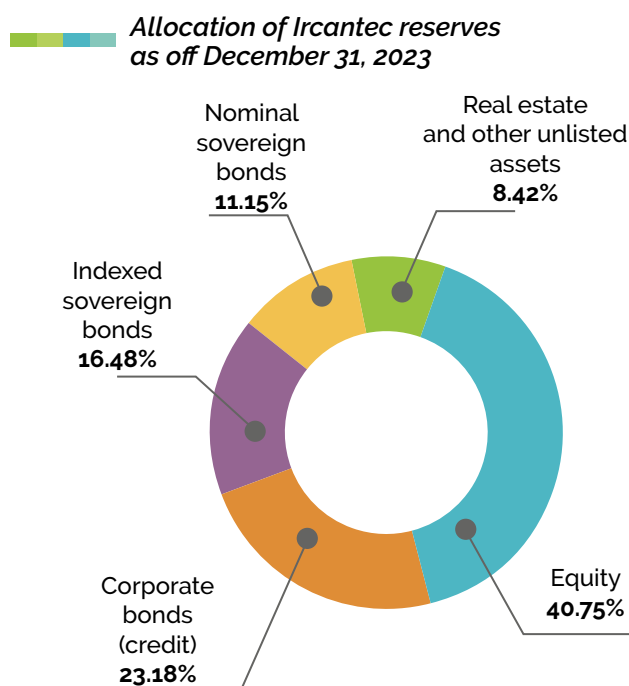
- Credit incorporates Investment Grade corporate bond management in Euro currency (active management), green bond and social bond management including various issuer categories as well as sovereign bonds;
- Unlisted assets include investments in various funds (real estate, private equity, private debt, Social and Solidarity Economy, infrastructure).

Note that 100% of Ircantec's reserves incorporate ESG criteria.

In 2023, four calls for tenders were issued on the following asset classes:

- An initial call concerning OECD sovereign bond with traditional management;
- A second call on world stocks, split into two lots:
 - (1) lot concerning stock of companies contributing to the EET, under traditional management,
 - (2) lot concerning company stocks in systematic management with a value blend bias;
- A third lot for European equities under traditional management;
- A fourth call on unlisted infrastructure assets related to the EET.

Funds created through these calls for tenders will be operational by the end of 2024/early 2025.



2

Protection of financial reserves against climate and sustainability risks



Since 2022, Ircantec has worked with S&P Global Sustainable (Trucost) as a service provider on climate data. The latter is a global provider of environmental data and analyses, especially on corporate emissions and the use of natural resources. This information is used to assess the carbon or environmental footprint of funds, address environmental risks and create investment strategies with low carbon or environmental impact.

Ircantec approaches the climate issue from the perspective of double materiality (as envisaged by the European regulations), making it possible to verify how the Scheme integrates climate risks to manage its reserves sustainably, and how its investments impact climate and sustainability factors in the future.

Investors face two categories of climate risks: transition risks (changes in markets, legislation, technologies or consumer perception of a low-carbon economy that negatively affect the value of a company's assets) and physical risks (resulting from damage directly caused by meteorological and climatic phenomena on goods, financial or physical assets or operational processes). Events related to this last type of risk can be acute (example of a natural disaster impacting real estate in a region and locking up the local economy) or chronic (decline in cereal yields resulting from a fall in average rainfall levels). It is the role of investors to identify and measure these risks to ensure the proper management of reserves. The management service therefore maintains ongoing, regular dialog with asset managers (dedicated mandates) to ensure that Ircantec's SRI constraints are respected at all times and to discuss the management and control of sustainability risks (including climate change).

1 - Climate risk reduction strategy

Ircantec strives to adapt the management of its reserves to its climate risks and to limit their scope. This involves divestment decisions that have been taken and refined over the years and the use of investment strategies that integrate carbon risk.

Fossil fuel exclusions

Thermal coal

According to the International Energy Agency (IEA), coal is the fossil fuel that has contributed the most to climate change: at the end of 2018, cumulative CO₂ emissions from coal combustion are responsible for the equivalent of 0.3°C of the total 1°C increase in mean annual earth surface temperatures above pre-industrial levels. Although coal has been supplanted by oil as the primary source of energy since the 1960s, it remains today the main cause of greenhouse gas emissions in the world through the activities of its value chain.

The exclusions relating to coal apply to the use of coal as a source of energy, i.e. essentially in the generation of electricity and the co-generation of electricity and heat, and not as a material.

As early as 2016, Ircantec introduced criteria to remove the most emissive coal securities from its portfolio through its [SRI charter](#). In the fall of 2021, the Board of Trustees enhanced these exclusions, which were applied to the portfolio starting in Q1 of 2022:

- Relative threshold: exclusion of any company whose turnover linked to thermal coal is greater than 5% of overall turnover (mining companies and energy-producing companies);
- Absolute thresholds: exclusion of companies whose annual coal production is greater than 10 Mt per year and companies whose coal-fired electricity production capacity is greater than 5 GW.

However, these exclusions will not be applied to companies presenting a credible exit plan⁷ from coal by 2030 for the whole world.

These thresholds are supplemented by the exclusion:

- Of all companies that develop or contribute to new projects in the thermal coal sector (mines or coal-fired power plants);
- Partners in this industry (particularly infrastructure such as port terminals, railways dedicated to the transport of coal) if more than 5% of their turnover is linked to thermal coal or contributes to new projects⁸.

⁷ Particular attention is paid to company engagement plans involving an exit from coal. These exit plans must feature engagements to close sites and not just sell off activities related to thermal coal. Ircantec fully integrates these criteria into its shareholder engagement policy to ensure support and redeployment for employees in this sector hit by the EET.

⁸ Global Coal Exit List (GCEL) – published by NGO Urgewald (latest version dated October 2023).

By 2024, Ircantec is also committed to apply the exclusion thresholds for European indexes aligned with the Paris Agreement, the "Paris Aligned Benchmark - PAB". This involves the exclusion of all companies where thermal coal (exploration or processing activities) represents more than 1% of turnover, with the exception of companies that have adopted a credible exit plan by 2030. Moreover, the exclusion thresholds in absolute terms will be held at 10 Mt and 5 GW. An exception will also be applied for green bonds issued by a company meeting the divestment criteria on the condition that the company has committed to phasing out thermal coal by 2030, all geographical areas combined.

Ircantec is committed to achieving zero exposure to thermal coal in its portfolio by 2030, all geographical areas combined.

Oil and gas

The special report published by the IPCC in 2018 on global warming of 1.5°C points out that between 2020 and 2050, the primary energy provided by oil must decrease in most scenarios, between -39% to -77%, while the energy provided by natural gas should decrease by around -13% to -62%. In the four mitigation strategies supported by the IPCC to reduce net emissions to achieve a trajectory limiting warming to 1.5°C (with no or minimal overshoot), the share of fossil fuels must be greatly reduced. Moreover, in its report "Net Zero by 2050 A Roadmap for the Global Energy Sector" published in May 2021, the IEA concludes that investment should be limited to maintaining production from existing oil and natural gas fields without bringing new deposits into production.

A sectoral divestment policy was implemented in 2018 to remove the most emissive securities from the Ircantec portfolio. Following these scientific recommendations, in the Fall of 2021 the Board of Trustees determined new exclusion thresholds, which were applied from the first half of 2022:

- Exclusion of companies that develop new projects in unconventional energy resources or that increase their capacity in unconventional (shale oil and gas, extra-heavy oil, coal gas, oil sands, deposits in the Arctic and/or in deep waters);
- Exclusion of companies whose production related to shale oil and gas, extra heavy oil, coal gas, oil sands, deposits in the Arctic or deep waters exceeds 10 Mmboe⁹ in aggregate. The exclusion also concerns companies in which more than 30% of production is linked to an unconventional activity;

These exclusions do not apply to companies that have adopted a credible and detailed plan to exit unconventional energy by 2030.

Pending access to data on the financing of unconventional products enabling it to define an exclusion policy for the financial sector, Ircantec wishes to engage financial players and insurers in the portfolio via shareholder dialog on the adoption of credible, detailed plans to exit unconventional energy.

By 2024, Ircantec is also committed to applying the exclusion thresholds for European indexes aligned with the Paris Agreement, the "Paris Aligned Benchmark - PAB", i.e. the exclusion of all companies for which oil represents more than 10% of turnover or 50% for gas; all companies initiating new conventional projects (exploration, production, transport) or contributing (equipment, services) to the development of new projects; any company whose production is linked to shale oil and gas, extra-heavy oil, coal gas, oil sands, deposits in the Arctic or in deep waters and which has not committed to a credible exit plan. However, these exclusions will not be applied to companies that have adopted a credible plan to reduce their emissions, compatible with a 1.5°C scenario validated by a Science-based target initiative (SBTi).

Ircantec is committed to achieving zero exposure by 2030 to any company in the oil and gas sector that has not adopted a credible emissions reduction plan that is compatible with a 1.5°C scenario.

Integration of climate risk into the fund strategy

The dedicated mandates are managed externally by more than ten different management companies and are selected following 2-stage calls for tenders (pre-qualification phase then bidding phase for successful candidates). Calls for tenders issued in recent years incorporate this requirement to integrate the climate and environment dimensions into fund management at various levels: investment philosophy, ideas generation, portfolio construction, composition of dedicated teams, reporting. In particular, bidders are asked to explain how securities are identified, evaluated and selected with regard to their alignment with trajectories resulting from the Paris Agreement, but also how managers and analysts are trained in climate issues and whether a non-financial filter exceeding the restrictions of the Ircantec [SRI Charter](#) has been put in place. Managers have significant leeway to meet these needs: some perform analysis of the company's climate positioning after the financial and stock market selection process has taken place;

⁹ Mmboe: millions of barrels of oil equivalent.

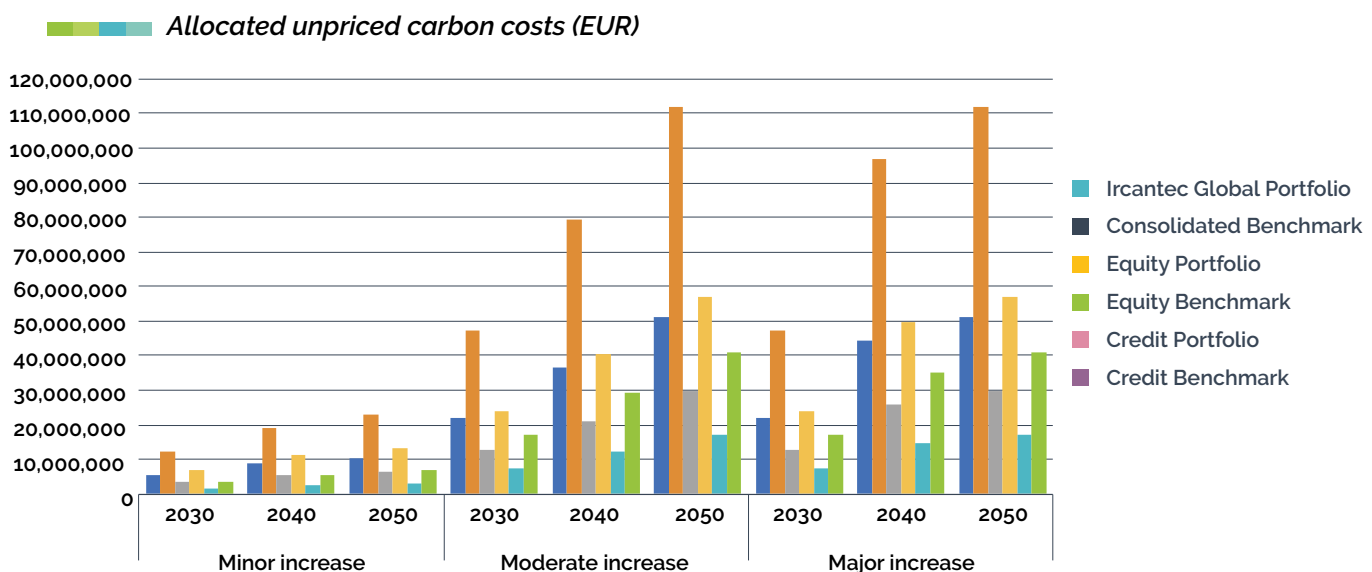
others greatly reduce the investment universe by focusing on companies that offer adequate solutions to the EET. The management agreements for all funds incorporate compliance with the SRI charter and observance of all engagements made by Ircantec, especially in terms of annual emissions reductions for companies. The management agreements also include reporting requirements through assessments of negative contributing factors to the EET within the portfolio and updates of the TCFD policy within the management company.

2 - Identification and rating of transition risks

Listed companies

Ircantec has used carbon pricing to measure this risk. These pricing mechanisms are a tool that can reduce greenhouse gas (GHG) emissions and re-direct capital towards renewable energies and low-carbon solutions. There are currently 52 carbon pricing systems in place or planned for implemen-

tation at regional, national or sub-national levels, covering approximately 20% of global GHG emissions. Other systems are likely to appear in order to achieve the National Determined Contributions (NDCs), commitments made by countries that have ratified the 2015 Paris Agreement. To manage carbon price risk, Trucost compiles a data set of possible future carbon prices to test each issuer's current ability to absorb future costs. Quantifying an Unpriced Carbon Cost (UCC) is integral to this analysis – the difference between what a company pays to emit carbon today and what it might pay in the future. The UCC will vary depending on the industry in which a company operates and the regions in which it emits GHGs. It also depends on the scenario and the reference year chosen. By 2050, both the "high" and "moderate" scenarios arrive at a price that is deemed sufficient to keep global warming to less than 2°C above pre-industrial levels (in the second case, the action is delayed in the short term). The "low" scenario is not aligned with a 2°C trajectory but assumes the implementation of NDCs.



The global portfolio¹⁰ is exposed to a lower unpriced carbon cost than its benchmark, especially if the scenario considers the immediate application of measures to limit global warming to 2°C. The Utilities and Materials sectors have the highest UCCs (72% of the unpriced carbon costs allocated to the global portfolio are generated by these two sectors). Utilities still have a strong dependence on fossil fuels and in particular on gas, which is considered as a transitional energy. These two highly emitting sectors are therefore very sensitive to increases in the price of carbon. For example, Amprion or Heidelberg Materials have unpriced carbon costs 1.5 to 5.5 times higher than their EBITDA¹¹.

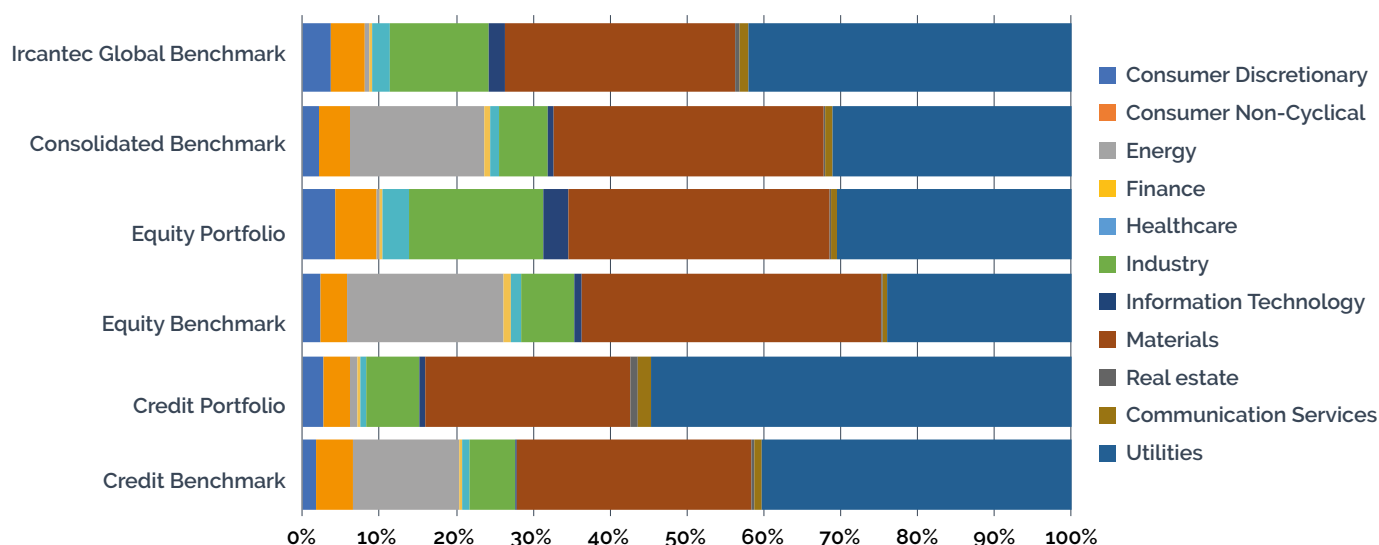
Furthermore, the portfolio has a geographical investment bias for Europe and the USA. However, these regions have a high carbon premium. A higher future carbon price is expected there than in other regions of the world, with a faster increase in view of their proactive approach to limiting global warming compared to other countries. In Europe, we have observed an almost constant increase in the carbon price with a strong jump since the start of 2022.

This can mainly be explained by the implementation of the objectives of the European Green Deal, which aims to reduce EU carbon emissions to the amount of 55% by 2030.

¹⁰ Throughout the report, in the "listed companies" sub-sections, the global portfolio refers to all corporate issuers in dedicated Ircantec funds (equity and bonds).

¹¹ Earnings Before Interest, Taxes, Depreciation and Amortization.

Unpriced carbon cost broken down by sector (2030 moderate scenario)



This means that the portfolio's EBITDA is at lower risk¹² than its benchmark. Therefore, the profits of the companies in which Ircantec's reserves are invested will be less vulnerable to a rise in the carbon price than those of its benchmark index. Companies whose earnings are considered the most "at risk" may potentially face multiple valuation changes and a more severe fall in returns for investors. The

companies with the most at risk EBITDA within the portfolio are companies in the Utilities or materials sectors that have started transitioning to a low carbon economy. These include Ampirion, which is accelerating its investments in renewable energies, or Heidelberg Materials, which aims to decarbonize its cement production.

2030 moderate scenario	Weighted unpriced carbon cost (EUR)	EBITDA at risk (%)	EBITDA reduction of profit (% points)	Value of assets with > 10 % EBITDA at risk	Value of assets with negative margin (%)
Ircantec Global portfolio	21,803,632	3.50%	-0.64%	6.98%	0.04%
Consolidated benchmark	47,265,702	6.18%	-1.01%	10.42%	1.03%

To assess transition risks, it is also possible to identify companies that are considered to have the highest risk in terms of stranded assets on their balance sheet. Stranded assets from a climate point of view are those that may be devalued due to a climate-related constraint (new legislation, legal risk, downturn in the market, etc.). The exploitation of non-renewable energy and in particular energy from

unconventional resources (shale gas, oil sands, etc.) is considered an activity par excellence that relies on stranded assets, but the limited knowledge of the shape that a carbon-free economy would take means that a significant number of other companies and sectors of activity will be affected as the transition progresses.

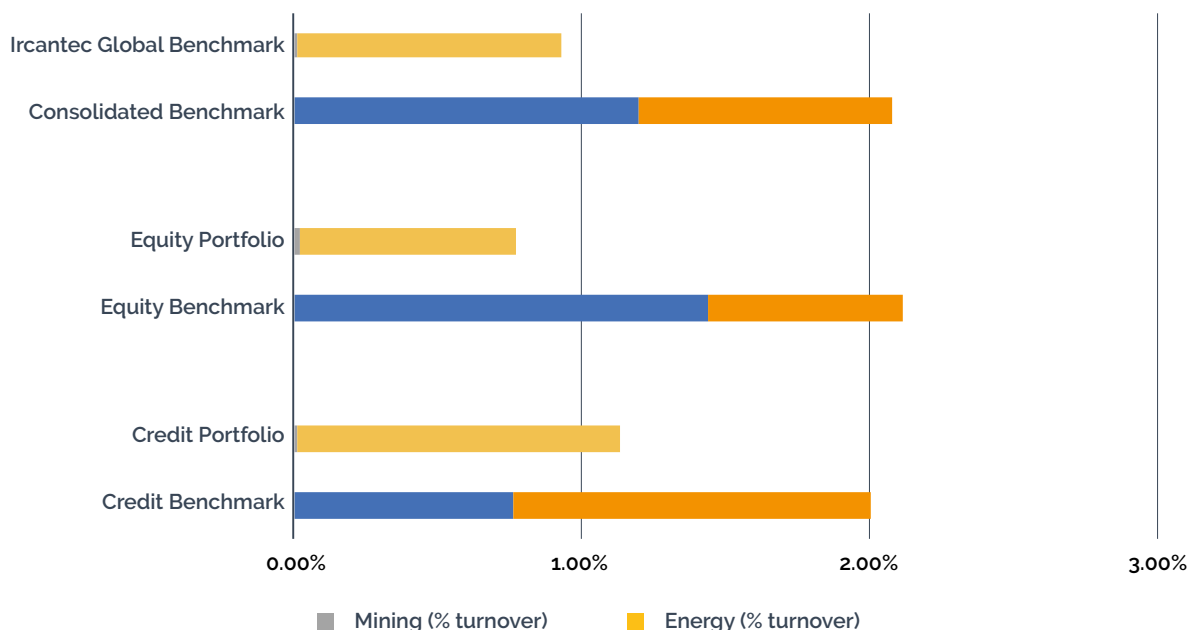
¹² See methodology.

Within the portfolios, active monitoring is carried out on the portion of activities dedicated to the exploitation of coal, the fossil fuel energy with the highest emission factor¹³ per tonne of oil-equivalent. Most transition policies and plans aim to exit this type of energy in the mid to long-term. Companies remaining within the portfolio and exposed to this activity in 2023 were below a 5% limit on coal-related turnover, annual production below 10 Mt or a coal-fired electricity production capacity below 5 GW. For example, these include diversified energy companies following a major development strategy on renewable energies, simultaneously with a policy of divestment from excessively carbon-intensive assets: these include Enel, Energias de Portugal. A company with over 5% of coal-related turnover is present in the portfolio with a policy to exit coal accelerated to 2028 and objectives approved by the Science Based Targets initiative

(SBTi). With an exit from coal considered credible, this company respects Ircantec's climate policy due to its commitment to exit coal by 2030. Ircantec's reserves thus provide it with funding earmarked for green activities, contributing to the transition of EnBW to a low-carbon economy.

Moreover, concerning the oil and gas sector, the portfolio primarily holds four securities from the Utilities sector, which are historically active in gas. Today their investment is focused on adapting their infrastructures to transporting hydrogen but also renewable energies. These exposures to fossil fuels were globally stable between 2022 and 2023.

Exposure to activities involving fossil fuels

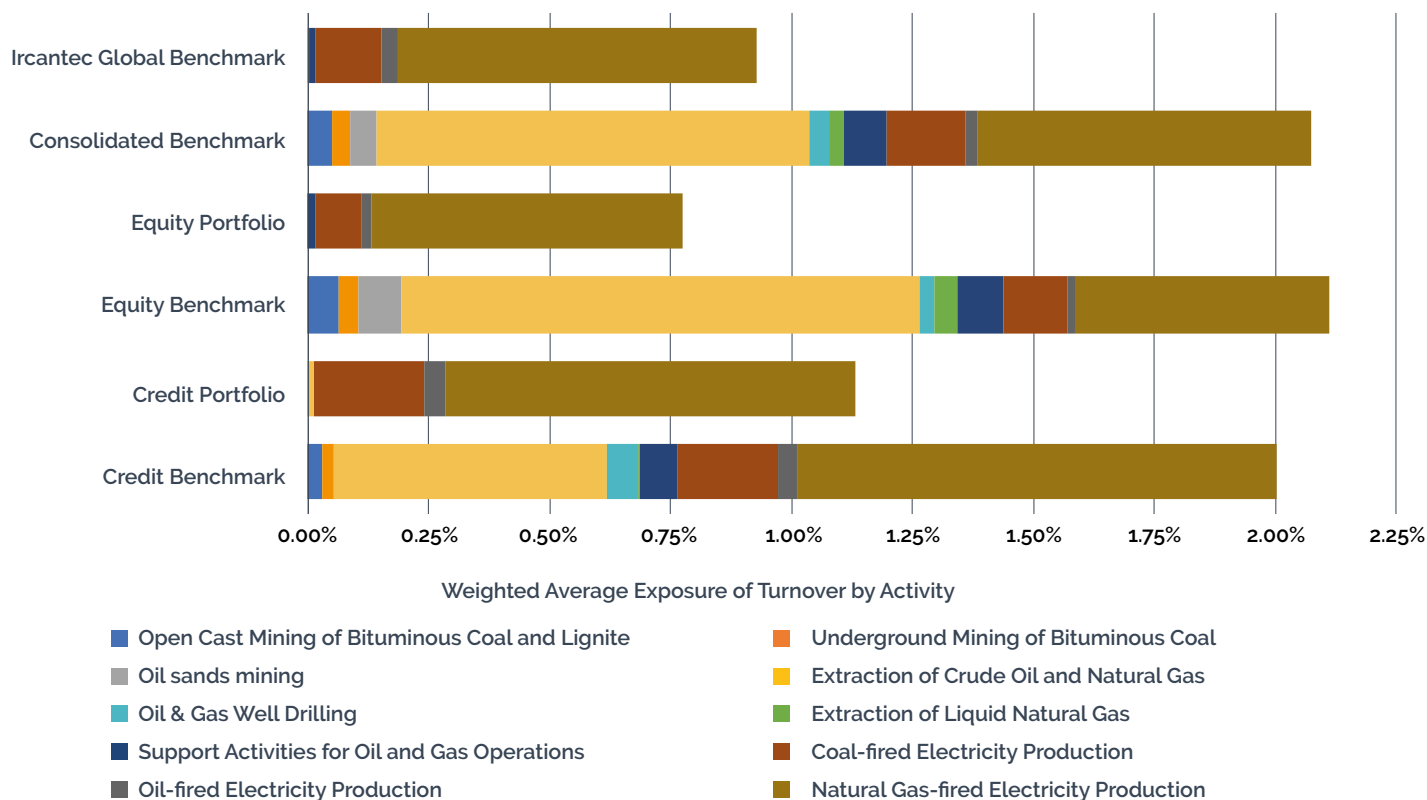


Looking at fossil fuel-related revenue by industry (shown in the first graph below), we can see that the portfolio is not invested in mining of oil sands, oil and well drilling or Liquid Natural Gas (LNG) extraction). This reduced oil and gas exposure explains why the portfolio is less exposed to stranded assets than its benchmark. The greatest exposure to fossil fuel revenues is found in the production of energy via natural gas. This is mainly due to the utilities in the portfolio which remain partly dependent on

fossil fuels, for example Iberdrola, ENEL or NextEra ENGIE, because of their dependency on gas which is required enable their transition to renewable energies.

¹³ An emission factor is a coefficient used to convert activity data into GHG emissions.

Exposure to activities related to fossil fuels by industry



Main contributors to turnover derived from fossil fuels - Ircantec Global Portfolio

Name	Sector	Weight (%)	Turnover from fossil fuel production	Total turnover	Weighted average	Climate Action 100+
Iberdrola S.A.	Utilities	1.18%	18.27%	18.27%	0.22%	Yes
Veolia Environnement SA	Utilities	0.71%	16.20%	16.20%	0.12%	No
NextEra Energy, Inc.	Utilities	0.18%	60.53%	60.53%	0.11%	Yes
EDP - Energias de Portugal, S.A.	Utilities	0.37%	23.41%	23.41%	0.09%	No
SSE plc	Utilities	0.37%	23.41%	23.41%	0.09%	Yes
Enel SpA	Utilities	0.34%	19.66%	19.66%	0.07%	Yes
Air Liquide S.A.	Materials	0.83%	4.90%	4.90%	0.04%	Yes
Naturgy Energy Group, S.A.	Utilities	0.14%	23.93%	23.93%	0.03%	Yes
Electricité de France S.A.	Utilities	0.37%	8.14%	8.14%	0.03%	Yes
AzA S.p.A.	Utilities	0.14%	18.87%	18.87%	0.03%	No

Sovereign funds and similar

In terms of the sovereign portfolio, the principle of identifying and measuring the sovereign bonds that are most exposed to a transition risk seems less pertinent due to the diversification, the depth and the capacity for resilience of economies on which it depends. It is nonetheless possible to analyze the countries where electricity production is very low-carbon and where the operation of the economy depends on fossil energies. These countries will have to invest more for the energy transition. The legal judgment against several countries (France, Germany, Netherlands, Canada) for climate inaction over recent years illustrates that countries have their part to play in this transition and may legal be obliged to repair the environmental damage they have caused. The islands of Malta and Cyprus, Australia and Japan are primarily concerned. France is overweighted in the portfolio and only generates 10.4% of its electricity using fossil energies.

Country	% of electricity generation associated with fossil energies
Malta	93.2%
Cyprus	82.3%
Australia	77.4%
Japan	73.2%
Netherlands	63.7%
Estonia	61.5%
USA	52.5%
Italy	49.9%
Germany	49.8%
Ireland	46.0%
Luxembourg	44.0%
Hungary	41.5%
Slovenia	37.1%
Chile	34.6%
Croatia	33.7%

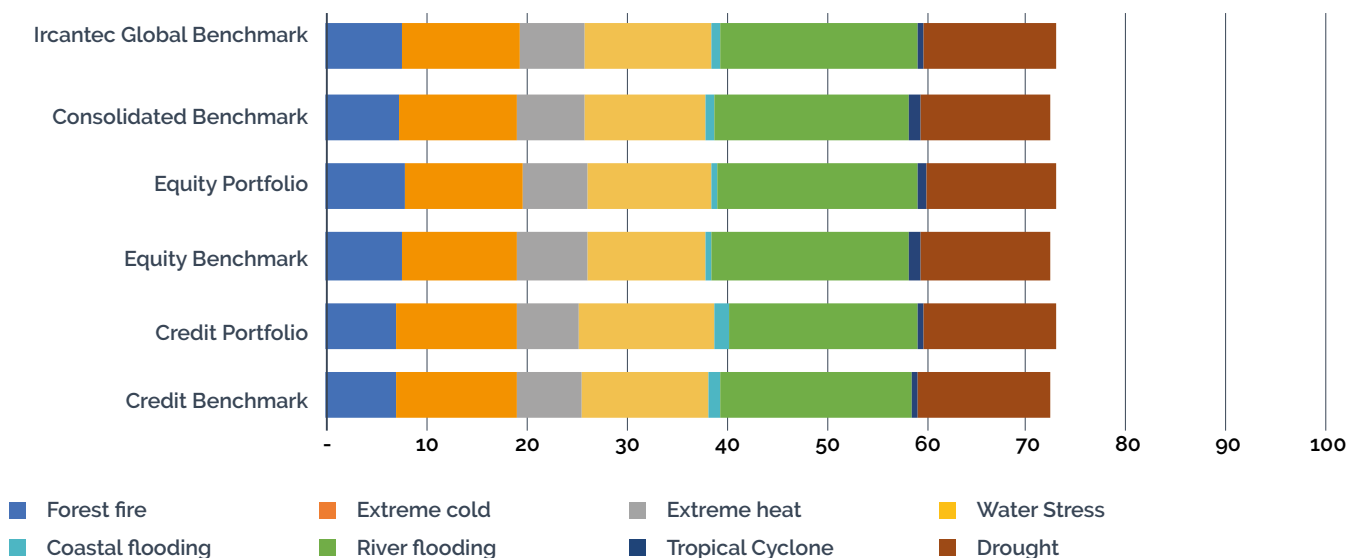
3 - Identification and rating of physical risk

Listed companies

Company assets are assessed based on their exposure and sensitivity to eight types of key hazards: forest fire, extreme cold, extreme heat, water stress, coastal flooding, river flooding, tropical cyclone, and drought. The two main results of these assessments are the exposure ratings and financial impacts.

The first is a one-off assessment of exposure to climate risks in relation to world conditions, independent of the nature of the asset at a given location. Where asset data are insufficient, companies are analyzed based on the location of their headquarters, the geographic distribution of revenue (according to the exposure to average physical risk in each country). Companies are scored from 1 to 100 for each of the eight types of risk, with 100 indicating the highest possible exposure and sensitivity to a given risk, and 1 the lowest.

Exposure score by type of physical risk



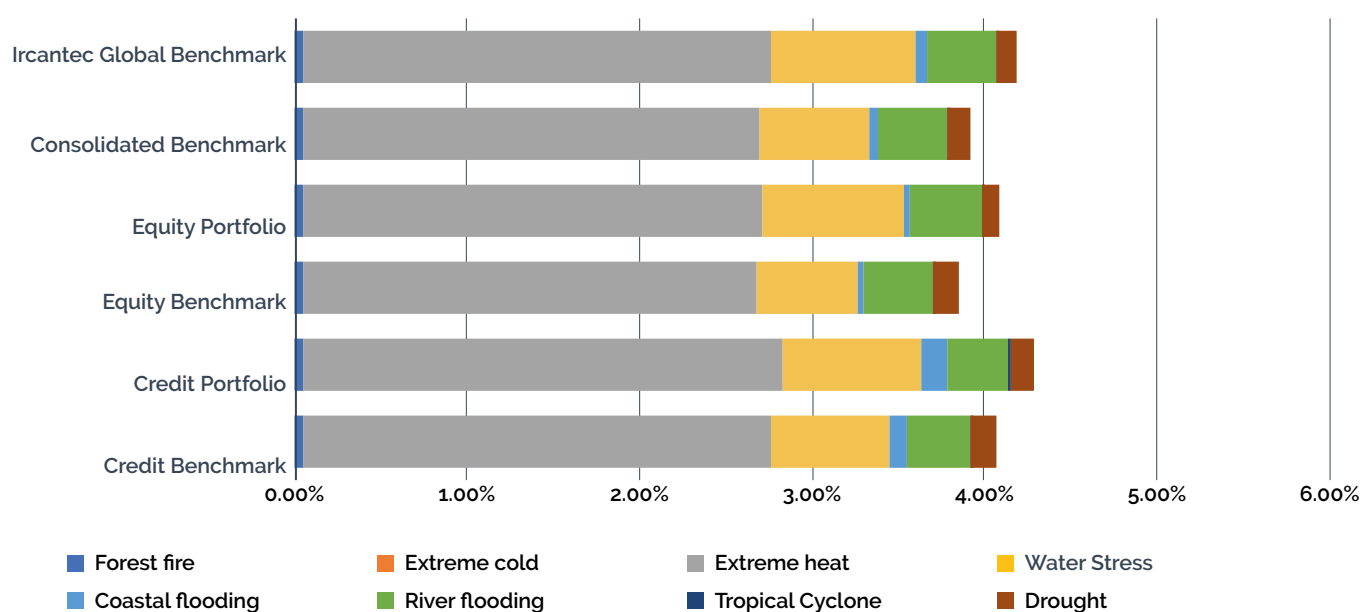
Exposure score by sector and type of physical risk

	Forest fire	Extreme cold	Extreme heat	Water stress	Coastal flooding	River flooding	Tropical cyclone	Drought
Communication services	15.3	32.8	19.4	34.6	1.8	54.1	2.7	36.6
Consumer Discretionary	18.6	32.8	19.0	29.0	1.5	55.6	2.4	36.2
Consumer Non-Cyclical	23.6	34.2	17.8	34.6	1.6	54.6	1.9	35.6
Energy	29.2	23.4	15.9	20.1	9.6	43.2	1.1	39.4
Finance	15.7	32.7	18.1	35.5	3.2	54.2	1.8	36.6
Healthcare	21.9	31.9	16.9	29.4	1.1	57.9	1.9	36.9
Industry	24.4	32.6	17.4	33.3	3.5	54.0	1.9	36.0
Information Technology	20.1	32.0	19.0	41.4	1.1	55.9	2.7	36.7
Materials	25.9	33.0	16.6	32.2	1.9	53.7	2.7	36.4
Real estate	11.5	35.0	15.7	29.5	9.3	51.9	1.8	39.0
Utilities	28.6	34.2	18.0	45.2	1.5	48.8	1.5	33.8

Ircantec's portfolio has a risk score slightly higher than its benchmark index but has remained fairly stable between 2022 and 2023. Within the global portfolio, an exposure rating over 50 exists for the risk of river flooding. This risk generates a higher score for all sectors, in particular for the healthcare sector (highest sector score). This high exposure is explained by the higher frequency of flooding events, which have increased significantly in recent years across France and Europe.

In parallel to this physical risk exposure rating, Trucost measures the financial impact of these physical risks, which reflect the financial consequence of the modification of exposure to climate risks in relation to a baseline specific to the asset at a given location. The financial impacts are presented as losses potentially related to the climate (for example in case of investment spending, operational spending, interruption of activities), as a percentage of the asset.

Financial impact by type of physical risk



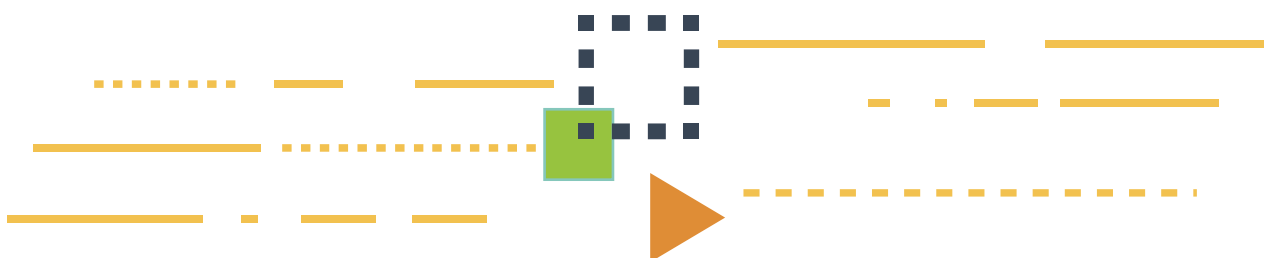
 Financial impact by sector and type of physical risk

	Forest fire	Extreme cold	Extreme heat	Water stress	Coastal flooding	River flooding	Tropical cyclone	Drought
Communication services	0.02%		4.49%	1.35%	0.07%	0.41%	0.01%	0.66%
Consumer Discretionary	0.03%		2.70%	-0.04%	0.02%	0.44%	0.00%	0.06%
Consumer Non-Cyclical	0.05%		1.79%	1.35%	0.07%	0.37%	-0.01%	0.10%
Energy	0.03%		1.07%	2.64%	0.49%	0.38%	0.00%	0.03%
Finance	0.04%		3.50%	0.57%	0.11%	0.41%	0.00%	0.09%
Healthcare	0.06%		3.30%	0.36%	0.00%	0.45%	0.00%	0.07%
Industry	0.05%		2.13%	0.69%	0.11%	0.37%	0.00%	0.08%
Information Technology	0.04%		2.73%	0.85%	0.01%	0.43%	0.00%	0.07%
Materials	0.07%		1.73%	0.22%	0.04%	0.33%	0.00%	0.07%
Real estate	0.03%		2.88%	0.22%	0.35%	0.33%	0.00%	0.09%
Utilities	0.03%		1.25%	3.48%	0.03%	0.28%	0.00%	0.33%

The financial impact analysis reveals that the risk of extreme heat followed by water stress that are the most significant for the issuer assets in the portfolio. Vulnerability to extreme heat mainly affects the Communication services sector but also Finance and Healthcare. The financial impact related to water stress across the public services sector is also high.

Sovereign funds and similar

The physical risk of sovereigns is not yet analyzed by Trucost. These indicators are being developed and will be included as soon as possible in future communications from Ircantec.



3



Impacts of Ircantec investments on climate and biodiversity

On one hand, Ircantec's goal is to steer the economy through investment choices that favor responsible companies and on the other hand, to directly finance innovations and infrastructures that support the energy and ecological transition through specific investments (unlisted, green bonds, funds focused on so-called "solution" companies). This does not discard the fact that as an institutional investor with stakes in several hundred French, European and global companies, the economic presence of investments is significant, implying a carbon footprint which must be reduced. The new regulations applicable to the Scheme (SFDR and in particular the decree of Article 29 of the 2019 French Energy and Climate Law), highlight the need for greater consideration of long-term biodiversity-related objectives in the strategy.

1 - Carbon footprint

Ircantec's mobilization for the climate is in line with its values of generational solidarity, with the aim of preserving the environment for current and future generations while contributing to supporting the energy and ecological transition by facilitating job creation in the "green economy". Ircantec's responsible investor approach was initiated in 2009 and significantly strengthened in 2016 due to its signature of the Paris Call following the COP21, then in 2021 to manage its reserves on an emissions reduction trajectory compatible with a 1.5°C scenario. In this context, Ircantec wishes to retain the best practices and adopt the most demanding standards that will enable it to reduce the emissions of its client portfolio. The pension scheme has thus committed to reduce the emissions of its corporate portfolio (equities and bonds) by 7% per year on average until 2050 (the reference year being 2021). The 7% reduction target, with zero or limited overshoot, is derived from the decarbonization trajectory of the IPCC 1.5°C scenario. To support companies in the energy transition and in accordance with the "Paris Aligned Benchmark – PAB", the exposure of Ircantec's portfolio to high-impact¹⁴ sectors must be at least equivalent to that of its benchmark index. This commitment aims to support the transition by limiting a reorientation of the portfolio towards low-emission sectors only.

Listed companies

The main indicator for assessing the negative impact of investments on the climate is the carbon footprint, in its various metrics. This monitoring

is based on the carbon reporting table published by other institutional investors, which gives a complete view of the carbon profile of the portfolio. It includes an intensity indicator (weighted average carbon intensity), an absolute indicator (total carbon emissions for which Ircantec is responsible), as well as normalized emissions by assets under management (financed carbon emissions). Regarding the scope of carbon emissions, all Scopes have been integrated:

- Direct emissions (Scope 1): CO₂e emissions generated by the company's direct activities according to the definition of greenhouse gases in the Kyoto Protocol.
- Direct emissions (Other): additional direct emissions including those from the following four sources: CCl₄, C₂H₃Cl₃, CBrF₃ and CO₂ from biomass.
- Indirect emissions related to energy purchasing (Scope 2): CO₂e emissions generated by the consumption of electricity, heat or steam.
- First level of supply chain excluding electricity (Scope 3): CO₂e emissions generated by companies supplying goods and services at the first level of the supply chain.
- Other levels of supply chain (Scope 3): CO₂e emissions generated by companies supplying goods and services at the second to the last levels of the supply chain.
- Downstream (Scope 3): CO₂e emissions generated by the distribution, transformation and use of goods and services supplied by a company.



Changes to the methodology for Scope 3 were made by Trucost. It now integrates new information from companies in the calculation of Downstream Scope 3 emissions for three sectors displaying high carbon intensity: energy, utilities and the automotive sector. Moreover, the source of data on automobile production is now internal, which enables wider geographical coverage. Due to the methodology changes and a significant increase in the carbon intensity of these issuers, the N-1 portfolio was re-calculated to offer the most appropriate comparison with this year.

¹⁴ The following are defined as high-impact sectors (NACE classification): Agriculture, Forestry and Fishing, Mining and Extraction, Industrial production, Generation and distribution of electricity, gas, air conditioning, Production and Distribution of water, Sewage treatment, Waste management and pollution removal, Construction, Wholesale and retail, Motor vehicle and Motorcycle repairs, Transport and Storage, Real estate activities.

Carbon metrics (Scopes 1, 2 and 3 of corporate investments)

	Portfolio		Benchmark	
	2023	2022	2023	2022
Weighted Average Carbon Intensity (tCO₂e/€M)	1010	1138	1075	1372
Evolution of carbon intensity in relation to previous year (%)	-11.2 %	-	-21.6%	-
Total carbon emissions (tCO₂e allocated based on corporate securities including cash)	4,416,449	3,861,567	5,586,033	5,655,742
Carbon intensity per million Euros of turnover generated (tCO₂e/€M turnover)	1,296	1,351	1,407	1,833
Carbon intensity per million Euros invested (tCO₂e/€M invested)	470	487	594	713
Equity segment				
Weighted Average Carbon Intensity (tCO₂e/€M)	1,095	1,113	1,063	1,235
Total carbon emissions (tCO₂e allocated based on corporate securities including cash)	3,292,540	2,570,797	3,298,946	3,205,635
Carbon intensity per million Euros invested (tCO₂e/€M invested)	553	509	554	635
Corporate bond segment				
Weighted Average Carbon Intensity (tCO₂e/€M)	916	1183	1097	1306
Carbon intensity per million Euros invested (tCO₂e/€M invested)	346	447	665	601

Concerning the target of a 7% reduction in the emissions of the corporate portfolio, this is expressed in terms of intensity and integrates direct and indirect greenhouse gas emissions. In accordance with European indexes aligned with the Paris Agreement, the Paris Aligned Benchmark - PAB, Scope 3 will be progressively integrated based on the following time scale:

- the start of the commitment (2022): energy (oil and gas) and mining sectors;
- after 2 years: integration of the transport, construction, materials and industrial activities;
- after 4 years: all sectors.

Carbon metrics (Scopes 1,2 and 3 only on energy and mining sectors)

	Portfolio	Benchmark
	2023	2023
Weighted Average Carbon Intensity (tCO₂e/€M)	84	288
Carbon intensity per million Euros of turnover generated (tCO₂e/€M turnover)	108	562
Carbon intensity per million Euros invested (tCO₂e/€M invested)	39	237
Equity segment		
Weighted Average Carbon Intensity (tCO₂e/€M)	86	328
Carbon intensity per million Euros invested (tCO₂e/€M invested)	35	245
Corporate bond segment (excluding Green Bonds/Social Bonds funds)		
Weighted Average Carbon Intensity (tCO₂e/€M)	87	218
Carbon intensity per million Euros invested (tCO₂e/€M invested)	51	224

The global portfolio reported better performance than its benchmark across all metrics. This is partly explained by the portfolio's sector weightings, in particular the under-weighting of the energy sector, but also by a good selection of stocks within sever-

al sectors, particularly the materials sector and the utilities sector.

The weighted average carbon intensity amounted to 1,010 tCO₂e/€M compared to 1,138 tCO₂e/€M at the end of 2022, a reduction of 11.2% in the portfolio's

carbon intensity. In this way, Ircantec has fully risen to the 7% decarbonization target by investing more in companies active in the energy transition which are sustainably transforming their production activities with low-carbon solutions.

However, the benchmark index achieved greater decarbonization than the portfolio, with a -21.6% reduction in the weighted average carbon intensity. An initial factor explaining this significant drop in the benchmark carbon intensity is in fact asset allocations. Indeed, a new asset allocation method was adopted in December 2022, aiming to secure the yield of the medium and long-term reserves portfolio, while ensuring observance with prudential solvability restrictions. This new asset allocation is reflected in a stronger diversification within the equity segment, with 18% on OECD stock for an equity segment of 38%, compared with 8% against 40% in the previous allocation dating back to 2016. On its own, this change in allocation represents 54% of the reduction in the carbon intensity of the benchmark index. Furthermore, for the 2023 analysis, the revenue and emissions data used were for 2021-2022. The recovery of activity subsequent to Covid-19 has generally had a stronger impact on revenue than on production (and therefore emissions), resulting in a lower weighted average carbon intensity across the board. Between 2022 and 2023, some companies have seen a drop in their carbon intensity. As an example, Shell, BP, Total and Eni are not present in the global portfolio but together represent almost 35% of the drop in the benchmark WACI (their contributions to the benchmark WACI fell by 64%, 64%, 60% and 51% respectively).

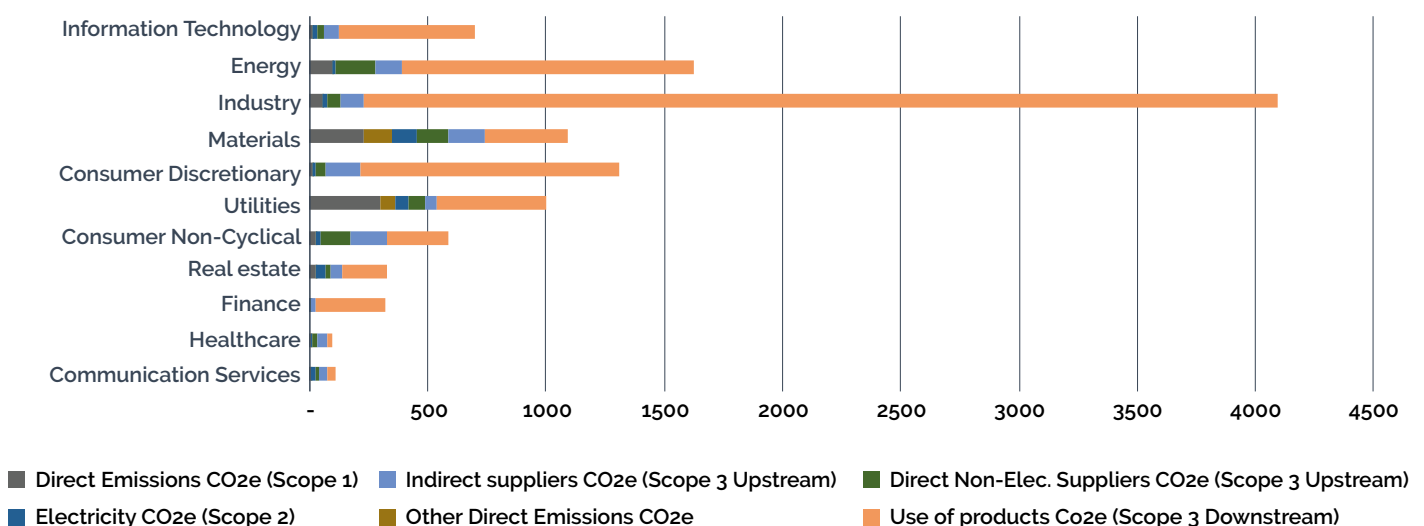
The total carbon emissions of the equity segment are in line with its benchmark due to its Scope 3, and mainly its downstream Scope 3. This can partly be explained by the portfolio's overweighting of the industry and consumer discretionary sectors, which have larger carbon footprints. Consider-

ing only Scope 1 and 2 emissions, the total carbon emissions of the equity segment are 342,485 tCO₂e, while those of its benchmark amount to 611,433 tCO₂e. On the other hand, the bond segment posted better performance than its benchmark across all indicators, in particular thanks to the overweighting of the financial sector, which has a smaller carbon footprint, but also to the appropriate selection of securities.

The Energy sector exhibits the highest carbon intensity. This sector notably includes the oil majors, who are investing in their transition and in renewable energy sources. However, due to its under-weighting, it does not have the strongest negative impact on the relative carbon intensity of the portfolio compared to its benchmark. The most negative are in fact the industry and consumer discretionary sectors, which require extensive supply chains and generate high scope 3 downstream emissions. Significant positions in these sectors include Signify and ABB. These two companies contribute solutions and have a short-term objective aligned with a 1.5°C trajectory validated by SBTi (Science Based Targets Initiative). They have also committed to have their net zero trajectory certified by SBTi. It is interesting to note that the materials sector is slightly overweighted in the portfolio, which could be negative for the relative carbon intensity of the portfolio. However, the selection of securities is focused on well-positioned stocks in the sector, for a positive effect relative to the benchmark.

Lastly, exposure to high-impact sectors amounts to 56.20% compared to 54% for its benchmark index, with over-exposure to the sectors of industry, materials and real estate. Ircantec fulfills its obligation of financing sectors which support the energy transition.

Breakdown of carbon intensity tCO₂e/€M turnover of the portfolio according to different scopes and GICS sectors



 Ircantec Global Portfolio - Emissions from all Scopes (1+2+3)

	Sector weighting		Carbon intensity		Allocation of carbon footprint		Total
	Portfolio	Benchmark	Sector	Security	Sectoral allocation	Security allocation	
Communication services	4.0%	4.7%	109	118	-0.7%	0.0%	-0.7%
Consumer Discretionary	13.2%	11.3%	1,311	1,329	0.1%	0.2%	0.3%
Consumer Non-Cyclical	10.0%	9.9%	583	592	0.1%	0.1%	0.1%
Energy	0.5%	13.1%	1,624	2,762	12.1%	0.4%	12.5%
Finance	15.1%	17.4%	320	551	-1.4%	2.5%	1.1%
Healthcare	10.7%	8.4%	99	120	2.1%	0.2%	2.3%
Industry	18.3%	14.7%	4,087	2,892	-3.8%	-15.5%	-19.3%
Information Technology	6.4%	4.4%	696	624	1.1%	-0.3%	0.8%
Materials	9.1%	8.5%	976	1,981	-0.3%	6.5%	6.2%
Real estate	0.9%	0.7%	328	525	0.1%	0.1%	0.3%
Utilities	11.8%	7.0%	934	1,462	-0.2%	4.4%	4.3%
Total	100%	100%	1296	1407	9.4%	-1.5%	7.9%

According to the current carbon accounting methodology, which includes all of the Scopes, the exclusion of the following ten stocks would reduce the carbon intensity of the overall portfolio by 42% (per million of revenue generated). It is a measure of contribution. In other words, the weight of a security in the portfolio has a strong influence

on the final result, as does its carbon intensity expressed as a GHG/revenue ratio. Thus, Siemens Aktiengesellschaft makes a greater contribution to the portfolio intensity than Trane Technologies due to its greater weighting, while generating lower carbon intensity than the US manufacturing company.

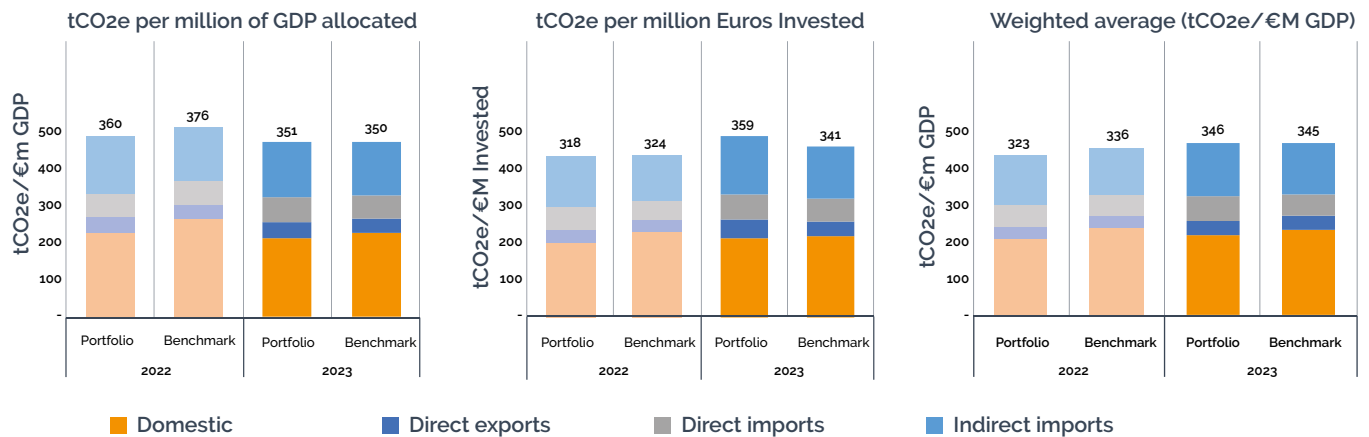
Name	Contribution of scopes 1+2+3 (% of portfolio)	Contribution of scopes 1+2+3 (%)
Signify N.V.	-14.74%	-14.74%
Prysmian S.p.A.	-10.33%	-25.06%
Siemens Energy AG	-6.17%	-31.23%
Siemens Aktiengesellschaft	-3.21%	-34.44%
Xylem Inc.	-1.75%	-36.19%
AB Volvo (publ)	-1.37%	-37.56%
Stellantis N.V.	-1.36%	-38.92%
Trane Technologies plc	-1.24%	-40.16%
Infineon Technologies AG	-0.91%	-41.07%
Compagnie Générale des Établissements Michelin SCA	-0.89%	-41.96%

Sovereign funds and similar

The calculation of the carbon footprint for the portfolio is based on the average carbon exposure (domestic, imported and exported emissions set against GDP in millions of euros) of each country weighted according to their weight in the portfolio. It should be noted that supranational organizations and development banks (EIB, IBRD for example) are included in the analysis of listed companies for methodological issues, not in the sovereign analysis as they cannot be attached to a particular country.

GHG/GDP exposure [domestic GHG + imported + exported] for the sovereign portfolio and its benchmark

GHG (domestic + imported + exported)	2023	2022
Portfolio	346.22	322.79
Index	345.20	336.46



The carbon footprint of the sovereign portfolio has risen by 7.26% since the end of 2022 as illustrated in the table above. It is essentially linked to domestic and imported emissions. Analysis of sovereign issuers concerns 2022 carbon data, as 2021 data was

used last year. An initial explanation lies in the fact that emissions significantly slowed in the Covid-19 period, hence a slight increase this year due to the use of 2022 post-Covid data.

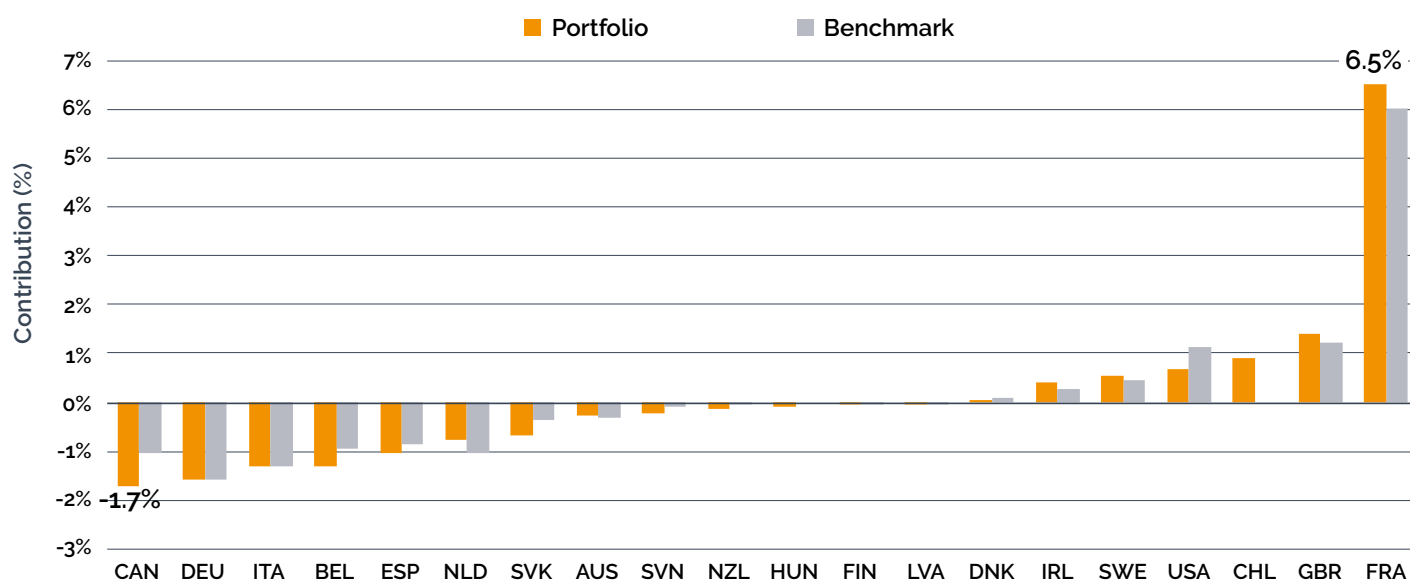
Country	"Sovereign" portfolio							"Benchmark" portfolio						
	Weight (2022)	Weight (2023)	Intensity (2022)	Intensity (2023)	WACI Contr. (%) (2022)	WACI Contr. (%) (2023)	Difference	Weight (2022)	Weight (2023)	Intensity (2022)	Intensity (2023)	WACI Contr. (%) (2022)	WACI Contr. (%) (2023)	Difference
Spain	9%	12%	336	380	32	47	15.5	9%	9%	336	380	29	36	6.5
Italy	16%	16%	355	386	56	63	7.1	15%	15%	355	386	52	59	6.7
USA	16%	20%	382	337	61	67	5.9	30%	30%	382	337	113	99	-13.8
Belgium	1%	2%	683	608	8	11	3.0	1%	1%	683	608	8	8	-0.7
Canada	1%	1%	584	546	4	7	2.9	1%	1%	584	546	4	4	-0.3
Slovakia	0%	0%	866	909	0	2	1.7	0%	0%	866	909	1	1	0.1
New Zealand	0%	0%	386	401	0	2	1.2	0%	0%	386	401	0	0	0.0
Austria	1%	1%	392	385	2	4	1.1	1%	1%	392	385	2	2	0.1
Slovenia	0%	0%	784	628	0	1	0.9	0%	0%	784	628	1	0	-0.1
UK	6%	5%	234	268	14	14	0.8	5%	5%	234	268	12	12	0.5
Chile	0%	1%	248	195	1	1	0.8	0%	0%	248	195	-	-	-
Australia	1%	1%	437	422	3	3	0.2	1%	1%	437	422	3	3	-0.2
Denmark	0%	0%	268	266	-	0	0.2	0%	0%	268	266	0	0	-0.0
Lithuania	0%	0%	889	823	-	-	-	0%	0%	889	823	0	0	-0.0
Cyprus	0%	0%	542	553	-	-	-	0%	0%	542	553	0	0	-0.0
Estonia	0%	0%	1,015	766	-	-	-	0%	0%	1,015	766	0	0	-0.0
Malta	0%	0%	223	223	-	-	-	0%	0%	223	223	0	0	-0.0
Luxembourg	0%	0%	214	191	-	-	-	0%	0%	214	191	0	0	0.0
Japan	0%	0%	376	457	-	-	-	1%	1%	376	457	5	6	0.2
Croatia	0%	0%	625	648	-	-	-	0%	0%	625	648	-	0	0.4
Ireland	0%	0%	218	213	1	1	-0.0	0%	0%	218	213	1	1	-0.1
Latvia	0%	0%	473	417	0	0	-0.0	0%	0%	473	417	0	0	-0.0
Finland	0%	0%	361	368	1	1	-0.0	0%	0%	361	368	1	1	0.1
Hungary	0%	0%	799	822	1	0	-0.2	0%	0%	799	822	-	-	-
Netherlands	1%	1%	515	508	5	4	-0.3	1%	1%	515	508	5	5	-0.0
Portugal	0%	0%	472	469	2	2	-0.4	0%	0%	472	469	2	2	-0.0
Sweden	1%	0%	223	219	2	1	-1.1	0%	0%	223	219	1	1	0.0
France	31%	25%	242	274	75	70	-5.3	25%	23%	242	274	60	63	3.2
Germany	15%	12%	357	376	54	43	-10.5	10%	11%	357	376	34	40	6.2

The performance analysis above (with a focus on the weightings and intensity of equity holdings between 2022 and 2023) highlights Spain as the main contributor to the higher WACI of the portfolio. The weight of this country rose from 9 to 12% between 2022 and 2023, with the intensity rising from 336 to 380 tCO₂e/€M. Italy and the USA are in second and third positions respectively.

The increase in Italy's WACI is explained by an increased intensity. Concerning the USA, this increase in the weighted average carbon intensity is explained by a higher weighing in the portfolio relation to last year.

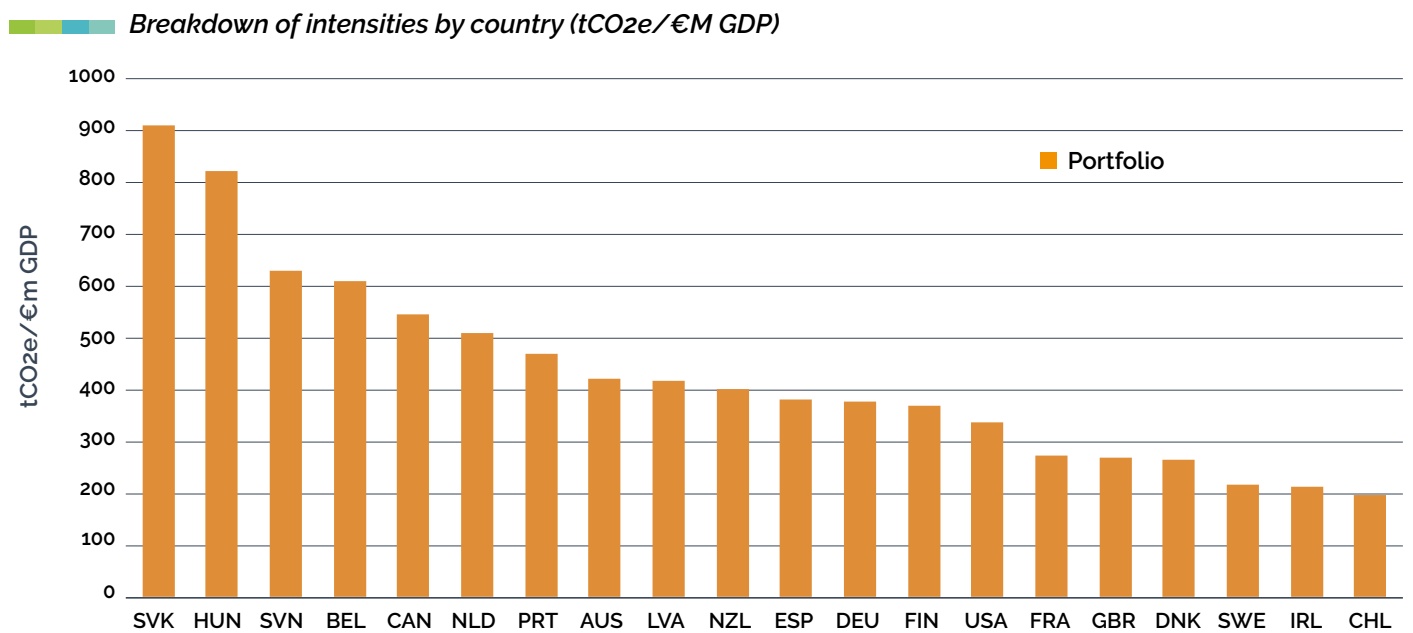
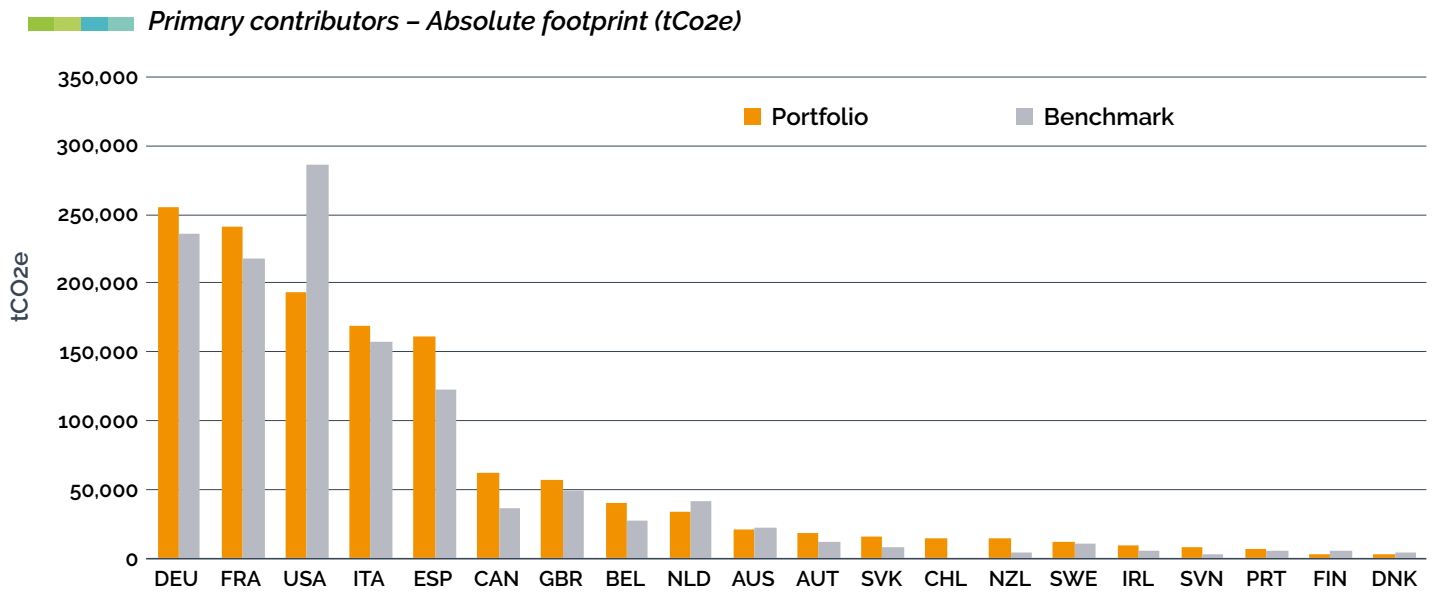
French and UK bonds are the lowest contributors to the carbon footprint per million of GDP allocated, due to their relatively low weight and intensities. However, Canada, Germany, Italy, Belgium and Spain bonds make the highest contribution to raising the carbon intensity of the portfolio.

Performance Analysis– Carbon footprint per million GDP allocated



The contribution of the USA moved from -3.4% in 2022 to 0.7% in 2023. Several factors explain the change in this performance. Firstly holdings rose by 43% and sovereign debt by 46%, hence a relatively stable allocation factor (-2%). Next, emissions fell by 1% and GDP grew by 24% compared to 2021 data. On portfolio level (the calculation of the impact is relative to other holdings), last year the USA represented 19.3% of allocated emissions and 16.5% of the GDP allocated, compared to 14.5% and 15.1% respectively this year. Therefore, the contribution of the USA is positive this year, due to the portion of its allocated emissions being lower than its portion of allocated GDP.

The graphs below compare the carbon intensities of issuers according to their weight in the portfolio but also per million euro of GDP generated. In tCO₂e absolute, the carbon footprint of the US in the portfolio is much higher than that of Slovakia. On the other hand, once emissions are compared against GDP, it is clear that Slovakia's emissions are very high compared to the size of its economy. It is important to note that less well developed countries such as Slovakia, Hungary or Slovenia are penalized by this monetary indicator, without forcibly having a very high absolute footprint, due to the non-parity of currencies and much lower levels of wealth.

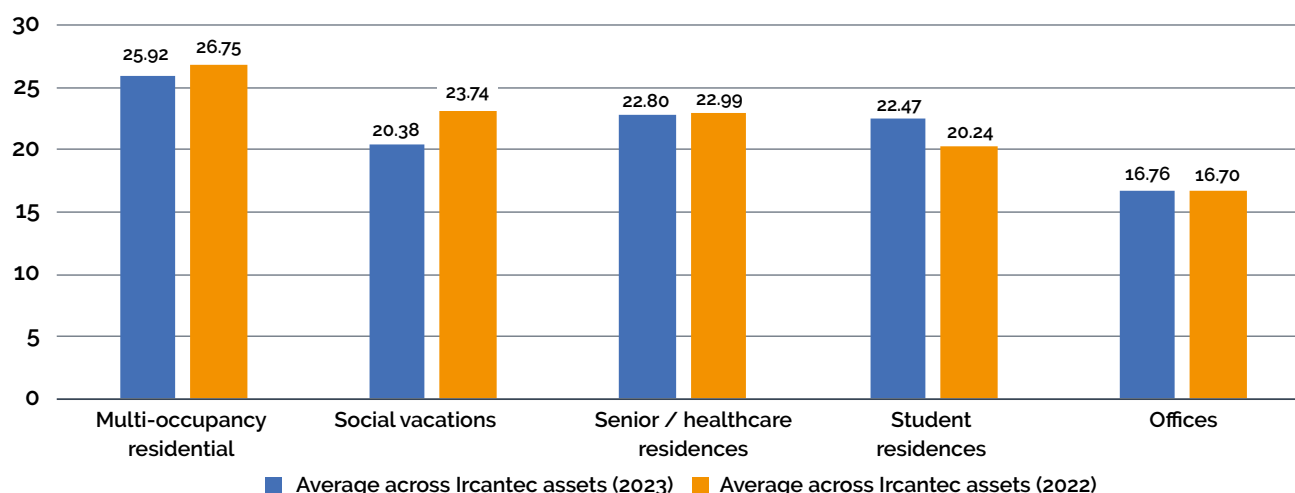


Real estate

The carbon footprint of some of the real estate assets present in the unlisted portion of Ircantec's portfolio was measured. A carbon intensity was therefore calculated from the CO₂ emissions (Scopes 1 & 2) of each building in relation to their surface area (m²). The OPPCI (Organisme Professionnel de Placement Collectif Immobilier - undertaking for collective investment in real estate) fund representing the majority of Ircantec's real estate investments, is invested in assets held directly and in equity investments with a diversified allocation strategy that combines offices, housing, student residences,

health establishments and social tourism. 28 assets were studied for a total carbon footprint of 4,585 tonnes of CO₂ per year and an overall surface area of 203,779m² TNFA (total net floor area), which represents an average of approximately 22.50 kgCO₂/m²/year (compared to 23.06 kgCO₂/m²/year with 4,156 tonnes of CO₂ emissions in 2022). This reduction in absolute terms of the carbon footprint is explained by the implementation of new assets with strong energy performance. Moreover, an improvement in the qualification of data for fiscal year 2023 was observed.

 Average carbon intensity by asset class (kgCO₂/m²) - OPPCI scope



Several energy audits have been conducted - covering a part of real estate assets considered as the lowest performing in environmental terms¹⁵ - to complete a review and define appropriate recommendations to improve the energy performance of these buildings. Following this work, the implementation of a multi-year action plan will be defined shortly in order to reduce carbon emissions by almost 50% and ensure alignment with the national low-carbon strategy (SNBC)¹⁶. The final aim is to align the real estate assets of¹⁷ Ircantec on a trajectory compatible with the Paris Agreement.

IPE Real Estate

Ircantec's real estate investment policy was again recognized as part of the IPE Real Estate awards¹⁸. The institution was recognized firstly for its responsible, sustainable investments in the medium size real estate project investment category. The judging panel appreciated its investments in student accommodation and senior residences, with HQE certification. The scheme was recognized secondly for its investments in line with UN sustainable development goals (SDG) 10 and 11, with investment in organizations as well as in innovative buildings accessible to beneficiaries in socially fragile conditions to enable them to enjoy high quality goods and services.

2 - Green share

Listed companies

The positive impacts of companies on the climate remain difficult to quantify for most companies. The most common approach is to break down the activities carried out by a company and to estimate whether or not each component is virtuous. The European Union's green taxonomy provides a common framework for classifying activities. Each economic activity covered has performance thresholds that measure its contribution to environmental objectives. The taxonomy describes 96 business activities - linked to the 13 macro-sectors of the NACE (Statistical Classification of Economic Activities in the European Community) classification - which can be classified as "general", "transitional" or "enabling".

- General activities are those with a direct potential to attenuate carbon emissions (for example renewable energies).
- Transitional activities are those that may have a relatively high carbon intensity but which have high potential to reduce their carbon emissions over time (for example steel production).
- Enabling activities are those that could support reduction in carbon emissions in other sectors (for example wind turbine manufacturing).

¹⁵ Of the 31 assets making up the portfolio, 20 assets were subject to an energy audit (the Vesta property company is not included in the scope of analysis).

¹⁶ The SNBC is France's roadmap for the fight against climate change. The strategy aims to achieve carbon neutrality by 2050. It has also defined a 49% reduction target for greenhouse gases by 2030.

¹⁷ This engagement concerns assets held in full and via majority stakes within the dedicated OPPCI fund (excluding the Vesta portion), which represents most of Ircantec's real estate investments.

¹⁸ IPE (Investment & Pensions Europe) is a media provider for information on institutional investors in Europe. In the course of the IPE Global Real Estate Awards, the Scheme was recognized as the medium-size real estate investor of the year (Gold Award) and for its contribution to the social impact (Silver Themed Award).

Trucost data provide an assessment of the proportion of company revenue eligible for alignment with the taxonomy using a proprietary Trucost mapping of the taxonomy system classification of sectors and the business activities described in the taxonomy. Trucost also provides an assessment of the final proportion aligned on the two criteria published by delegated acts: climate change mitigation or adaptation.

A distinction must be made between eligibility and alignment, which requires that several conditions must be met:

- A substantial contribution to at least one of the six environmental objectives: climate change mitigation; climate change adaptation; sustainable use and protection of water and marine resources; transition to a circular economy; pollution prevention and control; protection and restoration of biodiversity and ecosystems.
- No significant harm to any of the five remaining objectives – (DNSH).
- Comply with a certain number of minimum social safeguards: meet OECD guidelines, UN guiding principles and ILO requirements on fundamental rights.

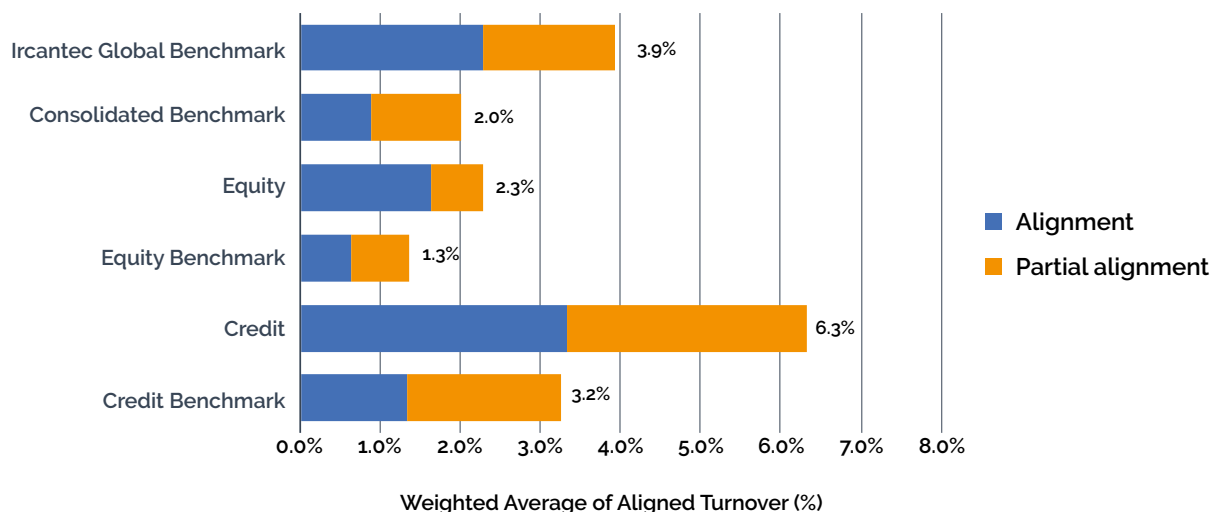
In accordance with the EU Taxonomy disclosure directives, Institutional investors are required to declare the share of their aligned revenue generated with companies subject to the EU Non-

Financial Reporting Directive (NFRD). This may be supplemented by voluntary disclosure of the alignment of companies not subject to the NFRD.

The green share of the thirteen eligible macro-sectors (weighted average of the green shares of companies) amounts to 39.03% in 2023 compared to 32.86% for the benchmark index. 7.64% of the portfolio's eligible income is associated with general activities, 27.29% with enabling activities, and 4.10% with transitional activities. The eligibility of business income for the European taxonomy grew slightly compared to 2022. The contribution from the industrial sector and utilities is particularly strong.

The graph below shows the total amount of aligned or partially aligned turnover broken down by potential objective and type of activity. Given the lack of available data to assess the substantial contribution of each activity, Trucost uses a Taxonomy Alignment Coefficient (TAC) to define the portion of eligible turnover aligned with the Taxonomy. For example, 15% of turnover from construction and real estate can be classified as meeting the substantial contribution requirement by using the TAC. We note a clear difference between the share of Taxonomy-eligible turnover and aligned turnover, which is normal considering the many cumulative criteria that must be satisfied. Taxonomy-aligned turnover of the portfolio amounts to 2.27% compared to 0.89% for the benchmark.

All Objectives and Types - With TAC



In the absence of providers on the unlisted segment, we are as yet unable to calculate the Taxonomy alignment of these assets.

Sovereign funds and similar

In terms of the sovereign portfolio, we analyzed the energy mix. In 2023, the mix comprised 32% of brown energies, 40% of green energies and 28% nuclear. The results concerning the green energy share are up compared to 2022 (31%).

3 - Climate impact investments

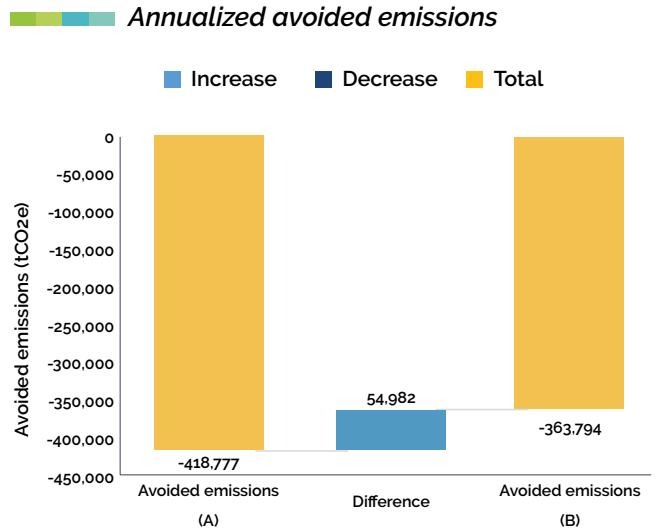
Green bonds

Green bonds are specifically used to raise fund for projects offering environmental benefits such as renewable energies, energy efficiency, reduction of water use and adaptation to climate change. They are usually grouped together in two dedicated funds which were created to accommodate the specific aspects of these assets in terms of market depth, issuer profile, audit, and labeling in particular. Having specialized managers on these mandates improves the monitoring of the use of funds received by issuing companies and ensures consistent treatment of these instruments. The main difficulty is indeed investing in debts with an adequate financial profile and good transparency as to the "green" classification they claim. To ensure this last condition, the first dedicated fund was labeled Greenfin, which implies the following conditions: majority of activities financed in the fund belong to an eligible classification, certain activities are excluded, ESG criteria are integrated in the fund and impacts are measured (mechanism for measuring the effective contribution of its investments to the EET). The second fund is currently being assessed for a label.

Moreover, to systematically assess and quantify the positive impacts of green bonds, 360 such green bonds from across the portfolio and spread across various credit funds, were aggregated together (representing coverage in the range of 65.9%). Trucost estimated the quantification of absolute and avoided carbon emissions as well as the potential positive environmental impacts of 227 bonds, making a value of the portfolio covered of €1.025 billion.

The graph below shows the potential reductions in carbon emissions achieved by the green bond portfolio on an annualized basis. Avoided emissions are calculated by comparing the emissions over the life cycle of each projects - including the phases of construction, operation, and end-of-life of financed assets - to the emissions of a Business as Usual baseline scenario. The left hand measurement "Avoided Emissions (A)" gives priority to published data and only uses calculated data if no disclosures are available. The right hand measurement "Avoided Emissions (B)" gives priority to calculated data rather than disclosures. Lastly, the "difference" measurement shows the net difference in the event that both disclosed and calculated data are available. According to published data, avoided emissions amount to 418,777 tCO₂e compared to 363,794 tCO₂e for calculated data, with a difference

of 54,982 tCO₂e between the two methodologies. Renewable electricity and heat production, alongside energy transmission, distribution, and storage, represent the categories with the highest annualized avoided emissions.



Financing the energy transition

Ircantec supports the energy transition of the territories by financing local authorities, public institutions, small infrastructure projects, mainly French, in the fields of renewable energies, energy transition and the environment. This financed green infrastructure directly contributes to Sustainable Development Goals (SDG) 7 and 9 (Affordable and Clean Energy & Industry, Innovation and Infrastructure).



These investments are made through:

- A dedicated multi-asset fund that invests directly in projects or unlisted companies compatible with these objectives and 12 funds (infrastructure and thematic private equity) that contribute to this objective: BTP Impact Local, CapEnergie 3, Demeter 4 Infra, Paris Fonds Vert, Infragreen II, Infragreen IV, Eurofideme 3, Eurofideme 4, Effithermie, Pearl Infrastructure Capital, Swen Impact Fund for Transition and its successor SWIFT 2. Nine of these funds are GreenFin labeled (CapEnergie 3, Infragreen II, Demeter 4 Infra, Eurofideme 3, Eurofideme 4, Paris Fonds Vert, Infragreen IV, Pearl Infrastructure Capital et SWIFT 2). Ircantec has invested €285 million in these green infrastructures; at December 31, 2023, the market value of these funds amounted to €202.80 million.
- Two dedicated green bond funds: the amount of its investments in green bonds is €1,070.91 million, or 6.92% of its reserves;
- A dedicated European equity fund managed by Mirova whose investment strategy focuses on environmental issues and more particularly environmental innovation in the following areas: renewable energy, clean transport, energy efficiency, sustainable waste and water management, sustainable agriculture and green buildings. These investments amount to €615.85 million, or 3.98% of the reserves.
- Seven open funds invested in the stock of companies contributing to the EET (renewable energies, energy efficiency, buildings, industry, transport) for a total amount of €227.83 million, one of which holds Greenfin certification (Sycomore Éco-solutions).
- Two dedicated funds introduced in 2022 and 2023 (Actions Monde Mirova and Janus Henderson), where a portion of companies invested in by the fund make a positive contribution to climate stability by limiting greenhouse gas emissions to limit the global temperature rise to below 2°C. This represents assets in the order of €466.88 M, or 3.02% of reserves.

In 2021, Ircantec strengthened its commitment and set itself a target EET financing objective of at least 20% of its reserves by 2024 (16.69% of reserves were dedicated to this goal at the end of December 2023).

Awards and Prizes

In 2023, Ircantec featured in several ESG awards for institutional investors. Ircantec was nominated in the "Best initiative award for financing companies contributing to the ecological transition" at the Couronnes Instit Invest held by financial media firm AGEFI, and highly appreciated at the IPE Awards in the France regional category.

Awards in 2023

- ♦ Gold medal for climate policy

Ircantec received an award from a team of researchers from the *Centre for Climate Finance & Investment* (CCFI) at Imperial College London, jointly with the *Carbon Tracker Initiative*¹⁹. Following an in-depth examination of publicly available information, the pension scheme was awarded - using the CCFI methodology - the highest distinction for its climate policy. This award follows an analysis by financial institutions who ambitiously aligned their climate policies with the International Energy Agency (IEA) "Net Zero" roadmap, especially concerning the absence of new investments in conventional fossil fuels.

- ♦ Exemplary climate policy recognized by Shift Action

Ircantec's best practices in terms of climate policy stood out in the "Shift Action for Pension Wealth and Planet Health"²⁰ report". For this second edition of its [report](#) which assesses the quality, depth and credibility of climate policies implemented by Canadian pension funds, Shift Action included in the analysis a group of international pension funds, including Ircantec, ABP and New York City Pensions. The aim was to illustrate what ambitious climate leadership would look like and how international funds take the necessary measures to protect pensions and the climate.

¹⁹ As a reminder, Carbon Tracker is an independent financial think tank financed by around thirty large charity trusts and foundations. This organization focuses on in-depth analysis of the impact of the energy transition on financial markets and that of investments in fossil energies emitting high levels of CO₂. Imperial College London, a prestigious UK university (in the world's top ten) conducts research into climate change and its translation into actual impacts in the real world. Its aim is to improve interaction between researchers and private sector / public sector decision-makers, by disclosing the results of their research to ensure that choices are based on the best possible understanding of the science and proof available.

²⁰ Shift Action for Pension Wealth and Planet Health is a Canadian charity initiative which aims to protect both citizen pensions and the climate. It unites beneficiaries with their pension funds, helping people to know where their pension assets are invested and how they can push for changes towards more carbon-neutral investments.

4 - Exposure to other environmental factors (excluding climate)

Forests have three functions: economic, social and environmental. Forest managers seek to reconcile these three functions, although the production function has historically taken precedence. In recent years, the other two functions have been gaining in importance, particularly due to better visibility of forestry activities by the general public. Thus, forests have a special role to play in mitigating the effects of climate change (carbon sequestration in forests and carbon storage in wood, preserving biodiversity and supplying many ecosystem services (preservation of landscapes, water quality, etc.).

Consequently, forestry management must in particular ensure it is possible to continuously produce wood, a material with many uses and an intrinsically renewable resource that combines performance, durability and adaptability, while integrating environmental issues into silviculture (preservation of biodiversity, quality of soil, water, etc.) or taking into account stakeholder expectations.

As of December 31, 2023, Ircantec owns almost 4,658 hectares (18 sq. miles) of forest land in France through the forestry investment vehicle "Gestion Forestière de Brèves". As part of these management activities, the Forestry Company has a socially responsible and eco-friendly forest management policy, in particular:

- by ensuring the multi-functional use of forests to pursue an objective of wood resource production to meet the growing needs of the industry, indispensable to achieving France's climate objectives and to reducing the effects of imported deforestation;
- by ensuring the renewal of forests after each parcel is felled, using the most suitable solution for the local context (plantation or natural regeneration) as part of sustainable land management;
- by seeking to ensure the diversity of species, especially when renewing mature populations to improve their resilience and land biodiversity; their selection is subject to lengthy examination to ensure their suitability for the land plot;
- with sustainable forest management certification (PEFC) audited according to processes defined by the applicable standard; and
- by respecting the engagements in the European Green Deal which will be addressed in an annual report.

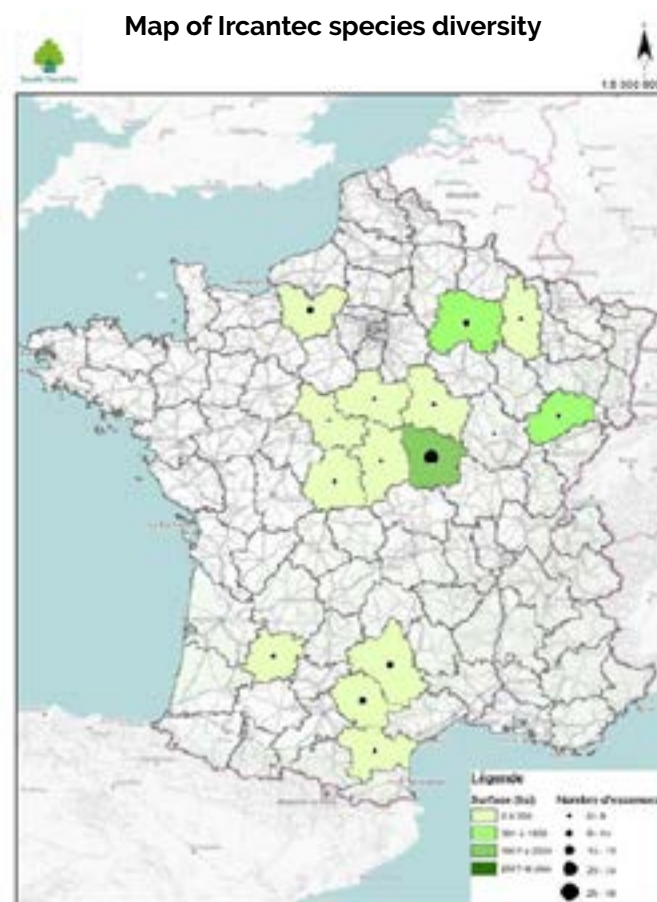
As part of its sustainable forestry management strategy and the renewal of its mandate, in 2022 Ircantec sought to promote new missions and define indicators that would provide a long-term goal to its objectives of meeting social, environmental and economic issues which define the multi-functional nature of forests.

Therefore, the following ESG monitoring indicators were determined:

ESG monitoring indicators	Associated objectives	2023 data
Organize the resilience of the forest	100% sites planted with at least two species by 2026	82%
Act with respect for stakeholders	Deploy all opportunities for dialog across all territories by 2026	Consultations organized for 935 Ha
Eco-certification	Maintain PEFC certification across 100% of assets	OK
Protect biodiversity	Inventory 100% of assets under the Index of Biodiversity Potential by 2026	33%
	Monitor and limit the main invasive plant species in forest environments	0 invasive species detected
Protect the quality of water	Scope of protection of water catchments	Inventory in progress
Protect soils and prevent erosion	Assess 100% of land areas to replant (excluding Landes de Gascogne by 2026)	Project under way
Increase carbon sinks	Measure the annual carbon balance and surface areas certified with the Low-Carbon label	In 2023, forestry activities enabled the capture of 34,521 tonnes eq. CO

In addition to silviculture, which aims to produce quality wood, forest management offers the ability to optimize carbon stock, biodiversity, resilience

to climate change and all the benefits linked to ecosystem services.



5 - Biodiversity analysis of the portfolio

Integration of biodiversity-related issues

Biodiversity refers to all living beings (from whales to micro-organisms such as bacteria) and ecosystems (forests, prairies, oceans, etc.) where they live. It also refers to the genetic diversity of species, their interactions between themselves and their environments.

After climate change, biodiversity is the latest environmental crisis. The biodiversity crisis reflects the destruction of ecosystems and the life they support due to human actions.

The topic of biodiversity has been neglected by the economic sector for a long time in favor of climate issues, but now it represents an increasing portion of forward-thinking, initiatives and regulations around the world.

It was only at the 1992 Rio Conference and through the signature of the Convention on Biological Diversity, that the need to protect biodiversity for all humanity was officially recognized. This Convention has three objectives:

1. The conservation of biological diversity,
2. The sustainable use of the components of biological diversity,
3. The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

The Kunming-Montreal Global Biodiversity Framework was adopted at COP15 in 2022. The framework sets out the strategy for all stakeholders in their actions to preserve and restore biodiversity. Aside the global objectives of protecting nature, this new agreement includes 23 priority actions to be achieved by 2030²¹. These objectives have been taken onboard by France in its "national biodiversity strategy for 2030"²², introduced in November 2023. It sets out a pathway to halt then reverse the decline of biodiversity.

The roll-out of the objectives of global conventions brings with it a range of regulations for the financial sector. In Europe, the "Sustainable Finance Disclosure Regulation" (SFDR) requires investors to publish their "principal adverse impacts" relative to biodiversity, and the European Taxonomy requires

²¹ <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-fr.pdf>.

²² Vivre en harmonie avec la nature: stratégie nationale biodiversité 2020 - <https://www.ecologie.gouv.fr/sites/default/files/Doc-chapeau-SNB2030-HauteDef.pdf>.

the publication of a biodiversity protection objective. In France, article 29 of the Energy-Climate act (LEC) of November 8, 2019, aims to clarify and strengthen the non-financial transparency framework for market players. For the first time, biodiversity has been explicitly referred to. Declarants must publish information on the strategy for alignment with long-term biodiversity-related objectives.

Ircantec is directly subject to this article and its requirements, and will ensure full compliance. To do so, the pension scheme is working on the development of a biodiversity policy that will be adopted in 2024. Working groups involving Trustees were held in 2023 and early 2024 to examine how the portfolio is exposed to various biodiversity issues and define a specific biodiversity approach for Ircantec, using the same process as in 2021 for the climate. This will lead to a more complete integration of biodiversity into the management of its reserves, in particular via exclusions and shareholder engagement, and will enable the pension scheme to ensure compliance with the regulations.

Ircantec also aims to report on its efforts in favor of biodiversity through various objectives / initiatives:

TNFD

Introduced in July 2020, the Taskforce on Nature-related Financial Disclosures (TNFD) has created a set of disclosure recommendations and guidance that enable business and finance to assess, monitor and publish the financial risks related to the decline of biodiversity.

The recommendations of the TNFD are intended to be aligned with the global policy goals of the Kunming-Montréal global biodiversity framework. The TNFD disclosure recommendations comprise three segments:

1. conceptual foundations for nature-related disclosures;
2. a set of general requirements;
3. a set of recommended disclosures.

This is consistent with the approach of the TCFD and the ISSB's IFRS Standards. Ircantec applies the TNFD recommendations and reports them in its sustainability report (see appendix 10).

Contribution to the objectives of the convention on biological diversity

The contributions of Ircantec to the objectives of the convention on biological diversity are published in the sustainability report in accordance with the decree of article 29 (see appendix 11).

Principal adverse impacts relative to biodiversity

Ircantec is attentive to the Principal Adverse Impacts (PAI), especially those relating to biodiversity. Ircantec will assess its position in relation to the benchmark and the applicable measures to improve these indicators (see Part 7 of this report).

Trucost environmental footprint

It underlines the impacts of business activities on nature: an environmental footprint is calculated at the corporate portfolio level. The footprint quantifies the environmental impact of greenhouse gas emissions, water use, waste, air, soil and water pollutants, as well as the use of natural resources. The analysis focuses on the impacts associated with the company's own activities but also those of its suppliers upstream, all the way back to the extraction of the raw materials. Environmental impacts are often hidden in global supply chains, which is why Trucost uses an Environmental Extended Input-Output (EEIO) model to isolate responsibilities at each level of the value chain. An environmental cost is attributed to each resource and pollutant in order to compare the different environmental impacts. The environmental footprint ratio of carbon emissions per million Euros of turnover (CE/Turnover), carbon emissions per million Euros invested (CE/I) and the weighted average (WA) of environmental intensities are the three indicators discussed below.

Environmental cost

Directs and indirect costs	2023		2022	
	Portfolio	Index	Portfolio	Index
Environmental intensity by amount invested (CE/I)	1.01%	1.37%	1.14%	1.51%
Environmental intensity by million of turnover (CE/Turnover)	2.76%	3.25%	3.13%	3.86%
Weighted average environmental intensity (tCO ₂ /€M Turnover)	2.17%	2.57%	2.76%	3.34%

The overall portfolio generates fewer environmental costs than its benchmark, and it has generally succeeded in reducing them between 2022 and 2023. Indeed, the environmental costs per million Euros of turnover fell from 3.13% in 2022 to 2.76% in 2023. The environmental footprint of the Ircantec Global Portfolio indicates that each million Euros of turnover generated by the portfolio will destroy on average 15% less natural capital than the index.

The non-cyclical consumer sectors, utilities and materials are the main contributors to the environmental footprint mainly due to a good selection of stocks. Moreover, the analysis indicates that the weighting of the Health sector in the global portfolio also improves the footprint by 1.5% in relation to that of its index. Furthermore, for the same sector, a better selection of less harmful stocks improves the overall portfolio performance for an aggregated sector effect of 2.2%.

Ircantec global portfolio

Sectors	Sector weighting		Environmental impact		Allocation of Environmental Footprint		Total
	Portfolio	Index	Portfolio	Index	Sectoral allocation	Security allocation	
Communication Services	4.0%	4.8%	0.6%	0.7%	-0.6%	0.0%	-0.6%
Consumer Discretionary	13.1%	11.1%	2.2%	2.1%	0.7%	-0.4%	0.3%
Consumer Non-Cyclical	10.0%	9.9%	7.0%	8.8%	-0.3%	5.4%	5.2%
Energy	0.5%	13.2%	2.8%	3.2%	-0.1%	0.1%	-0.1%
Finance	15.1%	17.5%	0.3%	0.4%	-2.1%	0.4%	-1.6%
Healthcare	10.7%	8.3%	0.9%	1.2%	1.5%	0.7%	2.2%
Industry	18.3%	14.7%	2.0%	1.9%	1.5%	-0.5%	1.0%
Information Technology	6.4%	4.4%	1.1%	1.0%	1.4%	-0.2%	1.2%
Materials	9.0%	8.5%	6.4%	7.8%	-0.8%	3.9%	3.1%
Real estate	0.9%	0.6%	1.4%	1.4%	0.1%	0.0%	0.1%
Utilities	11.9%	7.0%	4.7%	7.7%	-6.7%	11.1%	4.4%
Total	100.0%	100.0%	2.8%	3.3%	-5.4%	20.5%	15.2%

Trucost Biodiversity Score

This reflects the robust quality of issuer biodiversity policies and also provides a biodiversity score. The primary objective of the biodiversity score is to verify whether companies are aware of risks relating to biodiversity, if they include stakeholders in the development and implementation of their biodiversity strategy, and if the implementation is incorporated in an internal or external assurance process. Biodiversity scores are generated by the annual Corporate Sustainability Assessment (CSA) which analyzes the engagements of multiple companies.

The biodiversity score for each portfolio/benchmark or even for each sector, is the weighted average of the biodiversity scores of individual constituent companies.

Biodiversity score

On the global portfolio:	2022		2023	
	Portfolio	Index	Portfolio	Index
Biodiversity score	17.6	18.4	23.8	21.1

Indicators of the biodiversity score on the Ircantec global portfolio

The biodiversity score clearly improved on the portfolio between 2022 and 2023, with now a positive gap over the benchmark in the order of 12.8%. These strong results are primarily explained by good sectoral allocation and stock selection in

the Utilities sector. Similarly, strong stock selection in the Consumer Discretionary and Industry sectors makes a positive contribution to the biodiversity score. Ircantec raised its score more between 2022/2023 than the benchmark.

Ircantec global portfolio

Sectors	Sector weighting		Weighted average of Biodiversity scores		Allocation of Environmental Footprint		Total effect
	Portfolio	Index	Portfolio	Index	Sectoral allocation	Security allocation	
Communication Services	4%	5%	16.9	15.7	0.2%	0.2%	0.4%
Consumer Discretionary	12%	15%	27.4	21.4	-0.1%	3.3%	3.3%
Consumer Non-Cyclical	12%	13%	31.2	30.5	-0.7%	0.4%	-0.3%
Energy	0%	7%	66.5	28.2	-2.4%	0.5%	-1.9%
Finance	0%	0%	-	-	0.0%	0.0%	0.0%
Healthcare	15%	14%	8.8	9.4	0.0%	-0.4%	-0.4%
Industry	19%	16%	19.9	14.9	-0.7%	4.3%	3.6%
Information Technology	13%	11%	8.2	7.4	-1.8%	0.6%	-1.3%
Materials	11%	8%	25.3	27.3	0.8%	-1.0%	-0.2%
Real estate	3%	3%	23.3	19.8	0.0%	0.5%	0.5%
Utilities	12%	7%	53.8	49.6	6.6%	2.4%	9.0%
Total	100%	100%	23.8	21.1	1.8%	10.9%	12.7%

Analysis of biodiversity indicators

The subject of biodiversity is also taken into account in the ESG analysis of Ircantec's corporate portfolio by Sustainalytics. The exposure score to the "land use and biodiversity" ESG issue is considered significant for ten industries out of 42: commercial services, food products, consumer services, chemical products, diversified metals, oil and gas producers, paper and forestry, precious metals, refiners and pipelines, steel, traders and distributors, public services and transport infrastructure. Across the whole Ircantec portfolio, 156 companies are impacted by these issues and therefore included in the assessment.

Of the 156 companies assessed, 83% of issuers are in a negligible risk category (level 0 on a scale of 0-5) and 17% are low risk (level 1 out of 5): most companies with negligible or low risk can mitigate this ESG risk by implementing existing best practices in their sub-sectors (specific programs, certification, transparency, dialog with local communities).

Regarding the management of the biodiversity issue, 79% of companies in the portfolio have a high level of management (level 1 on a scale of 1-3), 18% an average level and 3% have weak management. The biodiversity risk analysis carried out by Sustainalytics highlights the companies with the best management practices and those that are the least efficient, which makes it possible to focus attention and dialog on the issuers that are most at risk.

4



Alignment of investments with climate objectives and the Paris Agreement

The Transition Pathway Assessment enables investors to monitor their portfolios in relation to the objective of limiting the global temperature rise to 2°C above pre-industrial levels. This approach can be described as an analysis of the suitability of emissions reductions achieved over time in relation to the actual needs that would satisfy the objectives of the Paris Agreement. The analysis takes into account historical carbon data (since 2012) and projects future emissions (up to 2030), based mainly on the company's activity levels.

The approach adopted by Trucost is based on two methodologies recommended by the Science-Based Targets Initiative (SBTi). The SBTi is a joint project by the Carbon Disclosure Project (CDP), the United Nations Global Compact, the World Resources Institute (WRI) and the World Wildlife Fund for Nature (WWF). Specifically, Trucost uses the following two approaches derived from SBTi, to enable the assessment of portfolio alignment with the 2°C objective:

- The "sectoral" approach, or the Sectoral Decarbonization Approach (SDA);
- The "economic" approach or Greenhouse Gas Emissions per unit of Value Added (GEVA) approach.

These approaches are recommended by the SBTi and are used by companies to define emissions reduction targets or transitional pathways, in

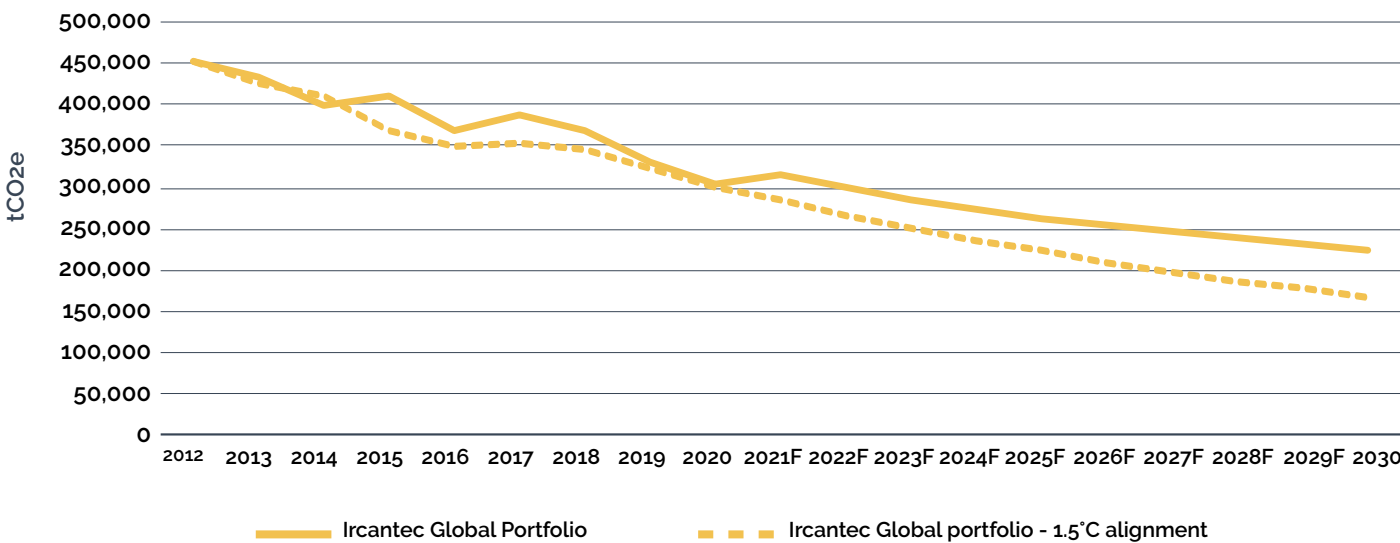
accordance with the Paris Agreement. Over 400 companies around the world have set verified targets with the SBTi, or are formally committed to defining such objectives in the future, compatible with maintaining global temperature rise below 2°C, using these methods or other similar approaches.

Listed companies

The carbon budget of the global listed portfolio is valued at 796,042 tCO2e, with the portfolio being below its carbon budget to align with a 2°C trajectory. However, the global portfolio exhibits a carbon budget above 568,945 tCO2e to align with a 1.5°C trajectory. The listed reserves of Ircantec are therefore aligned on an average temperature trajectory between 1.5°C and 2°C by 2030. The same applies to equity and credit segments which are aligned on a trajectory somewhere between 1.5°C and 2°C.

The Ircantec portfolio therefore maintains its alignment with a scenario below 2°C. At the sector level, communication services, consumer discretionary, consumer non-cyclical and real estate sectors have the highest temperature, with companies in these sectors being very poorly aligned with the objectives of the Paris Agreement. The significant contributions from these sectors are explained by the quantity of emissions being considerably above their 1.5°C budget and not by their weight in the portfolio.

Emissions trajectory 2012-2030



Equivalent portfolio temperature per sector of activity

Method	Sector	Ircantec global portfolio	
		1.5°C contribution (tCO _{2e})	Trajectory (°C)
SDA	Electricity production	6,174	1.5-2°C
	Cement	158,237	>2.7°C
	Steel	162	1.5-2°C
	Air transport	12,349	2-2.7°C
	Aluminum		
GEVA	Communication services	20,100	>5°C
	Consumer Discretionary	42,718	4-5°C
	Consumer Non-Cyclical	52,821	4-5°C
	Energy	-9,400	<1.5°C
	Finance	1,174	1.5-2°C
	Healthcare	12,756	2-3°C
	Industry	10,830	1.5-2°C
	Information Technology	11,973	2-3°C
	Materials	199,554	3-4°C
	Real estate	13,112	>5°C
	Utilities	36,386	2-3°C

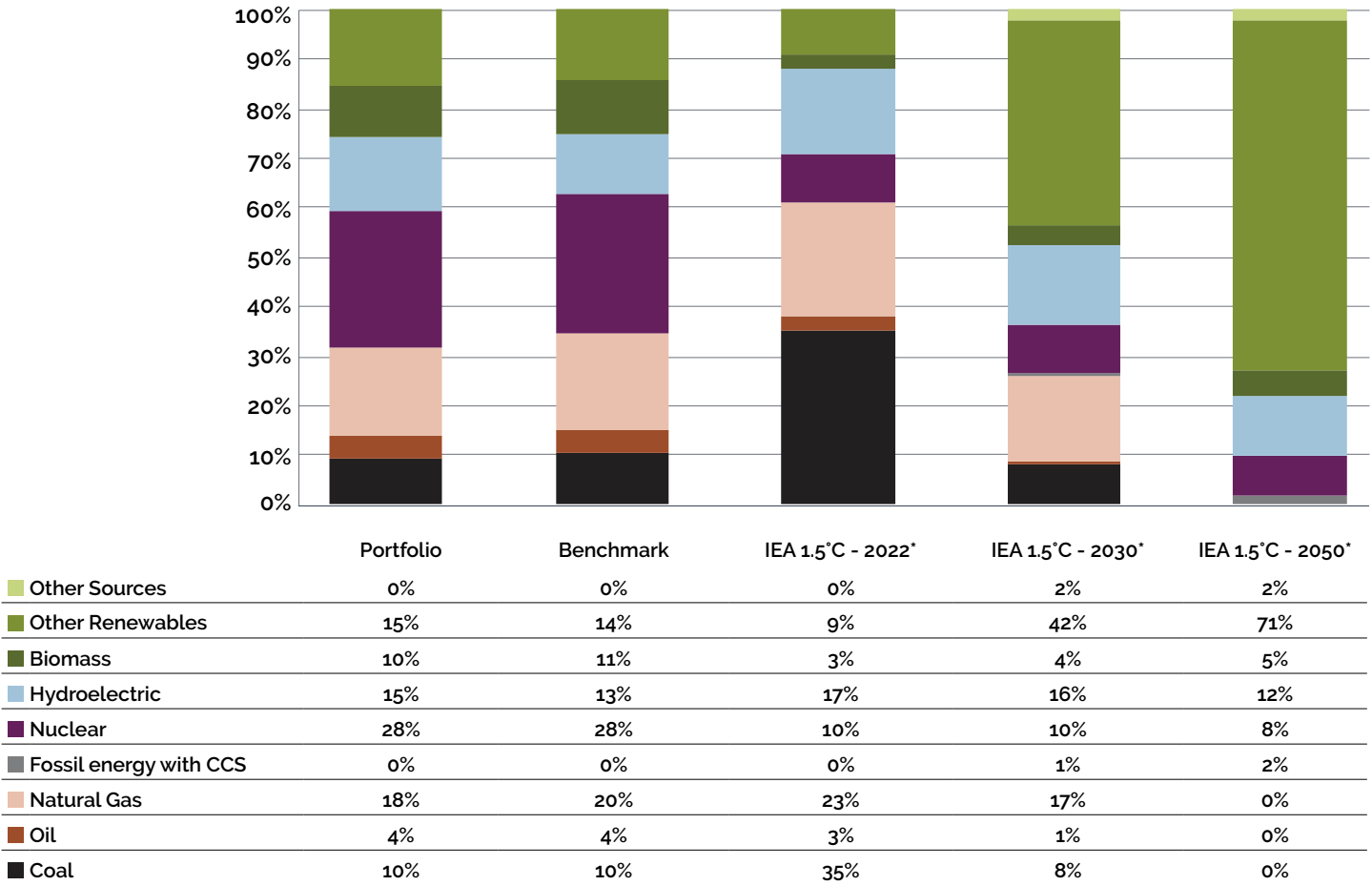
Sovereign funds and similar

Because energy generation is critical for the transition to a low-carbon economy and alignment with the objectives of the Paris Agreement, it is interesting to look at the average electricity mix produced by the different energy sources of each country, including low-carbon sources (hydroelectricity, wind, solar, geothermal, tidal energy, nuclear), weighted by the weight of each country in the portfolio. Ircantec's reserves are slightly less exposed to natural gas than its benchmark. The evolution of the energy mix to respect a 1.5°C trajectory is also presented in order to position the portfolio on this objective. It is then possible to see that the portfolio is overex-

posed to nuclear power compared to the 1.5°C scenario due to its high exposure to France. We note that for a 1.5°C scenario by 2050, the energy mix is only oriented towards renewable energies - exposure to coal and oil disappear - with over-exposure to renewable energies in the majority. Ircantec anticipates this trajectory by progressively reducing its exposure to fossil fuels, including gas.



Analysis of energy mixes of sovereign portfolio



The OCDE AXA inflation-indexed fund is aligned to a temperature of 2.05°C, versus a benchmark index at 2.13°C (as calculated by the asset management company).



5

Integrating ESG and sustainability logic in the management of reserves



1 - Fund-level ESG strategy

ESG integration

In addition to climate issues, Ircantec is interested in all of the ESG issues its portfolio faces. Like the climate and the environment, social issues (human rights, freedom of association, health & safety of products and services, accessibility of products and services, etc.) and governance (shareholders' rights, organization of the Board of Trustees, compensation of executive management, etc.) are a major materiality for security issuers in the portfolios.

ESG considerations are integrated throughout the management process, and Ircantec strives to integrate SRI holistically and pragmatically. ESG issues are therefore taken into account from the selection phase of new asset management companies before assigning mandates.

Thereafter, integration is ensured through regular dialog with asset management companies (particularly through management committees) and careful monitoring of the portfolio. The crossing of a threshold or the occurrence of a controversy systematically triggers a dialog phase with the asset management companies to receive their opinion and their analysis and possibly request a reduction or sale of the positions.

Ircantec is currently working with Sustainalytics, a company from the Morningstar group. It delivers research, assessments, data, as well as environmental, social and governance (ESG) analyses. These elements make it possible to identify, understand and manage the ESG-related risks and opportunities of different asset classes, at the company and fund level.

Furthermore, Ircantec also subscribes to an ESG database provided by Sustainalytics, accessible at any time, which allows it to monitor the portfolio if a controversy arises or thresholds are crossed on its invested issuers, as well as an additional dialog tool with asset management companies to be able to compare the ESG assessments of issuers in the portfolio.



Sustainalytics gives priority global ESG risk assessment, scaled from 0 to 100 (where 0 is the level of least risk). The risk-based approach combines exposure to ESG risks, as well as their management by the issuer (see methodological annex), and applies to the measurement of the overall level of risk without necessarily breaking it down into each E/S/G pillar.

Each mandate entrusted to a management company applies an SRI methodology specific to this manager, which is based on a selection strategy (positive filter), which can be best-in-class, best effort, best progress or best-in-universe. Unlisted funds focus more on an impact strategy and thematic investments.

The new climate policy (including exclusions and reduction targets) applies to all dedicated funds in the portfolio. For all the funds in the portfolio, the management service ensures that it carefully monitors the most significant controversies that could have a critical financial or reputational impact on issuers. All management companies mandated by Ircantec report on the major controversies to which the companies in the portfolio are exposed, and the management service monitors the entire portfolio through its external ESG service provider for the main controversies requiring monitoring.

Non-climate exclusions (tobacco, arms, controversies)

The Ircantec policy was strengthened in 2022 to clearly and transparently exclude sectors presenting negative direct or indirect impacts on environmental, social and governance matters with total exclusions (controversial weapons) and materiality thresholds (tobacco).

Controversial weapons

Ircantec defines controversial weapons as follows: anti-personnel mines, cluster bombs, depleted uranium weapons, chemical and biological weapons, incendiary weapons (including white phosphorus), blinding laser weapons and fragmentation bombs. Issuers involved in the production, storage, distribution, marketing, acquisition, conservation, supply, sale, importation, exportation or supplying assistance, technologies, essential services or components for weapons referred to above, as defined in international conventions.

Furthermore, issuers involved in the brokering and trade of nuclear weapons, as well as those trading components to non-signatories of the nuclear non-proliferation treaty are also excluded.

Also, issuers owning a stake above 10% in companies involved in the activities referred to above are also excluded.

Tobacco

In line with the WHO, Ircantec considers tobacco to be a recognized threat to public health. Moreover, this industry generates a considerable social and environmental cost.

Ircantec distinguishes between four exclusion scopes for tobacco:

- Companies involved in the production, manufacture and storage of tobacco or tobacco alternatives;
- Issuers who generate 5% of their turnover from bulk or retail sales of tobacco products, goods/services related to tobacco or tobacco alternatives;
- Issuers holding a stake above 5% in companies which produce tobacco, goods/services related to tobacco or tobacco alternatives;

- Issuers holding a stake above 5% in companies which generate more than 5% of their turnover from bulk or retail sales of tobacco products, goods/services related to tobacco or tobacco alternatives.

Lastly, Ircantec also applies exclusions when there are proven breaches of fundamental conventions and principles (Universal Declaration of Human Rights, the International Labor Organization Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, United Nations Convention).

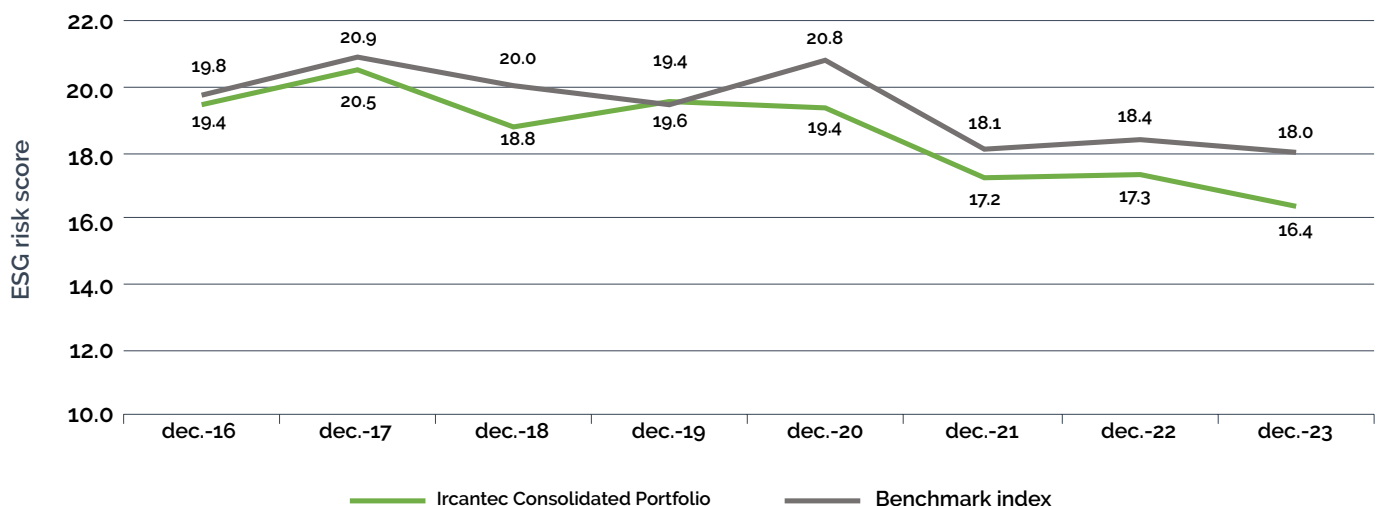
These exclusion filters are updated and monitored regularly and enable Ircantec to avoid investing in dangerous activities.

2 - Results of the non-financial assessment

Consolidated portfolio (sovereigns and corporate issuers)

The analysis of the level of ESG risk of the consolidated portfolio since the end of 2016 shows a strong correlation between the portfolio and its consolidated benchmark, with a lower level of ESG risk for the portfolio over the period. The only exception to this global trend occurred in late 2019 with the arrival of new dedicated mandates for European and ex-Europe World equity funds, resulting in an extensive change in how the most represented companies in the portfolio are broken down.

History of ESG risk score of consolidated Ircantec portfolio vs. Benchmark



The portfolio's ESG risk level for the end of 2023 therefore stands at 16.4, a better result than its consolidated benchmark (18.0). A significant fall in the portfolio risk score is visible between 2022 and 2023, in greater proportions than that of the benchmark index (portfolio risk reduced by 0.9 points vs 0.4 points for the benchmark). Note that the change in asset allocations had an impact on the benchmark as it is now more exposed to at-risk securities due to a higher weighting for North America (where issuers are generally more at risk). For the year ended, the ESG risk level of the Ircantec corporate portfolio fell by 0.8 points from 18.7 to 17.9, while sovereign investments followed the same trend with a lower risk in 2023 (13.1) compared

to 2022 (13.7). These good results illustrate the strong stock selection by fund managers and that the Ircantec portfolio is regularly monitored by the management service (management committee, dialog with asset management companies) to ensure that they comply with all specific requirements of the SRI charter and seek to improve over time and in relation to their benchmark index.

In terms of fund analysis, most Ircantec FCP mutual investment funds have a lower risk than their respective benchmark index. Only two funds are slightly more at risk than their benchmark (Villiers GDR Souverains AGI & Villiers Indexé OCDE DPAM).

The greater risk exposure of the GDR fund than its benchmark index is explained by a slight exposure to corporate issuers (more risky than sovereign issuers).

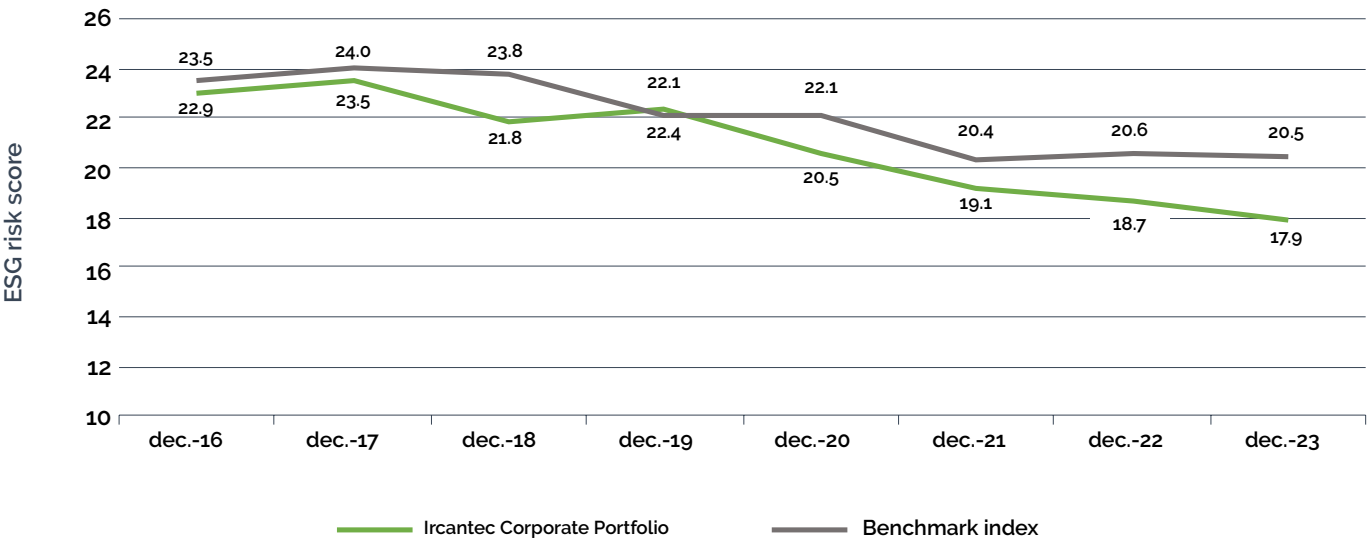
Corporate portfolio

With a score of 17.9 (low risk category), the corporate portfolio (equities and bonds) presents a lower level of risk than its benchmark index (20.5). The portfolio is less risky than its benchmark over the period, except at the end of 2019, which shows a trend reversal due to a rotation of the most represented companies in the portfolio (replacement of low-risk companies by higher-risk companies when changing mandates), as highlighted for the consolidated portfolio. Since

last year, the difference between the portfolio ESG risk score grew further with a positive change from 1.9 points in 2022 to 2.6 points in 2023. As previously indicated, this high jump in the difference is partly explained by a change in asset allocations and good stock selection.

At the end of December 2023, the portfolio is not fully aligned with its benchmark due to the progressive implementation of the new asset allocations. Nonetheless, these good results compared to the index illustrate the continued effort by Ircantec to ensure a lower-risk portfolio.

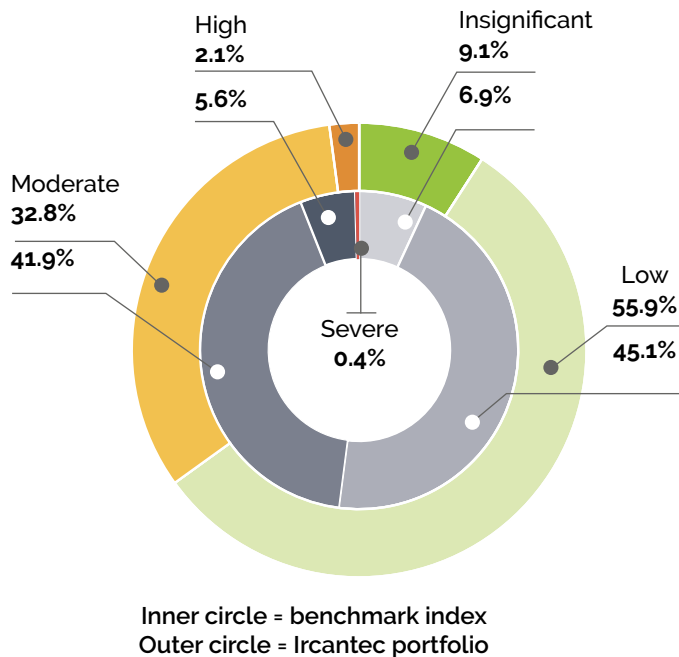
History of the ESG risk score of the corporate portfolio vs. Benchmark



This portfolio performance is explained by a significant over-weighting of issuers with low levels of risk and an under-weighting of issuers

with a moderate level of risk. Note that in 2023, the Ircantec portfolio did not contain investments with a risk considered severe.

Breakdown of investment by risk class (%)



Via an analysis of ESG risk by geography, Ircantec has an over-weighting in Europe and an under-weighting in North America but invests in issuers that are generally less risky than the benchmark. Ircantec's geographic allocation, with a very high proportion of issuers in the Europe region, is favorable to the overall level of risk of the corporate portfolio: Europe makes the most significant contribution to reducing the level of portfolio risk by exhibiting a lower level of risk than its benchmark index. This performance of the region is explained by a more restrictive legislative framework in ESG matters, which obliges companies to apply best practices on these subjects: their ESG risk management score is thus higher overall than that of companies located in other geographic areas.

ESG risk score by geographical region

Zones	Portfolio 2023		Benchmark index		Delta Score	
	Weight	Risk score	Weight	Risk score	Ircantec vs. index	Delta risk region vs. global
Europe	74.0%	17.7	63.6%	18.9	-1.2	-0.2
North America	21.9%	19.3	31.6%	22	-2.7	1.4
Asia/Pacific	3.6%	21.6	4.4%	22.9	-1.3	3.7
Latin America	0.2%	22.1	0.1%	24.9	-2.8	4.2
Global weighted	99.7%	17.9	99.7%	20.5	-2.6	n/a

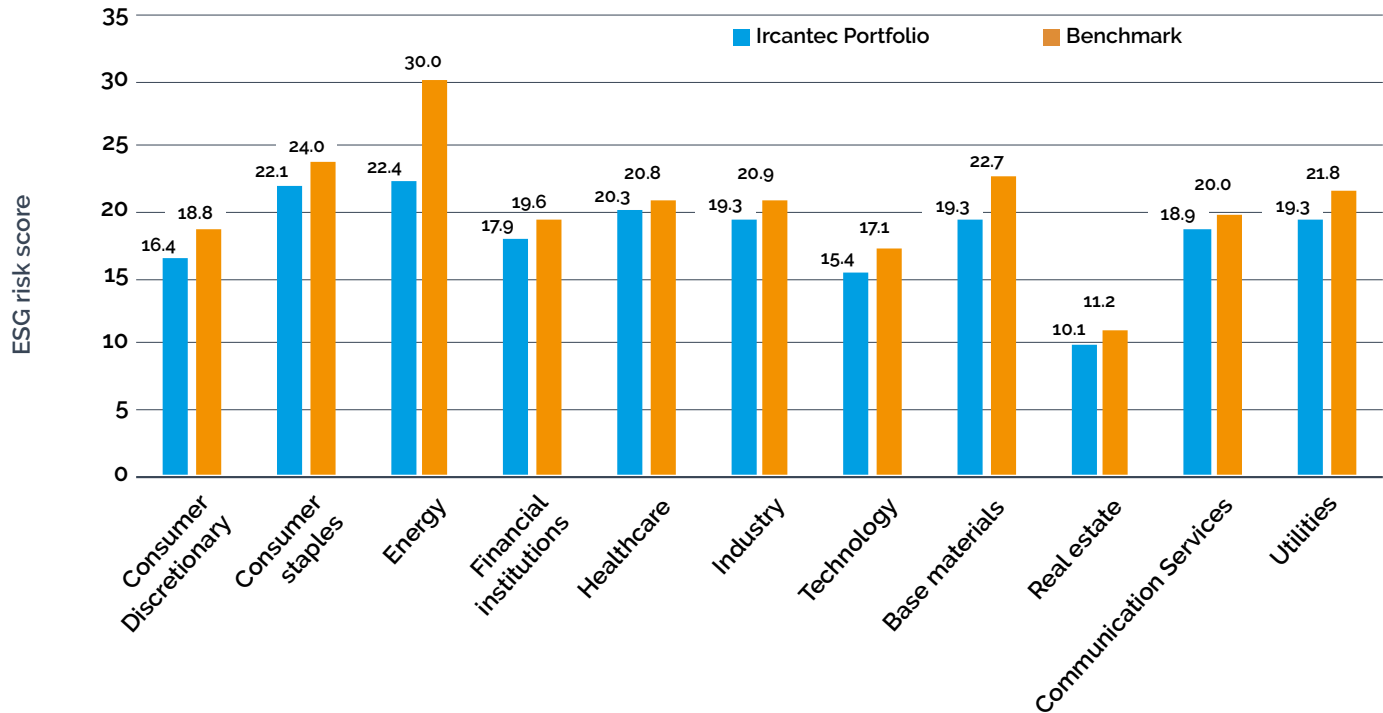
The outperformance of the corporate portfolio compared to its benchmark index is explained by the effects of:

- **Allocation:** Ircantec's portfolio is overweighted in financial institutions, healthcare, industry and base materials, and is underweighted in the consumer discretionary, consumer staples, energy and utilities sectors – this allocation to less risky sectors in terms of ESG partly explains the outperformance of Ircantec's portfolio. Except for a 0.7% investment in the base materials sector in the severe risk category, no other Ircantec investment sector features a company in the severe risk category, unlike the benchmark index. Inversely, the benchmark index holds a percentage of severe category companies across four sectors, and principally in the energy sector. As such, the highest-risk companies in the Ircantec portfolio are in the

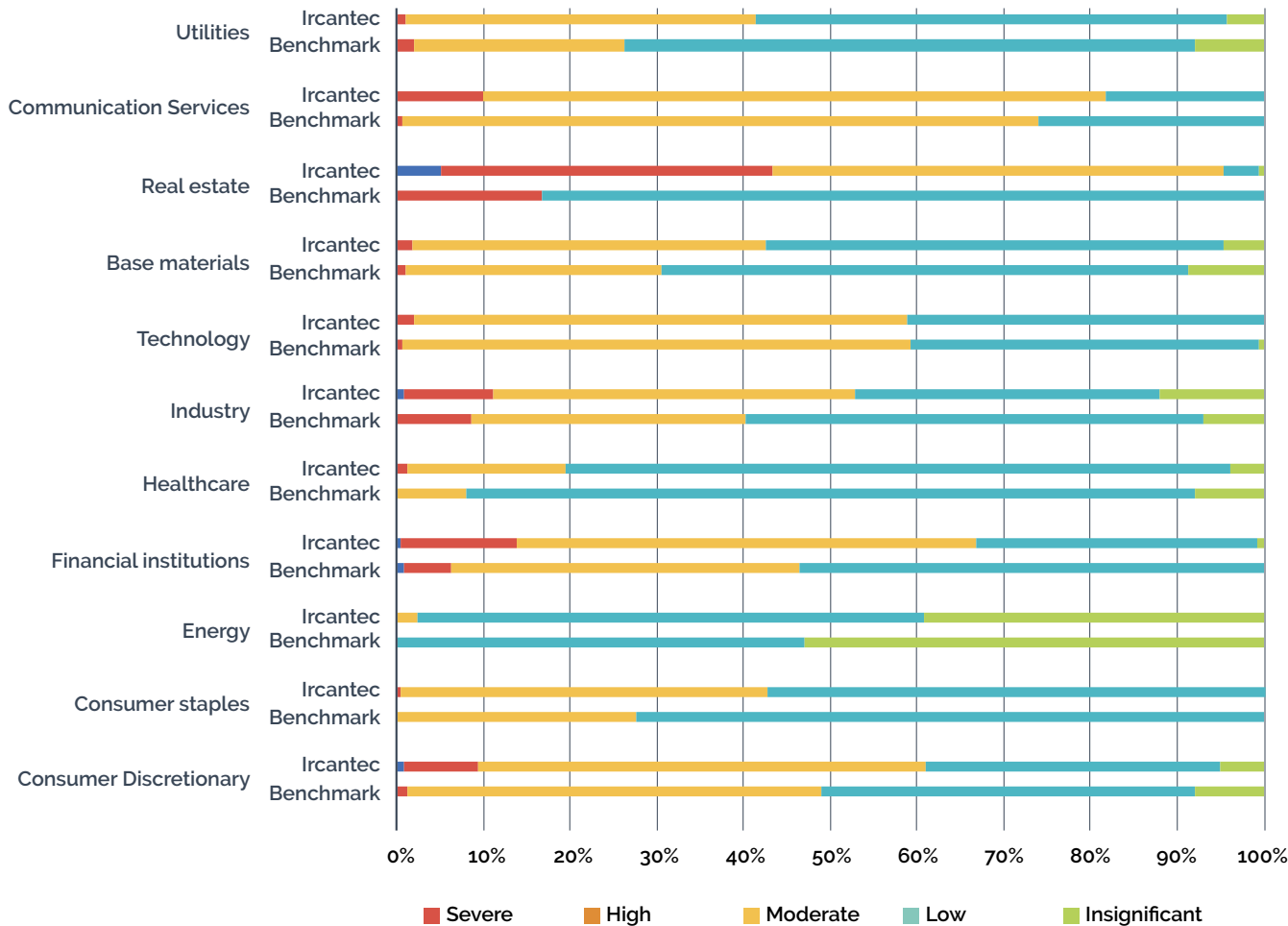
high-risk category and are represented across all sectors except communication services, real estate and technology. The energy sector is where Ircantec's investment allocation is the most exposed to the high ESG risk category, with 16.7% of the investment in the sector. But given the very low allocation of the Ircantec portfolio in this sector (0.1%), this exposure to the high ESG risk category is due to a small number of investments.

- **Selection:** the issuers selected within each industry show that the least risky companies are over-represented to the detriment of the riskiest, which allows Ircantec's corporate portfolio to present ESG risk scores that are lower than its index benchmark for all sectors.

Comparison of sectoral ESG risk score of Ircantec portfolio vs. Benchmark



Breakdown of investments by sector of activity and ESG risk category



Companies with the greatest impact on the portfolio

By taking into account the weight of the issuers in the portfolio and their ESG risk score, it is possible to highlight the issuers that contribute positively and negatively to the overall risk level of the portfolio.

ASML, KfW, Allianz and Nvidia (cumulative weight in the portfolio, 8.6%) have a weighted risk score of 10.4, i.e. a delta of -7.5 compared to the rest of the portfolio. This means they contribute favorably to reducing the overall risk level of the portfolio.

Inversely, Siemens, Nestlé, Veolia Environnement, BNP Paribas and Crédit Agricole (cumulative weight 4.61%) have a weighted risk score of 23.9, i.e. a delta of +6.0 compared to the rest of the portfolio. The controversies over these issuers partly explain the high level of risk of these companies.

Compliance with international norms and standards

No company present in Ircantec's portfolio is suspected of violating international standards as defined by the United Nations Global Compact²³. However, 19 are considered as requiring monitoring, including most companies in the healthcare and finance sectors. These are potentially at risk on matters such as non-observance of human rights or business ethics (market manipulation, money laundering).

Controversial weapons

Concerning controversial weapons, zero presence in the portfolio of companies producing essential or tailor-made components for cluster munitions (CM), anti-personnel mines (APM) or other controversial weapons as defined in the Ircantec SRI Charter.

Controversies

Sustainalytics rates controversies impacting portfolio companies on a severity scale of 1 (low) to 5 (severe). In December 2023, the number of serious and severe controversies (level 5 and level 4) is much lower for Ircantec's portfolio than for the benchmark, and no company in the portfolio is exposed to level 5 controversies. This analysis of controversies is consistent with the overall ESG analysis of the portfolio: the management of ESG risks is incorporated in the rating of ESG risk scores.

Involvement in sustainable activities and products

Via its Corporate portfolio, Ircantec is exposed to several sustainable investment themes (responding

to environmental or social challenges, or products that meet fundamental social needs and are designed in a sustainable manner) in connection with the Sustainable Development Goals (SDG).



In terms of the "Health" topic, a total of 10 companies (2.58% of the portfolio) generate turnover that is between 55.69% and 100% dependent on access to health by treating major and/or neglected diseases as defined by the WHO.

Companies	% aligned turnover	Weight
Vertex Pharmaceuticals, Inc.	100%	0.09%
Edwards Lifesciences Corp.	100%	0.05%
AstraZeneca PLC	93.29%	0.67%
Grifols	88.05%	0.00%
Novo Nordisk A/S	87.65%	0.62%
Eli Lilly & Co.	79.42%	0.57%
GSK Plc	78.87%	0.07%
Merck & Co., Inc.	71.02%	0.05%
Ono Pharmaceutical Co., Ltd.	55.82%	0.11%
Novartis AG	55.69%	0.35%



In terms of the "Renewable energy" topic, the turnover of the ten most involved companies (2.65% of the portfolio) is between 99.5% and 100% dependent on renewable and clean energies.

Companies	% aligned turnover	Weight
CTP NV	100%	0.01%
ERG SpA	100%	0.06%
Fabege AB	100%	0.0001%
First Solar, Inc.	100%	0.04%
Meyer Burger Technology AG	100%	0.03%
Schindler Holding AG	100%	0.00%
Solaria Energía y Medio Ambiente SA	100%	0.17%
Vestas Wind Systems A/S	100%	1.16%
Innervex Renewable Energy, Inc.	99.5%	0.06%
EDP Renováveis SA	99.5%	1.12%

²³ The [Global Compact](#) (2000) is a set of ten fundamental principles enacted by the UN for companies and non-profit organizations based around four themes: Human Rights; International labor standards; Environment and the Fight against Corruption.



In terms of "Resource efficiency", ten issuers (0.50% of the portfolio) have a turnover that is between 99% and 100% aligned with this theme which supports a circular economy by increasing the efficiency of the use of resources, and by enabling recycling and resource recovery.

Companies	% aligned turnover	Weight
DS Smith Plc	100%	0.16%
Lar España Real Estate SOCIMI SA	100%	0.02%
CTP NV	100%	0.01%
Fabege AB	100%	0.001%
Pennon Group Plc	99.94%	0.0002%
Schindler Holding AG	99.66%	0.001%
Praemia HEALTHCARE SA	99.38%	0.13%
American Water Works Co., Inc.	99.34%	0.10%
Digital Euro Finco LLC	99.26%	0.07%
BELIMO Holding AG	99%	0.0004%

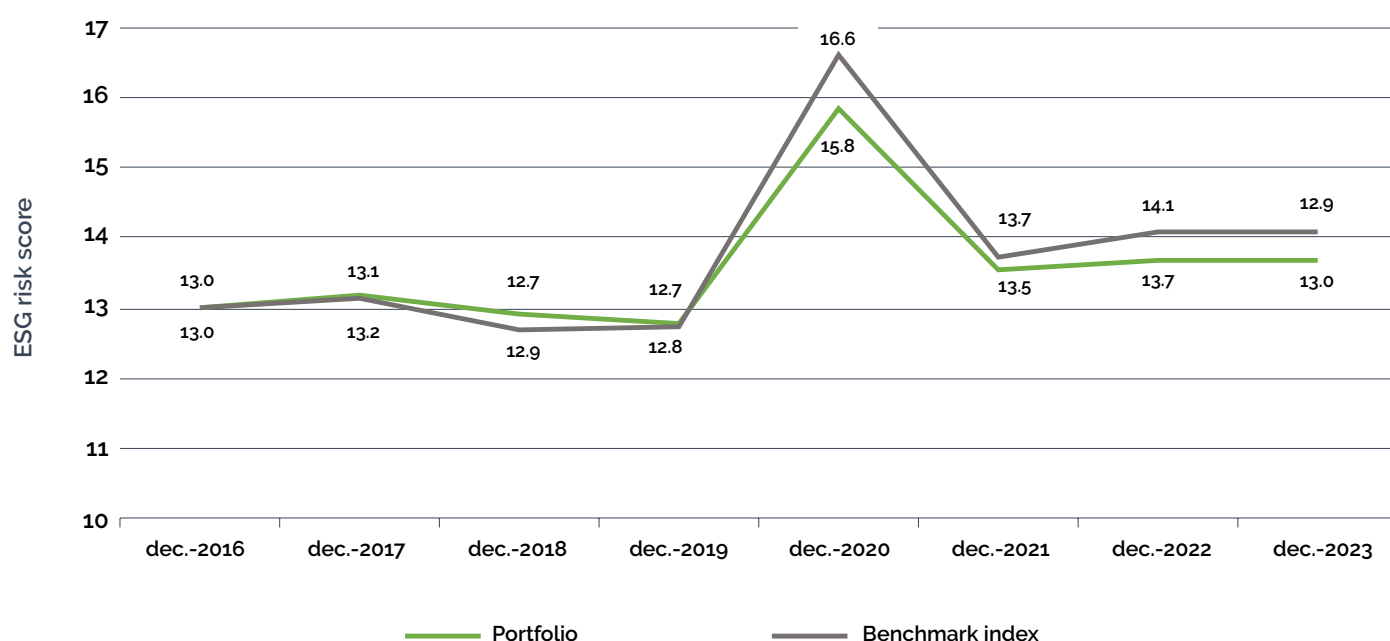
Sovereign portfolio

The analysis of the level of ESG risk of sovereign issuers is based on an equal weighting of an ESG wealth score (based on 3 capitals: natural & product, human, institutional) and an ESG factor score (capacity of a State to manage its assets in a sustainable and responsible way). Development trends over the last 5 years and major events affecting a State (natural disaster, pandemic) also influence the ESG score.

Historically, the sovereign portfolio tends towards a risk score globally lower than the benchmark index, notably due to the inclusion of supranational issuers. Indeed, supranationals have an insignificant risk score (i.e. Below 10/100), given than the average of their risk score is 6.5/100, which considerably lowers the global risk of the sovereign portfolio. We nonetheless not a higher exposure of the Ircantec portfolio in relation to its benchmark, in countries where the ESG risk score is above the portfolio average, such as Spain, Chile, Portugal and Hungary. This situation explains that despite a significant portion of supranationals in the Ircantec portfolio, the sovereign portfolio risk profile is aligned with that of its benchmark.

Around 3% of the value of the sovereign portfolio is allocated to regional issuers, whose risk profile is often higher than sovereign or supranational issuers. Therefore, 0.2% of the portfolio is allocated to bonds issued by Île-de-France Mobilités, which has an ESG risk score of 21.9.

History of the ESG risk score of the sovereign portfolio



The breakdown by country and the ESG risk scores by country illustrate the changes in scores between December 2022 and 2023, as well as changes in weightings, in particular the decline of supranational issuers. After the Covid-19 years and the outbreak of war in Ukraine in 2022, the 2023 trend showed a significant reduction in sovereign risk, especially

in the USA (-1.57), Germany (-1.54), Spain (-1.44), and France (-0.92). Amongst the countries in the portfolio, only Chile failed to tangibly benefit from this trend, as its risk score remains stable overall at around 17.8.

ESG risk score of Ircantec portfolio countries vs. benchmark index (by weight)

Country	Country Risk Ratings Rank (/169)	Country Risk Ratings Score 12.2023	Country Risk Ratings Score 12.2022	Change	Weight 12.2023	Weight 12.2022	Change in weight between December 2021 and 2022	Benchmark weight
France	18	12.68	13.6	-0.92	23.20%	27%	-3.80%	23%
USA	17	12.03	13.6	-1.57	16%	16%	-3%	29.50%
Italy	30	15.61	16.5	-0.89	16%	16%	-0.20%	15.20%
Spain	28	15.16	16.6	-1.44	13%	13%	-1%	9.50%
Germany	11	10.96	12.5	-1.54	11%	11%	1%	10.70%
United Kingdom	15	11.77	12.8	-1.03	6%	6%	1%	4.70%
Belgium	19	12.77	13.9	-1.13	1%	1%	0.20%	1.20%
Austria	12	10.98	12.5	-1.52	1%	1%	-0.30%	0.60%
Canada	10	10.92	12	-1.08	1%	1%	-0.30%	0.70%
Netherlands	14	11.31	12.5	-1.19	1%	1%	1%	1%
Finland	9	10.82	11.7	-0.88	0.40%	0.40%	0%	0.30%
Australia	5	9.57	10.6	-1.03	0.30%	0.30%	-0.10%	0.80%
Chile	40	17.73	17.8	-0.07	0.30%	0.30%	0%	0.00%
Sweden	7	9.94	10.9	-0.96	0.50%	0.50%	0.20%	0.40%
Portugal	26	14.92	16.4	-1.48	0.50%	0.50%	0.40%	0.30%
Ireland	13	11.16	13	-1.84	0.10%	0.10%	0%	0.30%
New Zealand	8	10.66	12.5	-1.84	0.10%	0.10%	0%	0.10%
Slovakia	38	16.93	19.8	-2.87	0.10%	0.10%	0%	0.10%
Slovenia	23	14.45	15.9	-1.45	0.10%	0.10%	0%	0.10%
Hungary	47	18.8	20.2	-1.4	n/a	n/a	n/a	0.00%
Latvia	33	15.97	17.2	-1.23	0.02%	0.02%	0%	0.00%
Supranationals	n/a	6.5	7	-0.5	7%	7%	1%	0.00%
TOTAL		13.7	13.5	n/a	98%	100%	n/a	99%

3 - Thematic investments and impact investments

Support for employment and regional development



Through its thematic and impact financing, Ircantec aims to strengthen and consolidate its societal engagement by fostering the inclusive development

of regions and innovative companies, which are part of a growth dynamic that generates business and creates jobs.

1.35% of the pension scheme reserves are earmarked for financing French and/or European SMEs/mid-caps. The target investments are companies that generate less than €500 million in revenue for the debt segment and less than €250 million in revenue for the private equity segment.

One of the main investment vehicles is a dedicated fund managed by Access Capital Partners. As of December 31, 2023, €172.7 million had been invested

in connection with this fund, representing 84.66% of the commitment. Investments will be ramped up over several years.

Supplementary funds provide diversification in this segment and exposure to supplementary underlying vehicles: Meeschaert Capital Partners, Alter Equity 3P, Omnes Croissance 4, Alter Equity 3P II, Paris Fonds Vert and Meanings Private Equity Fund IV. The last fund has made engagements with the SBTi so that the assets in its portfolio satisfy the objectives of the Paris Agreement and a 1.5°C trajectory.

In total, Ircantec has committed €300.4 million to financing SMEs/mid-caps. As of December 31, 2023, €245 million had been invested, representing 81.56% of the commitment.

In addition, Ircantec is invested in two funds dedicated to the Social and Solidarity Economy (SSE): up to €5 million in the NovESS fund launched by Caisse des Dépôts and for the same amount in the Finance et Solidarité fund from Amundi.

Lastly, Ircantec financially supports local organizations running projects that develop local areas and ultimately stimulate their growth, through two funds:

- **A disintermediated loan fund** for local authorities with more than 10,000 inhabitants, managed by Arkea, whose objective is to enable these authorities to finance responsible and long-term investment projects. The fund was created in 2012, when the banking sector was withdrawing from the funding of local authorities. This fund is fully invested, for a maximum commitment of €14.74 million.
- **the Tourisme Social Investissement (TSI) fund**, in which Ircantec is invested to the tune of €10.04 million as of the end of December 2023, out of a term commitment of €22.5 million. This fund aims to provide funds to social tourism structures (defined by an affordable price level) so that they can carry out renovations or upgrades (refurbishment / reconfiguration of facilities) in order to maintain a significant inventory of beds. This long-term support for the tourism sector is appreciated by accommodation structures, particularly during the difficult period of economic and health crisis over 2020-2021: even in phases of low activity and strained financial equilibrium, Ircantec remains a local investor committed to tourist accommodation structures.

A commitment to decent work and gender equality



In 2019, Ircantec invested €2 million in the "Mirova Women Leaders" fund. Due to the limited size of the fund, specific authorization has been given to increase the ownership ratio to 20%, thus making it possible to support the fund's development. As part of this support, the position in the Mirova Women Leaders fund was increased by €7 million in 2020 and another €3 million in 2021.

The investment theme of this fund is the empowerment of women to strengthen gender equality, particularly in management positions. Through this fund, Mirova hopes to have an impact on diversity through two channels:

- engagement: the management company proposes an engagement policy to disseminate best practices in terms of gender equality within the companies in which the fund invests;
- a donation to UN Women France: Mirova has set up a partnership with the UN Women France Committee. The company undertakes to pay back 5% of their management fees to finance actions in support of the empowerment of women.

Support for inclusive and socially-aware growth



Ircantec invests to achieve responsible real estate. The real estate investment scheme (OPPCI) Villiers Immobilier applies a social policy on this topic according to four priorities, which have been renewed: intermediate housing, social tourism, student residences, healthcare facilities and EHPAD nursing / care homes. The pension scheme is especially committed to ensuring that the existing assets fits into the sustainable development approach aimed in particular at improving the environmental quality of buildings and tenants' quality of life. In 2020, the real estate investment scheme received the SRI label.

Ircantec is also committed to the tune of €30 million in the Immobilier Impact Investing fund, whose strategy is based on a portfolio of high-yield assets and social real estate assets. This fund received the SRI label in 2021. In addition, the pension fund is committed to two "life annuity" funds - Certivia (€15 million) and Certivia 2 (€15.4 million) - to provide a solution to the structural decline in the income of the elderly and improve their daily lives.

Focus on the dedicated *social bonds*

In 2023, as per its new roadmap, Ircantec started the integration of *social bonds* in its portfolio, introducing a new dedicated innovation fund with €250 million in assets. The bonds issued on financial markets will finance projects of high social value. The broad investments of the *social bonds* will target specific populations such as those in underserved areas, low-income populations, women entrepreneurs, young people in priority education areas, SMEs or VSE, or even public service bodies. They also contribute to achieving the SDG related to the social sphere, especially objectives 3, 4, 5, 8, 10 and 12.

The Ircantec *social bonds* fund focuses on such actions as:

- Financing SMEs whose target population is underserved (due to a lack of quality access to essential goods and services), or access to education and to training for the French population in general, including people with limited access to education;
- The deployment of an optical fiber network in French rural areas, investment in start-ups or equipment recycling in France;
- Financing SMEs, local authorities and SSE players, health centers, social housing programs or loans to build or refurbish schools;
- Financing loans supporting women entrepreneurs;
- Financing loans intended to support SMEs following the 2020-2021 pandemic.

In the fourth quarter of 2023, the Ircantec *social bonds* fund exhibited a better ESG risk score than its benchmark index (16.2 for the portfolio vs. 18.0 for the benchmark).

Protection of terrestrial flora and fauna



Ircantec places special importance on the protection of terrestrial flora and fauna, paying particular attention to the preservation of terrestrial ecosystems through its investments.

Ircantec is therefore invested in the dedicated "Groupement Forestier de Brèves" fund, in which €64.66 million has already been invested. More information is provided in the paragraph "Exposure to other environmental factors (excluding climate)" on forest management.

Pursuant to Art. 29, Ircantec continues to work with its ESG and carbon data providers to be able to set biodiversity protection objectives.

4 - SFDR classification (art. 8-9)

Within the framework of the European Sustainable Finance Disclosure Regulation (SFDR), the dedicated funds and open funds held by Ircantec are classified according to their consideration of ESG issues:

- Art. 8 brings together funds that have environmental and social characteristics. Most of Ircantec's listed dedicated funds (with the exception of Art. 9 funds) fall into this category, i.e. 73.71% of total reserves (representing an amount of €10.26 billion) as well as several open-ended and unlisted funds (Villiers Multi-Actifs).
- Article 9 (26.29%) is the highest requirement level because it is specific to funds with a stated sustainability objective (represents an amount of €3.66 billion). Seven dedicated Ircantec funds (the two green bonds fund, the European equity and credit fund managed by Candriam, European / World equity funds managed by Mirova and the social bond funds) are in this category alongside several open and unlisted funds (Mirova Women Leaders, Mirova Eurofideme 3, Mirova Eurofideme 4, Infragreen IV, Meeschaert Eurofideme 4, SWIFT 1, SWIFT 2, etc.).



Of the seven funds created in 2023, three are classified as article 9, representing 43% of the new dedicated funds.

Since March 2021, the SFDR requires that asset management companies classify their sustainable funds between articles 8 and 9 according to their characteristics and foresees that from January 1, 2023, article 9 funds must comply with new technical requirements published in 2022. A large number of asset management companies have therefore reclassified their article 9 funds. No fund has been downgraded from article 9 to article 8 within the Ircantec portfolio.



6



Review of stewardship and voting policies

1 - Engagement report

Since the formal definition of its stewardship policy in 2017, Ircantec has structured its shareholder engagement actions around three main themes with a long-term outlook, which it has expanded this year with a fourth:

1. Energy and ecological transition;
2. Respect for human rights in business;
3. Corporate tax responsibility in France;
4. Preservation of biodiversity (since 2023).

In effect, protecting biodiversity is a core purpose of marketplace work and the basis of article 29 of the French energy and climate law. The aim of this new theme of engagement is to promote a measurement of company biodiversity footprints, while working to preserve and restore biodiversity.

The Ircantec stewardship policy lists the avenues of engagement preferred by the pension scheme: shareholder dialog (individual engagement), cooperation with other institutional investors and marketplace organizations (joint engagement), and voting at general meetings.

Ircantec maintains its commitment via various marketplace organizations:

Signatory of:



- Member of the PRI (Principles for Responsible Investment);



- Member of the FIR (Forum pour l'Investissement Responsable) and active in several working groups and committees.

Energy and Ecological Transition (EET)

Ircantec has long been committed to promoting the energy and environmental transition of the economy. The climate emergency is accompanied by physical and transitional risks that weigh on all economies and all terrestrial and marine ecosystems.



The **Climate Action 100+** initiative (in conjunction with the PRI), for which Ircantec is a member of the Supervisory Committee and co-lead with an energy company (Engie), questions the largest global issuers on their governance and strategy in terms of climate-related risks and opportunities, while integrating the social aspects of the EET (just transition).

- Since the start of 2022, ENGIE has dramatically increased its forecast imports of liquefied natural gas (LNG) and above all American shale gas through three contracts with US firms Cheniere, Next Decade and Sempra signed in December 2022. These contracts secure a large volume of LNG mainly from US shale gas until 2042, generating the risk of a carbon lock-in for the group, or in other words dependency on fossil gas and new emissions, for which the impact and quantification have not been officially audited or measured to date. For this reason, and as co-lead, Ircantec and 26 other investors signed a private letter to Engie in December 2022 to encourage the group to offer greater transparency of its climate trajectory.
- To ensure full transparency, we wish to point out that Engie has been placed under surveillance. Indeed, ENGIE is not fully aligned with the limits and objectives of Ircantec's new climate policy approved in 2021. As the co-lead on the Climate Action 100+ initiative, Ircantec has pursued a constructive engagement with Engie since 2018, for the company to aim for a 1.5°C alignment (compared to well below 2°C currently). Ircantec continues this dialog to ensure greater transparency on the company's climate trajectory and achievement of net zero targets for 2045.
- For the 2023 shareholder general meeting and with 15 other investors, Ircantec also participated in submitting and inserting an item on the agenda, to obtain greater climate transparency from Engie and implement a *Say On Climate*. The resolution was not approved, but received 24% of the vote.
- Ahead of the 2023/2024 season, Ircantec signed a letter outlining the progress made by Engie and requested a meeting with the CEO to discuss the climate resolution proposed at the 2023 shareholder general meeting and identify decarbonization routes. The meeting took place in October 2023 to identify efficient decarbonization strategies.

Ircantec is also involved in the [Global Investor Statement to Governments on Climate Change](#) (proposal made by the [Investor Agenda](#), signed in 2014 then renewed in 2018) asks governments to reiterate their commitment to pursue the objectives of the Paris Agreement and to support private investments towards the low-carbon transition.

ShareAction»

The engagement of financial institutions is one of the four fundamental pillars of Ircantec's climate policy. Ircantec has participated in investor calls and signed letters to financial institutions on climate topics with **ShareAction** since 2021, with notably HSBC and Barclays. ShareAction is an NGO working in responsible financing to promote demanding market standards and to encourage joint work between private issuers and investors through targeted campaigns.

In February 2023, Ircantec signed a letter of intent to Barclays, BNP Paribas, Crédit Agricole, Deutsche Bank and Société Générale to ask them to align with the new engagements made by HSBC in December 2022, namely to no longer directly finance new oil and gas field projects. Following this letter, Ircantec took part in conference calls with BNP Paribas, Barclays and Société Générale.

As a reminder, in 2022, the Barclays *Say on Climate* was rejected by 19.2% of shareholders at the GM, including Ircantec. Amongst others, the reasons cited were that the 1.5°C strategy had not been approved by an external body, that they had not decided to make an engagement against new O&G or oil sands projects, and inadequate fossil fuel policies in general. Consequently, Ircantec and other investors turned to ShareAction to organize dialog with Barclays, to enable the bank to explain its climate policy in greater detail, address the high level of opposition and the manner in which they intend to integrate the comments on climate issues raised at the general meeting. Following the engagement of investors and ShareAction, the bank proposed to bring the date of the coal phase-out in the USA forward by five years (currently 2035).

In 2023, Barclays received stronger engagement from ShareAction to which Ircantec contributed, mainly prior to the publication of its new energy policy in early 2024. After much dialog with Barclays, the NGO sought to submit a shareholder resolution to the company at the 2024 general meeting, on topics relating to fossil fuel energies. Even though the bank has made good progress on its climate policy over several years, major concerns remained, especially concerning unconventional energy financing.

This new policy sets out developments on financing the expansion of new fossil projects and non-conventional finance. Other major concerns persist, especially concerning financing businesses which derive the majority of their turnover from fossil energies (pure players). Discussions with Barclays and investors took place and led to concessions by the bank, concerning greater clarity on transition plans now expected of the businesses financed. Subsequently, ShareAction decided to withdraw the resolution, determining the progress as acceptable.

Each year, as part of its voting policy, Ircantec sends letters to a selection of companies whose transition policy the Institution feels is not sufficiently

convincing. In 2023, EET letters were sent to three companies whose efforts were deemed insufficient: Barclays, HSBC and Société Générale. A detailed analysis of their investment and development plan has highlighted a lack of resources and ambition in the pursuit of an ecological and environmental transition. These EET letters are a means of initiating and expanding shareholder dialog with these issuers.

In early 2023, Ircantec signed the **"Fossil Banks No Thanks"** letter made by BankTrack, a Netherlands-based monitoring and constructive engagement NGO working with commercial banks on environmental and social projects.

Ircantec also signed the FIR **"Say on Climate" declaration**, published the day prior to the start of the 2023 season of general meetings, which encourages shareholder dialog. This is considered essential for the financial sector to support the most polluting sectors in their efforts to decarbonize their activities.

The pension scheme finally took part in a [working group organized by the FIR](#), a campaign of written questions to CAC 40 index companies at their 2023 shareholder general meetings. The ten questions again concerned the three ESG pillars with topics such as climate, biodiversity, circular economy, decent wage, ESG criteria in compensation packages, fiscal practices or the integration of social partners in company environmental policy. In 2022 and 2023, Ircantec proposed questions relating to biodiversity.

Protect biodiversity

Ircantec has raised its biodiversity commitment following its inclusion in the priorities of engagement.

In 2023, Ircantec signed the [Declaration on plastic pollution](#) via the FIR, calling on companies that consume large amounts of plastic packaging to adopt significant measures without delay. Following on, VBDO and ClientEarth developed the "PPWR Policy Letter" addressed to the main political decision-makers of the European Union. This document draws inspiration from the principles of the preceding declaration, requesting from the European Parliament an ambitious position on the revision of the PPWR (*Proposal on Packaging and Packaging Waste*), with a view to enforcing European environmental regulations. In parallel, Ircantec signed the *Carbon Disclosure Project* (CDP) letter concerning the mandatory disclosure of plastics data. The pension scheme will continue to raise its engagements towards biodiversity.

Respect for human rights in business

The interconnection of economies and globalization are accompanied by increased social risks on increasingly long, complex and physically distant value chains. The distance between the principal and its many subcontractors prevents accurate and reliable monitoring of working conditions in the first links of the chain.

Ircantec is engaged in particular through a number of declarations. As part of the ([Investors Alliance for Human Rights - IAHR](#)), Ircantec has signed several declarations on this issue:

- The [Make Finance Work for People and Planet](#) declaration (February 2019) invites the members of the European Commission to require investors to put in place a systematic due diligence approach throughout the value chain. This declaration is part of the European Commission's Action Plan for financing green growth;
- The [Investor Case for Mandatory Human Rights Due Diligence](#) declaration (September 2019) calls on governments to establish and enforce mandatory human rights due diligence for all companies based in or operating within their jurisdiction, or to strengthen their regulatory systems where they already exist.

In 2018, Ircantec joined the [Know The Chain](#) initiative (partnership between NGOs, research centers and non-financial audit firms), which produces [benchmarks](#) on respect for human rights within the subcontracting companies of major contractors.

[The FIR and IAHR declaration](#) in favor of more robust regulations against forced labor (November 2023), which follows on from the [legislative proposal of 14 September 2022](#) of the European Commission aiming to prohibit products made by forced labor from entering the European Union market.

Through the FIR, in 2023 Ircantec signed the **declaration on due diligence**, a declaration for a European Directive on due diligence aligned with international standards, developed by several businesses and civil society organizations.

Corporate tax responsibility in France

In a context of globalization in which multinationals need to make decisions based on strategies and tax incentives that differ from country to country, tax responsibility aims to promote the taxation of value creation in the country in which it is actually generated, to ensure that the company contributes to the budget of the community and of the State in which its activities are located. The PRI initiated a program on tax responsibility in 2015 by implementing a [dedicated task force](#), and subsequently launching an engagement group that Ircantec joined. The goal is to gain a better understanding of the internal functioning of tax operations to more effectively encourage tax

transparency and the improvement of governance and risk management in this area.

- Initially, the FIR initiative, to which Ircantec has made a significant contribution, consisted of assessing the maturity of companies in terms of their tax responsibility strategy. An engagement campaign on the tax practices of CAC 40 index companies was then introduced to encourage discussions with French multinationals on the concept of tax responsibility, and to publish an Engagement Report. The objective is to encourage companies to deal with the tax issue no longer exclusively from the angle of regulatory and administrative compliance but as an integral part of their sustainable development policy.
- In May 2021, Ircantec joined 34 other investors (\$5.6 trillion in assets under management) coordinated by the PRI to encourage tax transparency for companies listed in the European Union. In particular, the coalition sent an open letter to the attention of the European Commission concerning the proposed Corporate Sustainability Reporting Directive (CSRD).

The PRI insist on the importance of demanding transparency on tax practices and in particular country-by-country tax reporting so that investors:

- Have better information on the issuers in their portfolios and can better understand the risks;
- Examine the extent of economic operations of multinational corporations by country and by jurisdiction and can estimate the actual engagement of companies concerning tax evasion;
- Raise questions and engage in dialog with companies where tax structures and tax strategies do not align with economic value creation to encourage more responsible corporate behavior.

The PRI open letter proposed points for improvement for integration by the European Commission so that the objective of the law remains fiscal transparency.

These commitments were in line with the May 2019 open letter to the [FASB](#) (*Financial Accounting Stability Board*) to encourage country-by-country reporting. In the continuity of this coalition, in 2022 Ircantec took part in a PRI information group on taxation, on how it can be more fully integrated in the investment process and how to engage with companies on the matter of taxation. This engagement continued throughout 2023.

Engagements beyond priority themes

Ircantec's engagement is not limited to the main themes identified and other commitments are broader than the Pension Scheme's priority areas of interest. As an example, Ircantec signed the **Charter of French investors in favor of the SDG**. Since 2014, Ircantec has also been a signatory to the **UN Principles for Socially Responsible Investment (PRI)**. It files an annual report on its commitment to respecting the founding principles. Every year (with a hiatus in 2022), the PRI require that signatories report on their non-financial activities and then award scores. In 2023, Ircantec once again received an excellent rating with a score of 85/100 for its SRI strategy and governance, and 88/100 for its listed stock portfolio, positioned in the top 15% of best SRI management performance.

- The Politics, Governance and Strategy module aims to report on the global approach of signatories in terms of responsible investment, including key themes applicable to most assets (voting indicators, engagement, climate change, human rights, etc.).

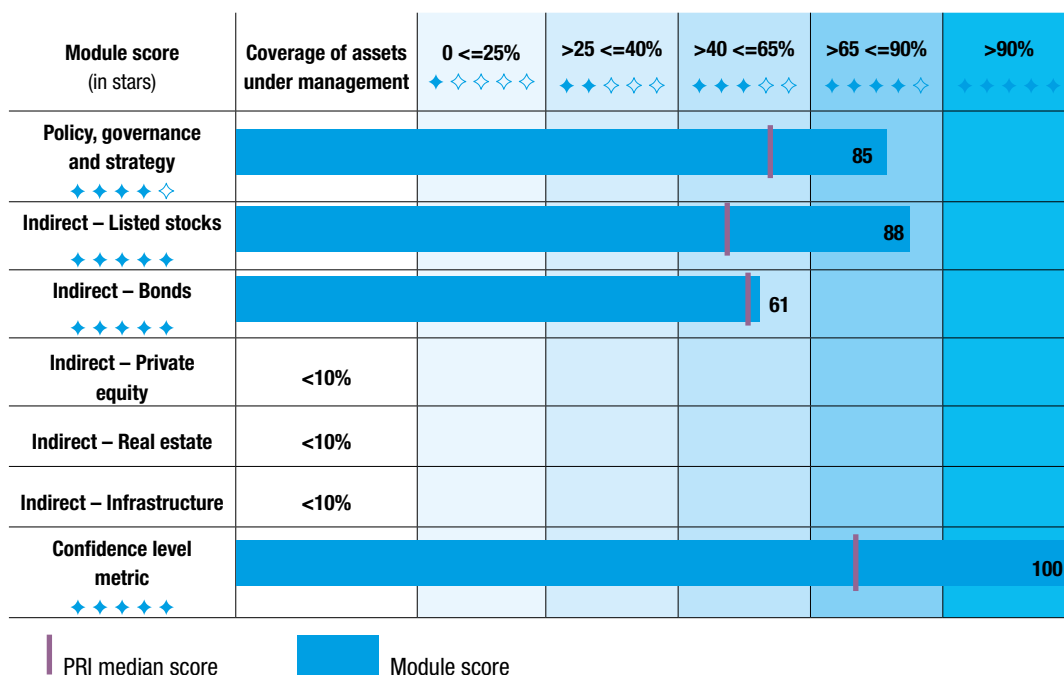
- The "Indirect - Listed stocks" module reports on the responsible investment approach for all investments in listed stocks.
- The "Indirect - Bonds" module reports on the responsible investment approach for all investments in bonds.



Ircantec was penalized on the "Indirect - Bonds" section as it has no engagement on this asset class. We are currently considering options for remedying this situation

Lastly, Ircantec is also engaged in terms of [regulations, being a signatory of a joint declaration by Eurosif, the PRI and the IIGCC](#). The aim of this declaration was to persuade the European Commission to maintain its integrity and level of ambition for the first series of European Sustainability Reporting Standards (ESRS) published by EFRAG in November 2022.

Rating of Ircantec SRI strategy and governance



2 - Voting Report

Being an active shareholder is a way to encourage companies to be more transparent, adopt better governance, and integrate social and environmental impacts more effectively. As part of its Voting Policy adopted in 2013, Ircantec decided to make a commitment, among other things, to socially acceptable compensation of directors, the independence of Boards of Trustees and inclusion of female trustees, support for the EET and company climate strategies, or the implementation of responsible dividends.

The exercise of voting rights associated with the securities held by Ircantec is carried out by the asset management companies in accordance with Ircantec's Voting Policy and Voting Rules on all of the equity stocks present in Ircantec's portfolio.

Furthermore, since 2015, Ircantec has also organized specific monitoring of 30 companies in its portfolio with the support of a voting consulting firm. Each of the resolutions proposed during these thirty general meetings is individually managed to ensure that the voting rules are uniformly and consistently applied.

Very active voting to support the EET and climate

Initially, the companies subject to this enhanced monitoring were the thirty most represented in the portfolio in terms of market value. In 2018, with a view to better integrating aspects of the energy and ecological transition, this list was updated to incorporate the twenty largest stakes held by Ircantec, the five largest emitters of CO₂ and the five largest holders of stranded assets. Since 2022, new changes have been made to reflect the Scheme's new climate policy.

To respond to the climate emergency, Ircantec strengthened its engagement to ensure its reserves are on a trajectory compatible with a 1.5°C scenario as defined by the Paris Agreement. Amongst others, these decisions impact stricter exclusions on the operation and development of thermal coal-related activities or non-conventional activities (shale gas and oil, oil sands, extra-heavy oil, etc.).

The list now includes the main stakes in financial institutions involved in controversial practices such as thermal coal or non-conventional energies without a credible exit plan. An engagement will also be formed with these financial institutions.

These securities are intended to replace stranded assets that have progressively disappeared from Ircantec portfolios following the implementation of the new climate policy.

Furthermore, to remain consistent with these new engagements, Ircantec will expect the following from companies whose stock it owns:

- the adoption of a strategy to achieve a 1.5°C global warming scenario with validation by a scientific body such as Science Based Targets, or to align with an annual decarbonization trajectory of greenhouse gas emissions of 7% on average (in terms of intensity);
- the implementation of quantitative targets to reduce CO₂ emissions for all Scopes for companies in high impact sectors²⁴;
- the definition of intermediate targets (short, medium and long term) to ensure a sufficient reduction in greenhouse gas emissions in order to comply with the 1.5 °C global warming scenarios;
- for companies involved in the mining, production and use of coal, the implementation of a plan to exit coal before 2030, alongside a conversion plan for activities and employees (just transition).

Ircantec will also ensure the establishment of regular voting on the implementation of the climate strategy and the regular publication of a climate strategy update, in accordance with the recommendations of the Task force on climate-related disclosure (TCFD).

In addition, prior to the general meeting campaign, the management service carries out an analysis of the EET strategy of several companies considered critical. This year, this preliminary work was carried out with 13 companies. The EET strategy was assessed favorably for five of these companies, while the strategies of five others were found to be insufficient (three "neutral" judgments were also issued).

A letter signed by the Chairman of the Ircantec Board of Trustees was sent to the executives of companies whose transition policies are considered insufficiently developed by the pension scheme, whether in terms of the strategy presented or the expected results. The purpose of this approach is above all to inform companies on the assumption that it may be useful to them in their current and future efforts on these issues. In 2023, the EET contribution

²⁴ Sectors with high climate impact are defined using the NACE classification which is recommended for the Paris Aligned Benchmark (PAB).

of these 31 companies (the "Focus List") was assessed based on 182 resolutions. Ircantec voted against 46 of them:

- Resolutions approving the financial statements were rejected where the EET strategy was not sufficiently engaging;
- Certain dividend payment resolutions were rejected where the EET and R&D investments were insufficient;
- resolutions concerning executive compensation were rejected where the structuring of the variable portion did not involve ESG criteria and indicators;
- some resolutions concerning the re-election of Trustees were not approved where the EET strategy was assessed as insufficient.

Resolutions concerning "Say on climate" climate strategies

Within the Focus List, several resolutions concerned climate topics. In particular, the question arose of voting on the "Say on Climate" in two companies on the Focus List.

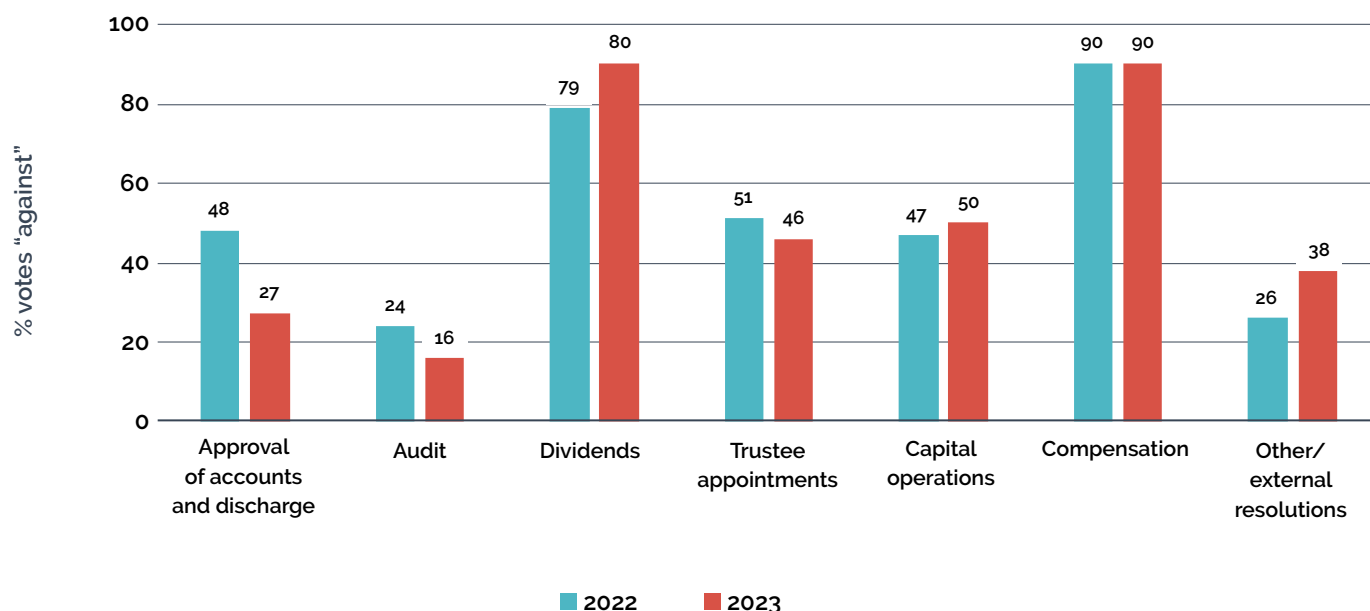
For example, Ircantec voted in favor of Schneider Electric's climate strategy. The introduction of a "Net Zero Emissions" objective across its value chain by 2050, the integration of intermediate targets or their validation by the SBTi, were elements that enabled the scheme to adopt a favorable opinion of the strategy. The strategy was approved by 97% of shareholders.

Concerning Engie, Ircantec:

- took part in filing a shareholder resolution to enable the organization of a "Say on Climate" every year (compared to every three years currently), with a series of climate indicators. The resolution was approved by 24.38% of shareholders but did not achieve the 66% required to adopt the resolution.
- took part in a project to add an item to the General Meeting agenda, which aims to modify the articles of incorporation of the company to give management the possibility of organizing a vote on its climate plan.

The voting report is published annually and is posted on the [ircantec website](https://www.ircantec.retraites.fr/sites/default/files/Bilan_PolitiqueVote23V2.pdf)²⁵.

Focus List: changes in opposition rate between 2022 and 2023



²⁵ https://www.ircantec.retraites.fr/sites/default/files/Bilan_PolitiqueVote23V2.pdf

7



Principal adverse impacts (PAI)

Ircantec opted to publish the Principal Adverse Impact (PAI) indicators for its portfolio in the 2023 Sustainability report. EU regulation 2019/2088 on sustainability-related disclosure in the financial services sector, or the SFDR, imposes the disclosure of policies on the integration of sustainability risks in the investment decision processes and their principal adverse impacts (PAI) on sustainability factors. Ircantec is excluded from the scope of application of the SFDR but is subject to alignment of internal regulations with European standards, which impose the publication of information on risks associated with climate change and biodiversity risks in an annual report in a standard format published within six months of the year ending.

This list of indicators contains a foundation of 14 PAI indicators and four others concerning investments in sovereign bonds and real estate assets. Companies subject to the SFDR must disclose these 18 PAI indicators. They encompass the following topics: greenhouse gas emissions, biodiversity, water, waste, social issues, personnel, human rights and corruption.

Moreover, financial market players are required to adopt two optional indicators from a list of 46. The list contains 22 climate and environment indicators, as well as 24 addressing social aspects, human rights and anti-corruption measures.



In total Ircantec reports on 20 PAI indicators: 18 mandatory indicators including two applied to real estate assets, two to sovereign assets and two optional indicators.

Results of mandatory PAIs

Two data suppliers are provided:

- **S&P Trucost** for the five mandatory indicators concerning greenhouse gas emissions (1.1, 1.2, 1.3, 1.4, 1.15) to remain consistent with the carbon emissions metrics published in the 2022 sustainability report;
- **Sustainalytics** for the 11 other mandatory indicators (1.6 to 1.14 and 1.16) as well as the optional indicators.

The two indicators "1.8 - Releases into water" and 1.12 "Uncorrected gender pay gap" are not reported due to very low coverage rates, explained by limited disclosures by issuers on data relating to these indicators.

The results of mandatory PAIs indicators for the Ircantec portfolio and its benchmark are presented in the two tables below.

Results of five mandatory indicators supplied by S&P Trucost

Results of five mandatory PAIs supplied by S&P Trucost						
Name of PAI	Metric (unit)	Portfolio		Benchmark		Ratio B/P (%)
		Value	Coverage	Value	Coverage	
Corporate						
1. Total GHG emissions by portfolio (Scopes 1,2 and 3)			99%		99%	
	Scope 1 (tCO2eq)	246,568		510,173		52%
	Scope 2 Location Prioritized (tCO2eq)	95917		101259		5%
	Scope 3 Upstream + Downstream (tCO2eq)	4,073,963		4974601		18%
	Total scope 1 + 2 + 3 (tCO2e)	4,416,449		5,586,033		20.9%
2. Portfolio carbon footprint	Total scope 1 + 2 + 3 (C/V: tCO2e/€m invested)	470	99%	594	99%	20.9%
3. GHG intensity of companies receiving investments	Total scope 1 + 2 + 3 (WACI: tCO2e/€m invested)	1010	99%	1075	99%	6.1%
4. Portion invested in companies active in the fossil fuel sector	Portfolio involvement (%)	0.93%	-	2.07%	-	55%
Sovereign						
15. GHG intensity	tCO2e / €m GDP	346	92%	345	100%	-0.3%

Results of eleven mandatory indicators supplied by Sustainalytics

Name of PAI	Metric (unit)	Portfolio		Benchmark		Ratio B/P (%)
		Value	Coverage	Value	Coverage	
Corporate						
5. Portion of non-renewable energy in the production and consumption of energy by portfolio companies (as %)			51%		53%	
	Consumption (%)	56.38		58.57		4%
	Production (%)	23.42		27.6		15%
6. Intensity of energy consumption by high climate impact sector			54%		55%	
	Agriculture, forestry and fishing (GWh/€m)	-		1.36		-
	Construction (GWh/€m)	0.1		0.11		9%
	Supply of electricity, gas, steam and air conditioning (GWh/€m)	-		-		-
	Industry (GWh/€m)	0.31		0.4		23%
	Mining and extraction (GWh/€m)	-		-		-
	Real estate assets (GWh/€m)	0.56		0.54		-4%
	Transport and storage (GWh/€m)	0.42		0.96		56%
	Water supply and sewage treatment, waste management and pollution removal (GWh/€m)	0.54		0.67		19%
	Wholesale and retail trade, vehicle and motorcycle repairs (GWh/€m)	0.07		0.09		22%
7. Activities with adverse impact on biodiversity-sensitive areas	% of involvement	2.885	98%	8.3	100%	65%
8. Releases into water system	(t/€m)	-	-	-	-	-
9. Ratio of dangerous waste and radioactive waste	(t/€m)	1.16	67%	8.04	68%	86%
10. Violation of the principles of the UN Global Compact and the OECD guidelines for multinationals	% of involvement	0	98%	0.41	100%	100%
11. Lack of process and compliance mechanisms to verify observance of the principles of the UN Global Compact and OECD guidelines for multinationals	% of involvement	31.75	97%	37.41	99%	15%
12. Uncorrected gender pay gap	% difference	-	-	-	-	-
13. Diversity in governance bodies	% of women	39.44	84%	38.45	85%	3%
14. Exposure to controversial weapons (anti-personnel mines, cluster munitions, chemical or biological weapons)	% of involvement	0	98%	0	100%	-
Sovereign						
16. Investment countries exhibiting violations of social standards			91.83%		99.97%	
	Number	0		0		-
	Percentage	0		0		-



Globally, the Ircantec portfolio performs better than its benchmark.

The portfolio greenhouse gas intensity dropped by 11.2% between 2022 and 2023 (PAI 1.3). This result marks **the success of Ircantec in reducing the emissions for its corporate portfolio by 7% per year on average until 2050**. These efforts also affect the pension scheme's engagement and voting policy. In terms of investments in the fossil fuel sector (PAI 1.4), Ircantec's exposure is half that of the benchmark. This reduction can be explained by its progressive disengagement from the extraction of fossil resources, reflecting **the trajectory of Ircantec towards an exit from fossil fuels by 2030**.

Concerning the sovereign segment, the unfavorable positioning of the portfolio in terms of greenhouse gas intensity (PAI 1.15) is explained by an over-weighting in certain countries exhibiting a high carbon intensity (tCO₂e/M GDP). As an example, Spain is the main contributor to the increase in the portfolio WACI in 2023. The weight of this country rose from 9 to 12% between 2022 and 2023, with its intensity rising from 336 to 380 tCO₂e/€M. Italy and the USA also make high contributions. Concerning Italy, an increase in its intensity was observed between the two years. However, for the USA, this increase in the weighted average carbon intensity is explained by a higher weighing in the portfolio in relation to last year.

Real estate assets

Results of indicators applicable to investments in real estate assets²⁶

Name of PAI	Value	Portion of eligible assets	Data coverage rate	Response completeness rate
1.17 - Exposure to assets involved in the production, storage or distribution of fossil fuels (as a % of assets under management)	0%	100%	100%	100%
1.18 - Assets under management associated with inefficient assets in energy terms (as %)	87%	100%	100%	94%

For 2023, two indicators on real estate assets as part of the OPPCI are defined. A definition is provided here (source SwissLife).

- **Exposure to fossil fuels through real estate assets:** market value of real estate assets involved in the extraction, storage, transport or manufacture of fossil fuels, divided by the total market value of real estate assets in the OPPCI. Only market values of real estate assets used in the activities described above are considered (e.g. Service stations). However, they exclude real estate assets heated with fossil fuel heating systems.
- **Exposure to energy-inefficient real estate assets:** market value of energy-inefficient real estate assets divided by the total market value of OPPCI real estate assets. Buildings built before December 31, 2020 are considered to be energy-inefficient if their EPC rating is C or less. For buildings completed after December 31, 2020, energy inefficiency reflects a primary energy de-

mand (PED) below the NZEB27 level of European Directive 2010/231/EU. The indicator applies to the value of real estate assets that must respect EPC and NZEB rules.

The result for indicator 1.17 for Ircantec real estate assets is good, thanks to its zero value. In terms of indicator 1.18, the European SFDR considers that an asset is efficient if it exhibits a class A or B EPC. Yet most OPPCI assets are classified as C or D, meaning that the OPPCI assets are listed as inefficient and the indicator result poor-performing.

²⁶ The scope of analysis for these two indicators is the OPPCI fund (excluding the Vesta segment).

²⁷ The EPC is an energy performance certificate (the European equivalent of the DPE in France). NZEB refers to article 9 of the Energy Performance of Buildings Directive (EPBD). It means Nearly Zero Energy Building and indicates a types of construction where the difference between the energy it produces and what it consumes is almost equal to zero.

EPC	Percentage of total value
A or B	12.50%
C	43.7%
D	33.4%
E	2.1%
N/A ²⁸	8.3%

Note that Ircantec conducted several energy audits through its asset manager to draw up an inventory and define suitable recommendations to improve the energy performance of the assets in question. The completion of this work will improve this indicator.

Results of optional PAI

Ircantec opted to create optional PAI to be consistent with the main themes of the SRI Charter and in line with the engagement issues where it has made commitments. Two optional PAI are therefore used:

- 2.4 - Investment in companies not taking initiatives to reduce their carbon emissions.
- 3.9 - Lack of human rights policy.

Results for optional indicators selected

Name of PAI	Metric (unit)	Portfolio		Benchmark		Ratio B/P (%)
		Value	Coverage	Value	Coverage	
Corporate						
2.4 - Investment in companies not taking initiatives to reduce their carbon emissions.	Engagement percentage	21.41	97%	20.76	99%	-3.1%
3.9 - Lack of human rights policy	Engagement percentage	2.93	96	3.81	99%	23.1%

Ircantec has bolstered its engagements in terms of human rights, which are a major concern in Ircantec's policy. In particular, in 2023, Ircantec adopted a declaration in favor of more robust regulations against forced labor, jointly with IAHR and FIR. Ircantec also subscribed to the FIR declaration in 2023, for a European Directive on due diligence aligned with international standards, developed in partnership with several businesses and civil society organizations. These actions bear witness to Ircantec's commitment to protecting human rights and bolster its social responsibility.

Justly, indicator 3.9 measures the percentage of the portfolio exposed to companies involved in activities without any policy on the protection of human rights. This indicator highlights the favorable positioning of the Ircantec portfolio as it involves 2.93% of the portfolio and 3.81% of the benchmark (ratio of 23%).

In terms of the environment, Ircantec announced a new climate policy in October 2021, deemed ambitious as it is committed to an alignment trajectory with the Paris Agreement and compatible with a 1.5°C scenario. As a reminder this policy incorporates an objective to reduce carbon emissions by 7% a year, several phases of exclusion measures on conventional and non-conventional energies aligned with PAB indexes, and an objective to finance companies with major concerns.

Despite the roll-out of this policy, it appears that indicator PAI 2.4 which measures the percentage of the portfolio exposed to companies without carbon emission reduction initiatives aiming to align with the Paris Agreement, seem slightly less well positioned in the portfolio than the benchmark (21.41% vs 20.76%).

²⁸ Lack of information on EPC: potentially due to the fact that certain assets have been delivered recently or remain under construction, or that the EPC is blank due to a lack of historical data on consumption. These assets are mainly assets for sale prior to completion (VEFA), and by default are considered as inefficient according to SFDR criteria.

We observe that the financial, IT, industrial and health sectors are overweighted in the portfolio in relation to the benchmark. These sectors invest more in companies which have not yet made any commitments to align with the Paris Agreement.

The engagement of financial institutions is one of the four fundamental pillars of Ircantec's approach in its climate policy. Since 2022, Ircantec has taken part in collaborative commitments with ShareAction, notably sending a letter in 2023 to five banks (Société Générale, Barclays, BNP Paribas, Crédit Agricole and Deutsche Bank), requesting them to cease the operation of new oil and gas deposits.

This indicator bolsters Ircantec engagements in favor of climate sustainability, underlines its commitment to the objectives of the Paris Agreement and supports its search for transparency.

Additional optional PAI concerning biodiversity

PAI related to biodiversity will be monitoring as part of the deployment of Ircantec's 2024 biodiversity policy.

Results for optional biodiversity indicators

Name of PAI	Definition	Metric (unit)	Portfolio		Benchmark		Ratio B/P (%)
			Value	Coverage	Value	Coverage	
Corporate							
Optional							
3. 10 Deterioration of soil, desertification, soil sealing	Percentage of portfolio exposed to companies involved in activities causing the deterioration of soils, desertification or soil sealing.	% of involvement	11.68	97%	20.24	99%	42%
33.14 - Natural species and protected areas	Percentage of portfolio exposed to companies whose operations impact threatened species or without a biodiversity protection policy covering operations sites owned, leased, managed in or adjacent to a protected area or an area of outstanding biodiversity value outside protected areas.	% of involvement	3.79	97%	8.35	99%	55%
3.15 - Deforestation ²⁹	Percentage of portfolio exposed to companies investing in companies without a deforestation policy.	% of involvement	75.55	96%	70.47	99%	-7%

²⁹ The scope of this indicator is global and therefore is not specific to sectors with issues relating to deforestation.

8



APPENDICES

Appendix 1

Progressive reinforcement of Ircantec climate exclusions

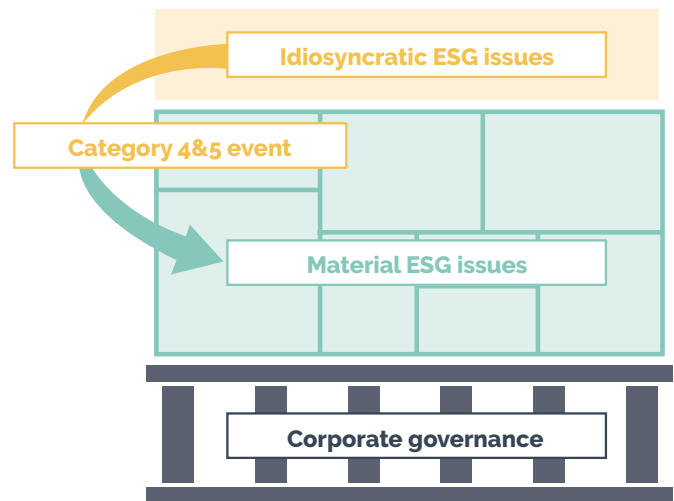
Starting in 2022	Starting in 2024	Starting in 2030
Thermal coal		
Exclusion from the portfolio of companies: ♦ where the share of thermal coal in overall turnover is above 5% (mining companies and energy producers; ♦ whose annual production of coal is above 10 Mt; ♦ whose electricity production capacity from coal is greater than 5 GW. However, these exclusion thresholds do not apply to companies with a credible plan to phase out coal by 2030. ♦ companies that develop or contribute to new projects. ♦ partners of this industry (for whom 5% of turnover is associated with thermal coal or who take part in new projects) Investments in green bonds will be maintained if the company has committed to phasing out thermal coal by 2030.	Stronger exclusions ♦ the exclusion threshold will change from 5 to 1% of turnover, in line with European indexes "<i>Paris Aligned Benchmark - PAB</i>"; Exclusion from the portfolio of companies: ♦ whose annual production of coal is greater than 10 Mt; ♦ whose electricity production capacity from coal is greater than 5 GW. These exclusion thresholds will not concern companies that present a credible plan to phase out coal by 2030.	Commitment to ensure zero exposure to thermal coal in the portfolio across all geographical areas.
Oil and gas		
Exclusion of companies from the portfolio due to their non-conventional production: ♦ which develop new projects in non-conventional energies or which increase their capacity in non-conventional energy production; ♦ which produce over 10 Mmboe in non-conventional energy; ♦ for which over 30% of production is associated with a non-conventional activity. These exclusion limits do not concern companies that present a credible plan to phase out non-conventional energies by 2030. Investment in green bonds will be maintained if the company has committed to phasing out non-conventional fossil energies by 2030.	Stronger exclusions Application of <i>Paris Aligned Benchmark</i> thresholds: ♦ oil represents over 10% of turnover ♦ gas represents over 50% of turnover These thresholds do not apply to companies that have adopted a credible plan to reduce their emissions, compatible with a 1.5°C scenario validated by the "Science-based target initiative" (SBTi). Exclusion of: ♦ any company initiating new projects in conventional energies or contributing to the development of new projects. ♦ any company whose production is related to non-conventional activities and which is not engaged in a credible exit plan.	Commitment to ensure zero exposure to any company in the oil and gas sector that has not adopted a credible emissions reduction plan compatible with a 1.5°C scenario validated by the SBTi.
Financial sector		
Engagement of companies providing finance or insurance ♦ companies in the thermal coal sector, ♦ companies involved in non-conventional activities. so that they develop credible plans to phase out coal and non-conventional energies by 2030.	Engagement of the companies most involved in financing coal and non-conventional energies so that they develop credible plans to phase out coal and non-conventional energies by 2030.	

Appendix 2 ESG methodology

For listed and quasi-sovereign companies

The *ESG Risk Rating* reflects the residual ESG risk of an issuer, namely the risk it does not control. The aim is to analyze the matters that will impact the financial performance of the issuer in the medium and long term. These issues are selected on a financial materiality basis.

The ESG risk ratings comprise three components that contribute to the overall company rating. These components are corporate governance, *Material ESG Issues* (MEI) and idiosyncratic ESG questions.



Component no. 1: Corporate governance

Corporate governance is a fundamental element of ESG risk ratings and reflects our belief that poor corporate governance poses significant risks to companies. It applies to all companies in our research universe, regardless of their sector of activity. Exposure to corporate governance is similar across all sectors. Only category 4 or 5 events result in an adjustment to a company's exposure score. On average, unmanaged corporate governance risk contributes approximately 20% to a company's overall unmanaged risk score. The final weighting varies depending on the individual selection of material ESG issues for that specific company.

Component no. 2: material ESG issues

Material ESG issues focus on a set of related topics that pose a risk to the financial stability of the company. These require good management in terms of internal policies, programs for implementing these policies and communication with the public. For example, the themes of recruitment, development, diversity, engagement and labor relations are all encompassed under the material ESG topic of human capital, as they relate to employees and require initiatives and human resource monitoring. The common thread running through all human capital topics is attracting and retaining skilled employees. The assessment of material ESG issues takes place at the sub-sector level and is reviewed annually as part of a comprehensive and structured process. At the company level, material ESG issues can be removed from the assessment if they are no longer relevant to the company's business model.

Component no. 3: idiosyncratic events

Idiosyncratic events are "unpredictable" or unexpected. For example, an accounting scandal is certainly not a more predictable event in some industries than in others. It can occur in any company across all industries and therefore falls outside the logic with which we capture material sub-industry specific ESG issues. Idiosyncratic events therefore become material ESG issues if the assessment of the associated event exceeds a materiality threshold. This threshold has been set at a category 4 or 5.

Rating scale

The ESG risk rating is classified on a scale of 0 to 100 with 5 levels of severity, from negligible to severe. This scale makes it possible to define categories of residual risk. For the assessment of controversies, Sustainability assesses the involvement of companies in incidents resulting in negative environmental, social and governance (ESG) consequences. Involvement in controversy is a key measure of ESG performance that can inform the investment decisions of our clients. The controversy rating reflects the level of a company's involvement in issues and how it handles those issues.

• Incident

An incident is the core component of the controversy rating. It is a business activity that has unintended and/or undesirable negative environmental and/or social impacts on stakeholders. Incidents are mainly assessed according to the negative environmental and/or social impact of the company's activity, as well as the reputational risk that this activity represents for the company. The incidents are tracked by various media and NGOs, and usually fuel the controversy rating for a period of three years. In exceptional cases, long-lasting, high-impact incidents continue to fuel the controversy rating for more than three years, until they no longer pose a risk to the business.

• Events

Events are series of isolated or related incidents that pertain to the same ESG issues. Events are classified using 40 event indicators that relate to these ESG issues. For example, a series of strikes by employees at a company's operational locations constitutes an event under one of the event indicators, "Labor Relations". To assess an event, an analyst looks at the underlying series of incidents holistically and rates it based on the following factors:

- impact: negative impact of incidents on the environment and society;
- risk: business risk for the company due to the incidents;
- management: enterprise management systems and incident response.
- An event is assessed on a scale of 5 levels:

- Category 5 - Severe

The event has a severe impact on the environment and society, posing serious business risks for the company. This category corresponds to exceptional behavior by the company, a high frequency of recurrence of incidents, very poor management of ESG risks and a manifest lack of will on the part of the company to deal with these risks.

- Category 4 - High

The event has a high impact on the environment and society and presents high business risks for the company. This rating level represents systemic and/or structural issues within the business, weak management systems and business response, and recurrence of incidents.

- Category 3 - Significant

The event has a significant impact on the environment and society, posing significant business risks for the company. This rating level represents evidence of structural problems in the business due to recurrence of incidents and inadequate implementation of management systems or lack thereof.

- Category 2 - Moderate

The event has a moderate impact on the environment and society and presents moderate risks for the company. This rating level represents a low frequency of incident recurrence and adequate or robust management systems and/or business response that mitigate additional risks.

- Category 1 - Low

The event has a low impact on the environment and society, and the risks for the company are minimal or negligible.

For sovereigns

The country risk ranking assesses the ESG risks to a country's long-term prosperity and economic development by looking at its three types of "capital":

- Natural capital and produced capital: natural capital includes energy, mineral, agricultural and forestry assets. Produced capital includes assets such as machinery, buildings, equipment, residential and non-residential urban land;
- Human capital: includes the value of the skills and efforts of the working population over their lifetime;
- Institutional capital: measures the quality of a country's institutions.

The table below shows how the three types of capital are assessed based on a set of metrics that are scored and summarized in "ESG factor scores".

Performance and trends

Natural + produced capital (environment)		Human capital (social)		Institutional capital (governance)	
Energy & climate change	• Energy intensity • Carbon intensity • Renewable energy consumption • Energy imports • Percentage of land less than 5 m • Risk of natural catastrophe	Essential needs	• Access to water • Access to sanitation • Food safety • Access to electricity • Secondary education	Institutional robustness	• Efficiency of public authorities • Quality of regulations • State of law • Corruption • Ease of doing business
Use of resources	• Water productivity • Water stress • Habitat protection	Health & well-being	• Life expectancy at birth • Doctors per 1,000 residents • Air pollution	Rights & freedoms	• Political rights • Civil liberties • Voices and responsibility
Governance	• Corruption • State of law	Equity & opportunities	• Development of gender equality • Unemployment • Percentage of people using Internet	Peace & safety	• Political stability • Level of peace

A country's ability to leverage and manage this capital effectively and sustainably is determined in the model by aggregating three ESG factor scores into an overall ESG factor score.

These three individual factors are:

- ESG performance: It assesses how a country manages its three types of capital based on a set of ESG metrics;
- ESG trends: capture the dynamics of a country's ESG performance based on a 5-year moving average for each of the three types of capital;
- ESG events: systematically capture incidents / events based on the news flow that can impact on a country's prosperity and economic development; measure its ability to manage the impact of these incidents/events on its three types of capital in an efficient and sustainable manner.

Finally, the overall ESG factor score is combined with a wealth score for each of the three types of capital, which measures a country's wealth and is based on World Bank estimates to form our final country risk rating score.

This final score ranges from 0 to 100, reflecting a country's ESG risk on an ascending scale (low score = "good", high score = "bad"). As part of our rating, all countries are assigned to five risk categories, ranging from negligible risk (risk score ≤ 10) to severe risk (risk score > 40). This approach allows for a comparison with the ESG risk score of companies and a precise calculation of the ESG risk score of a diversified investment portfolio including sovereign securities and private issuers.



Appendix 3

Carbon Cost Methodology

Trucost has compiled a database of public information on current carbon prices in over 44 jurisdictions, valid as of January 2022. The Unpriced Carbon Cost (UCC) is the estimated additional financial cost per tonne of greenhouse gas emissions in a future year. It is the difference between current carbon prices and possible future carbon prices for a given sector, geographical area and year.

Rising carbon prices have direct financial implications for businesses where regulations impose a higher price on greenhouse gas emissions from direct business operations. Businesses also face indirect financial risks associated with the repercussions of higher carbon prices on emissions from suppliers, which, in turn, seek to partially or fully recover additional regulatory costs through price rises. Factors have been developed to estimate the proportion of carbon price increases on Scope 2 emissions that are passed on from suppliers to businesses.

The carbon price risk premium varies by geography due to differences in government policies and by sector due to the differentiated treatment of sectors within many climate change policies. The sectors are based on OECD research and include:

1. Agriculture and fishing
2. Electricity
3. Industry
4. Air transport
5. Off-road transport
6. Residential and commercial real estate
7. Truck transport

Each of Trucost's 464 business activities were then classified into one of these seven sectors.

High Carbon Price Scenario

This scenario represents the implementation of policies considered sufficient to reduce greenhouse gas emissions in accordance with the objective of limiting the global temperature rise to 2°C by 2100 (Paris Agreement). This scenario is based on research by the OECD and the IEA.

Moderate Carbon Price Scenario

This scenario assumes that policies will be implemented to reduce greenhouse gas emissions and limit the temperature rise to 2°C in the long term, but with delayed measures in the short term. This scenario is based on research by the OECD and IEA as well as NDC assessments by Climate Action Tracker, Ecofys, Climate Analytics and New Climate Team. Countries whose nationally determined contributions are not aligned with the short-term 2°C goal are expected to increase their climate change mitigation efforts in the medium to long term.

Low Carbon Price Scenario

This scenario represents the full implementation of NDCs, based on OECD and IEA research.

Appendix 4

Methodology for alignment with the objectives of the Paris Agreement

Trucost's approach to assessing transition trajectories is adapted from two methodologies put forward by the *Science Based Targets Initiative* (SBTi), namely the *Sectoral Decarbonization Approach* (SDA) and the *Greenhouse gas Emissions per unit of Value Added* (GEVA) approach.

SDA approach

The first methodology (SDA) applies to companies whose commercial activities are homogeneous and have high carbon emissions. It is based on the idea that all the companies in a portfolio, regardless of the sector, must converge towards emission intensities in line with a 2°C scenario by 2050. The method uses 2°C transition scenarios that are specific to each industry, and the performance of companies is measured according to their emission intensity and their production level (for example in tCO₂e per GWh or per tonne of steel). Indeed, trajectories may vary from one sector to another (i.e. faster for energy and slower for cement), depending on available technologies, mitigation potential and mitigation. Companies with low reference year emissions and low production growth can therefore reduce their emissions at a gradual pace. Conversely, companies with high emissions or high growth must achieve faster reductions.

The scenarios used in the SDA approach are the International Energy Agency's (IEA) scenarios taken from the 2017 Energy Technology Perspectives (ETP) providing compliant SDA assessment parameters with a global warming of 1.75°C, 2°C and 2.7°C. The integration of a 1.5°C scenario is in progress.

GEVA approach

The second methodology (GEVA) applies to companies whose activities are more heterogeneous or characterized by low carbon emissions. This approach assumes that many companies have diverse business activities for which specific trajectories are not available at the scale of physical production. For these companies, the GEVA method assumes that all the heterogeneous sectors of the economy must reduce their emissions at the same rate. Thus, if the global economy must reduce its emissions by X% per year until 2050, then according to the GEVA approach, each company must also reduce its emissions at the same rate of X% per year, regardless of the starting intensity. In absolute terms, this condition implies that the companies that emit the most must reduce their emissions much faster than those that emit the least. Unlike the first methodology, the value-added unit approach is based on an economy-wide scenario, and emissions intensity is measured against a financial denominator, not a physical one. Each

company's transition trajectories are measured in terms of carbon per unit of value added, adjusted for inflation, which represents their contribution to total global emissions. These results are then compared to global decarbonization trajectories satisfying a given temperature rise scenario.

The scenarios used in the GEVA approach are the Representative Concentration Pathways scenarios used in the IPCC's AR5 report, providing GEVA assessment parameters consistent with 1.5°C, 2°C, 3°C, 4°C and 5°C warming scenarios.

Evaluation horizon and data sources

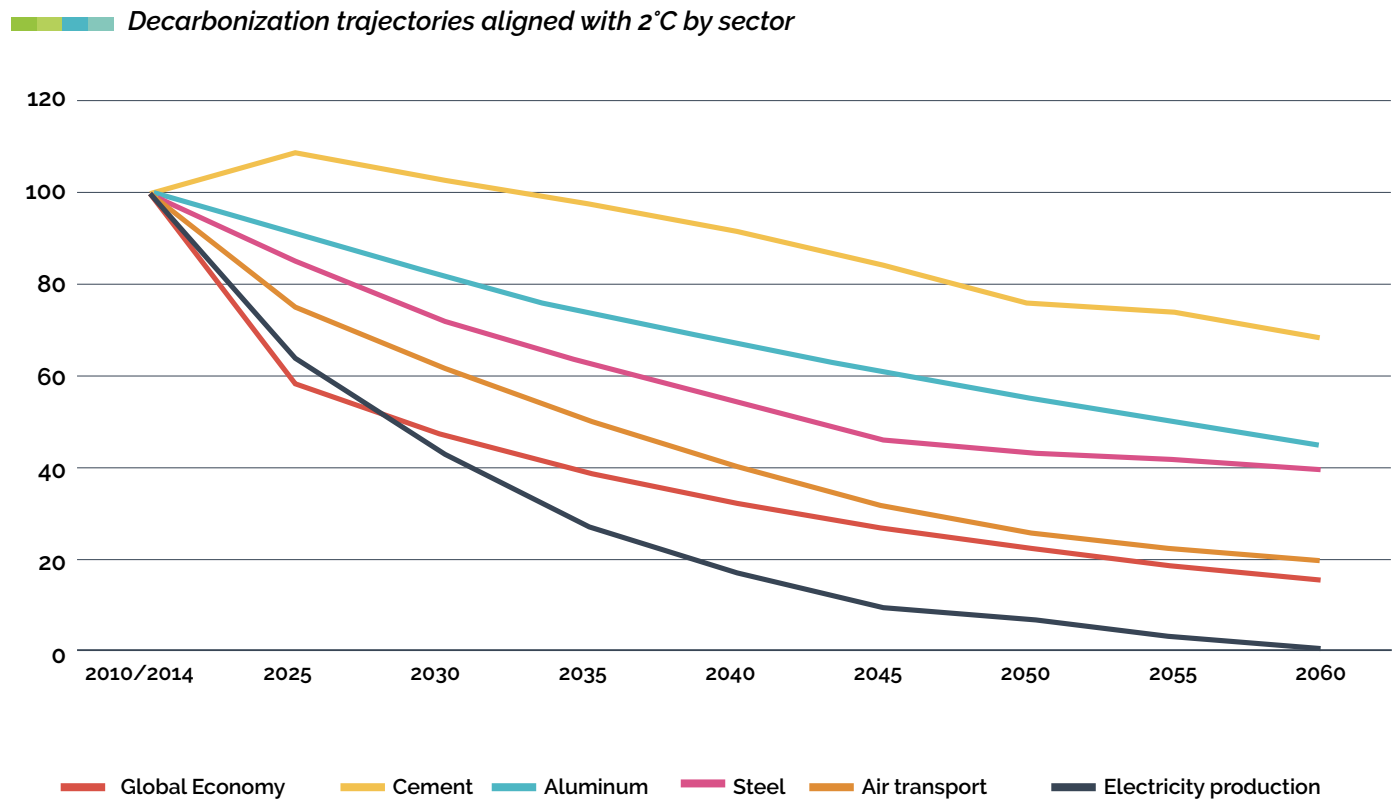
The transition trajectories analyzed incorporate both historical and prospective data to provide a medium-term assessment. This minimizes the uncertainties of using only forward-looking data and provides sufficient time to minimize the effect of any year-to-year volatility. Historical data on greenhouse gas emissions and business activity levels are incorporated from a reference year of 2012. Forward-looking data sources are used to track likely future transition trajectories from the most recent year of disclosed data through 2025. Forward-looking data are used based on an established data hierarchy, consisting of the following sources:

1. Emission reduction targets disclosed by the company
2. Asset-level data sources that provide signals about potential future changes in production from high-emitting sources.
3. Historical trends in company-specific emissions for companies assessed on the basis of homogeneous business activities.
4. Average historical trends in emissions by sub-sector for companies assessed on the basis of heterogeneous business activities.
5. No change in emissions intensity beyond the last year.

Evaluations of the portfolio use the combined Scopes 1 and 2 emissions as the evaluation limit.

The graph below illustrates the decarbonization trajectories for the five sectors covered in the SDA approach, as well as the trajectory used for the remaining sectors in the GEVA approach ("global economy" in the key). Each sector's unique intensity unit has been indexed out of 100 for ease of comparison. Sectors where carbon-saving

technologies and/or processes are most profitable are expected to decarbonize faster and end at a lower overall intensity than sectors where these measures are not profitable. For example, carbon intensity reductions are expected to be greater in power generation than in cement production.



Appendix 5

Environmental Footprint Methodology

Traditional approaches to measuring environmental impact provide a variety of different metrics. For example, carbon and other pollutants are measured in tons, and water is measured in cubic meters. This makes it difficult to compare the relative contribution of each impact and therefore to prioritize the risks. Trucost solves this problem by applying monetary assessments to each impact, providing a common global metric to assess risk and opportunity across companies and portfolios.

The analysis quantifies the impacts associated with the company's own activities and those of its upstream suppliers, up to the extraction of raw materials. Environmental impacts are often hidden in global supply chains, so we use an Extended Environmental Input-Output (EEIO) model to isolate responsibilities at each level of the value chain for a holistic analysis of risks and opportunities.

Environmental indicators:

- Greenhouse gases: carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, perfluorocarbons, hydrofluorocarbons and nitrogen trifluoride.
- Water abstraction: direct cooling and direct process water but also purchased water (i.e. water acquired from utility companies).
- Waste generation: waste incineration, landfill waste, nuclear waste (e.g. from product manufacturing, nuclear fuel combustion or other industrial and medical processes) and recycled waste.
- Air pollutants: all emissions released into the air from fossil fuel consumption and company-owned or controlled production processes. This includes acid rain precursors (nitrogen oxide, sulfur dioxide, sulfuric acid, ammonia), ozone depleting substances (HFCs and CFCs), dust and particulates, metal emissions, smog precursors and volatile organic compounds (VOCs). Each has a set of impacts on human health, buildings and/or crop and forest yields.
- Terrestrial and aquatic pollutants: pollution from fertilizers and pesticides, metal emissions into the soil and water, acid emissions in water, pollution of nutrients and acids.
- Use of natural resources: extraction of minerals, metals, natural gas, oil, coal, forestry, agriculture and aggregates.

Appendix 6

Physical Risk Methodology

The publication of the TCFD recommendations has highlighted the importance of climate change as a significant financial risk driver for businesses and investors and the fact that these risks need to be assessed, disclosed and managed. The task force divided these risks into two broad categories, the first being transition risks (including political and legal risk, technology risk, market risk and reputational risk), and the second being physical risks. Trucost has developed physical risk assessment data and analytics to complement the existing suite of transition-focused products. Key features include:

- a robust and scientific methodology for characterizing physical risks related to climate change based on the latest climate change models available and exclusive methodologies.
- coverage of eight major physical risks associated with climate change: coastal flooding, river flooding, extreme heat, extreme cold, tropical cyclone, forest fires, water stress, and drought;
- coverage of four climate change scenarios based on SSP (Shared Socioeconomic Pathway) and RCP (Representative Concentration pathway) scenarios produced by the IPCC, and offering annualized ten-year averages for all risks from 2020 to 2090;
- physical risk exposure scores representing occasional exposure to climate risks, and measurement of the financial impacts of physical risks describing the financial consequence of changes to the climate risk exposure of over 250 types of unique assets;
- built on a proprietary database of nearly 3.1 million physical assets linked to corporate entities and ultimate parent entities - based on S&P Market Intelligence and all data gathered by Trucost;
- an estimation methodology for businesses without asset information, covering Trucost's CorePlus universe of over 20,000 companies.

Exposure scores and measurements of financial impacts

	Physical risk exposure scores	Financial impacts associated with physical risks
What does this metric represent?	Occasional exposure to climate risks in relation to world conditions, independent of the nature of the asset present at a given location.	The financial consequences of the modification of exposure to climate risks in relation to a baseline specific to the asset at a given location
Practical Cases	• Efficient for a brief examination of large asset portfolios. • Offers an overview of climate risks present at a given location without limitation to risks supposed significant. • Easily applicable when limited information is available (location only) about the assets analyzed. • Precious as a risk indicator at a given location if data on assets are not available	• In-depth analysis to quantify the financial impact of changes in exposure to climate risk based on the best data available. • Granular analysis based on 250 asset types and associated impact models. • Easily integrated into financial analyses (e.g. Evaluation models. • Credit risk models, accounts adjusted to climate risk). • Precious to inform climate resilience strategies.
Practical Cases	<i>Exercises in risk selection and portfolio analysis to understand:</i> • Global exposure to physical risk on the asset, company or portfolio, compared to appropriate benchmarks. • What climate risks represent the greatest exposure • The assets or companies in a portfolio making the biggest contribution to the portfolio exposure. • Inform the initial disclosures of the TCFD and the risk selection initiatives. • Focus attention on the most exposed assets, companies or portfolios in order to orient research to fields with the greatest potential impact	• In-depth analysis of physical risks, oriented to the financial materiality of exposure to climate risks for specific asset types. • Inform disclosures and detailed TCFD reports. • Integration of climate physical risk in financial model, including the creation of adjusted financial accounts, a credit risk model and stock value modeling. • Climate resilience strategy.
What results have been obtained?	• Exposure score: score from 1 to 100 representing exposure to each risk in relation to global conditions	• Financial impact: Financial losses (e.g. CapEX, OpEX, activity shutdowns), expressed as a percentage of the asset value due to the exposure to climate-related physical risks.

Types of physical risks

Physical risk	Indicator	Indicator description	Spatial resolution	Data source
Coastal flooding	Frequency of 100-year flood	Forecast frequency of reference historical 100-year coastal flood	30x30 m (USA) 90x90 m (RoW)	GTSR Hydrodynamic Surge model Kopp et al. SLR Data MERIT /US3DEP USGS Global Coastlines
River flooding	Frequency of 100-year flood	Forecast frequency of reference historical 100-year coastal flood	-25x25km	Hydra Atlas NEX-GDDPD ownscaledC MIP6
Extreme heat	Projection Tx90p (Exposure) Tx50pAbsChg (Financial Impact)	Annual percentage of days when the maximum temperature is higher than the 90th percentile of the local benchmark daily maximum temperature	-25x25km	NEX-GDDP Oownscaled CMIP6
Extreme cold	Projection Tx10p	Annual percentage of days when the minimum temperature is below than the 10th percentile of the local benchmark daily minimum temperature.	-25x25km	NEX-GDDP Oownscaled CMIP6
Tropical Cyclone	Frequency of Category 3 storms and higher	Forecast annual frequency of category 3 tropical cyclones and higher	-25x25km	HURDAT / Archives JTWC TC CMIP5/6SST
Forest fire	Days of existing conditions of forest fire	Forecast of number of days where the Z index is below or equal to the 10th historic percentile.	-25x25km	NEX-GDDP Oownscaled CMIP6
Water Stress	Water stress index	Forecast future ratio between water abstraction and total supply of renewable water in a given area.	Hydrographic Basin	WRI Aqueduct
Drought	Palmer drought severity index	Forecast of number of days where the self-calibrated Palmer drought severity index (scPDSI) is below or equal to the 10th historic percentile.	-25x25km	NEX-GDDP Oownscaled CMIP6

All data are focused on four future climate change scenarios based on representative concentration pathways (RCP) and shared socio-economic pathways (SSP) of the IPCC, and informed by TCFD technical directives.

- **High (RCP 8.5):** low-mitigation scenario where the total emissions of greenhouse gases triple by 2075 and average global temperatures by 3.3 to 5.7°C by 2100;
- **Moderately high (RCP 7.0):** limited-mitigation scenario where total greenhouse gas emissions double by 2100 and global average temperatures increase by 2.8 to 4.6°C by 2100;
- **Intermediate (RCP 4.5):** high-mitigation scenario where total greenhouse gas emissions remain stable at current levels until 2050, then decline until 2100. This scenario should result in an increase in global average temperatures of 2.1 to 3.5°C by 2100;

- **Low (RCP 2.6):** stringent mitigation scenario where total greenhouse gas emissions are reduced to zero by 2050, leading to an increase in global average temperatures of 1.3 to 2.4°C by 2100, in line with the objectives of the Paris Agreement.

The Trucost data set evaluates the physical risks associated with climate change for the ten-year averages from the 2020s to the 2090s. The financial impact quantification pathways are not currently available for extreme cold but are available for all other risks.

Analytical approach

The quantification method for physical risks and the related financial impacts is based on the five analytical steps. Details are provided below.

1. Climate risk modeling

Trucost assembled models and data representing the estimated absolute risk of eight global-scale climate change-related risks based on four climate change scenarios and eight time periods to produce maps of physical risks related to global climate change. Each indicator, scenario and period is represented as a set of geospatial data with risk values assigned at a resolution considered appropriate for each event. This enables us to model the exposure to each climate risk for a given period and changes in the risk exposure over time and in relation to a historical basis.

2. Quantification of exposure to physical risks

Exposure to physical risks related to climate change is quantified by overlaying the locations of assets impacted on the climate risk maps described in step 1. In this analysis, the “assets” represent any structure or physical asset owned or leased by a company listed in the Trucost database of over 20,000 companies. The database on climate change-related physical risks is generated from a vast corpus of data on the location of physical assets, cross-referenced to owner companies (or lessees), developed and updated by S&P Global.

3. Physical risk exposure scores for assets and the company

The Trucost physical risk exposure score model assigned risk exposure scores from 1 (lowest risk) to 100 (highest risk) to each asset in the database, according to its location in the climate risk maps described in step 1. The exposure score is intended to represent the relative level of risk exposure for each risk at each location compared to the global conditions in all scenarios and time periods. The exposure scores for physical risks involving assets are aggregated on company level as a weighted average of all assets mapped for the company in question, based on assumed asset values for each type of asset. The assumed asset values are produced by document analysis and supposed to represent the relative value of each type of asset. The businesses assessed using asset data are classified in the Data Quality A category.

For some companies in the Trucost universe, there is insufficient asset-related data to calculate the exposure scores to different physical risks. In these cases, exposure is estimated based on a combination of exposure to physical risk at the company head office (20% weighting) and a turnover-weighted average of the average physical risk for each country where the company generates turnover (80% weighting). Country physical risk profiles are calculated as a average weighted by the GDP within country borders, using the data on climate risks described in step 1 and spatial data on GDP to scale. Companies assessed for physical risk exposure using this method are designated as Data Quality B.

The composite exposure score is intended to provide a combined measure of the company's exposure to the eight climate change-related physical risks. It is calculated using an additive combination of equal weightings of the company's physical risk score for each risk for a given scenario and year, then adjusted to a scale of 1 to 100 using a logarithmic grading curve. The grading curve is designed to ensure that assets or companies highly exposed to one risk but weakly exposed to all others, will receive a moderate to high composite physical risk exposure score. Other approaches such as a simple average of risk exposure scores for a given scenario and period, risk under-estimating the exposure of an asset or company to the physical risks of climate change.

4. Modeling the financial impact function

The Trucost physical risk model quantifies the expected financial impacts of changes in physical risk exposure, both for assets and companies. This model is based on a library of impact functions developed by S&P Global, and which describes the relationship between the degree of change to climate risk exposure and the financial impact on a given asset type over time and in different climate change scenarios. The impact functions were developed for over 250 unique asset types, each focusing on a set of pathways where climate risks could impact on the value, revenue, operations, or other value factors for this asset type. The impact function database was developed over several years through in-depth document research and analytical development. In asset terms, the financial impact is quantified as forecast financial costs associated with changes in climate risk exposure, expressed as a percentage of the asset value.

Measurement of the financial impact is calculated on the asset for each risk and can be added to produce a combined measurement of the financial impact, and aggregated at company level as a weighted average based on the assumed asset value. The financial impact is expressed as a relative measurement as we do not currently have precise data or estimations of the actual value of each asset. The example below describes the process applied to the development of impact functions for a unique combination of risks and asset types.

Step 1 - Identify the material impacts

S&P Global has developed over 1,280 impact functions associated with over 250 asset types for application to all data on physical risks and the associated tools. The example below shows the Extreme heat impact function for the office building asset type, from the standpoint of the owner/occupant. The temperature risk measurement used in this function is the Tx50 pAbsChg forecast, which measures the absolute change in annual local daily maximum temperature to the 50th centile, in relation to the historical value (1950-1999). To analyze the impact of the maximum temperature increase on owned/occupied office buildings, the research documentation available was searched to identify a series of impact pathways where operations and the value of an office building could be impacted by the temperature increase. The following impact pathways have been identified as important to the office building asset type:

- Cooling costs: spending on excessive use associated with increased use of cooling equipment or systems to maintain optimal temperatures for employees and facilities / equipment in a context of temperature rises.
- Deterioration of Heating, Ventilation and Air Conditioning (HVAC) systems: annualized costs of reduced lifetime and early replace of HVAC systems due to increase use in response to higher temperatures.
- Employee productivity: costs associated with reduced employee productivity and associated spending due to higher ambient temperatures (including employees working indoors).

Step 2 - Modeling impact pathways

For each impact pathway, a series of research projects and pertinent data sources are gathered to quantify the impact of a unit change to the risk on suitable financial performance metrics.

- Cooling costs: excess electricity consumption related to higher temperatures was estimated based on trends identified in a series of documents concerning changes to energy demand and electricity production, as well as the estimated economic harm resulting from climate change in the USA. Based on these data, the energy demand for cooling should rise by 5% per degree °C of increase in the average maximum temperature.
- Deterioration of HVAC systems: the excess costs associated with the reduced operating lifetime of HVAC systems per unit of temperature change were estimated from a series of studies, notably Fenaughty and Parker (2018). Based on these data, the lifetime of HVAC systems should fall by 6.76% per °C of increase in the average maximum temperature.

- Employee productivity: reduced employee productivity has been estimated based on a global study of the effects of heat on active populations. Based on these data, the productivity of labor should fall by 1.14% per °C of increase in the average maximum temperature.

Step 3 - Quantify the financial impact

To quantify the total financial impact on asset values, the impact pathways described in the previous section are weighted based on a set of financial ratios reflecting the proportion of the total value of a given asset type, represented by the value factor impacted by the temperature change for each pathway. The asset value metric for the type of office building owned/occupied is the replacement value and the financial ratios applied to each impact function are described below (these assumptions are based on an in-depth review of the literature and an analysis by S&P Global):

- Cooling costs: 1.19% of the asset value
- Deterioration of HVAC system: 13.29% of the asset value
- Employee productivity: 7.84% of the asset value

The financial impact (%) of each impact pathway is multiplied by the corresponding financial ratio and added to quantify the aggregate financial impact on the asset value of an office building occupied by its owner, of a 1 °C increase in the average maximum temperature, extrapolated to the range of forecast future temperature rises.

5. Calculation of the financial impact of physical risks on assets and the company

The Trucost financial impact model for the physical risk quantifies the percentage of the asset value at risk for each asset, based on:

- Changes in physical risk related to climate change in a given scenario and time period in relation to a historical basis;
- Classification of an asset type and the related impact functions, for the asset in a given location.

The financial impact on assets is aggregated on company level as a weighted average of all assets related to the company in question, based on assumed asset values for each type of asset. The assumed asset values are taken from document analysis and are supposed to indicate the relative value of each asset type. The financial impacts on the asset and the company are calculated for each climate risk, scenario, and time period. They are aggregated into a combined financial impact metric covering all risks. The financial impact metrics are not calculated for companies without associated data for their assets (other than the company head office) in all 2022 data on physical risks.

Appendix 7

Exposure to the European taxonomy methodology

Analytical approach

The taxonomy describes around 96 business activities related to 13 NACE macro-sectors. Business activities include those that have direct carbon mitigation potential (e.g. renewable energy) as well as those that are relatively carbon intensive but have significant potential to reduce their carbon emissions (e.g. steel manufacturing).

Trucost uses a blended approach to assess a company's revenue eligibility for the taxonomy. First, Trucost performed a direct mapping between the 464 business activities of its proprietary sector classification system with the Taxonomy activities mentioned above. All business activities that are not mapped directly by this process are reviewed using a bottom-up assessment of their alignment with the taxonomy goals. During this stage, Trucost reviewed the company's revenue and emissions data in its Core Plus universe. Any remaining business activities after this step are considered not taxonomy-aligned. Note that the dataset covers over 15,000 listed companies in Trucost's Core Plus universe.

Transitional and enabling activities

This component assesses the share of turnover from products, services and technologies that contribute more directly to climate change mitigation ("transitional activities") and activities that are more indirectly related that involve providing services and products to transition activities ("enabling activities").

The portfolio's exposure to these two types of activities is evaluated as a weighted average as well as in terms of the Value of the holdings (VOH). The taxonomy defines most activities as transitional or enabling. However, on occasions where this distinction is not explicitly made, Trucost uses indirect references from the taxonomy to decide which activities are transitional and which are enabling.

The 'multiple' sector category

During the business activity mapping process, three Trucost business activities were mapped to several specific NACE business activities in the EU taxonomy. These are summarized below:

- **Water, sewage & other systems** was mapped to the "Generation and distribution of electricity, gas, steam and air conditioning" and "Generation and distribution of water, sewage, waste management and pollution removal" activities;
- **Non-residential maintenance and repair** was mapped to "Transport & warehousing (low carbon emission infrastructure construction)" and "Construction & real estate" activities;
- **Other non-residential structures** was mapped to the "Transport & warehousing (low carbon emission infrastructure construction)" and "Construction & real estate" activities;

Appendix 8

Data Collection Methodology

Trucost's unique approach to environmental data collection and modeling allows for near-complete coverage of most investment universes, despite often low levels of reporting amongst companies. A four-step process is used in our data collection exercise:

1. Analyze financial and sector data

A company's financial statements are analyzed by collecting consolidated revenues from all companies and specifying their reporting scopes and operational limits.

2. Map activities to Trucost's Environmentally Extended Input-Output (EE-IO) model.

Trucost's EE-IO model uses over 450 business activities (largely aligned with NAICS, with some additional sectors included to distinguish key activities with significantly different physical impacts) to model the environmental impacts of a company by allocating a portion of each company's revenue to one or more of these activities. The EE-IO model then estimates the pollutant emissions and resource use associated with each business activity, both directly (for a company's own operations) and through the supply chain, using a breakdown by income sector.

3. Incorporate disclosures and public registry data

Trucost searches all publicly disclosed company data sources to find usable environmental data that will be used to make modeled estimates. Trucost verifies that the scope and time horizon of all environmental data found matches that of its financial statements.

4. Company engagement and data verification

Trucost analysts verify the quality of the entire research process internally, then share the results with each company directly through a secure online portal. Companies have one month to respond to Trucost to verify its data or directly commit to providing additional or non-public information. If appropriate and applicable data are provided, Trucost will incorporate the data into its analysis before publishing the data.

Appendix 9

Previous & terminated commitments

- Ircantec joined the [Assessing Low Carbon Transition](#) initiative in 2018 (led by the [Carbon Disclosure Project](#) and [Ademe](#)) to encourage companies to take appropriate action in terms of climate strategy.
- Between March 2018 and October 2020, the commitment group [Climate Change Transition](#)

[for Oil and Gas](#) spoke with 25 companies in the energy sector about the evaluation of their exposure to climate risks, the implementation of the TCFD recommendations, the adaptation to the climate regulations, as well as the structure of their future investment expenses. Ircantec was the leader of the initiative to engage with Total.

Appendix 10

Concordance tables TCFD/art. 29 of Climate-Energy law

TCFD recommendations	Page number of corresponding chapter
Governance	
Describe how the Board of Trustees supervises the risks and opportunities of climate change	7
Describe the role of management in the assessment and management of climate change risks	7
Strategy	
Describe the risks and opportunities identified by the company for the short, medium and long term	15; 17-23
Describe the impact of these risks and opportunities on company strategy, policies and financial planning	24-36
Describe the resilience of organizational strategy in the range of scenarios, including a 2°C or lower scenario	42-44
Risk management	
Describe the process of identifying and assessing climate risks	17-39
Describe the process of managing climate risks	15; 46
Describe how the climate risk identification, assessment and management processes are incorporated into the risk management system	11
Indicators and objectives	
Publish indicators tracked by the company to measure and quantify climate change risks and opportunities	24-44
Publish Scope 1, Scope 2 and where appropriate Scope 3 GHG emissions data and the associated risks	28
Describe the objectives set by the company to manage risks and opportunities, and how their achievement is monitored	6

Article 29 of Energy-Climate Law (resulting from the draft decree of Feb. 2021)	Page number of corresponding chapter
Summary presentation of the entity's general approach to the integration of environmental, social and quality of governance criteria, particularly in the financing and investment policy and strategy	11
Content, frequency and means used by the entity to inform subscribers, affiliates, contributors, beneficiaries or customers regarding criteria on the environmental, social and quality of governance objectives incorporated in the financing and investment policy and strategy	12
Global share of assets integrating environmental, social and quality of governance criteria in the total amount of assets managed by the entity, as a percentage	24-37
Adherence of the entity or of certain financial products to a charter, code, initiative or label on the consideration of environmental, social and quality of governance criteria, as well as a brief description thereof	34
Description of the financial, human and technical resources dedicated to taking into account environmental, social and quality of governance criteria in the investment strategy by comparing them to the total resources of the entity.	46
Means of informing holders and subscribers on how the entity meets regulatory requirements in terms of non-financial reporting.	12
Actions taken to strengthen the entity's internal capacities.	7
The knowledge, skills and experience of governance bodies, in particular administrative, supervisory and management bodies, in terms of decision-making relating to the integration of environmental, social and governance quality criteria into the entity's policy and investment strategy	7
The integration, where appropriate, of sustainability risks in compensation policies	12
The integration of environmental, social and quality of governance criteria in the operation of internal committees.	10
Information on the entity's engagement strategy with issuers or asset management companies	57
Presentation of the voting policy, filing of resolutions, voting instructions and voting on resolutions on environmental, social and quality of governance issues at general meetings	61
Consideration of environmental, social and quality of governance criteria in the decision-making process for the allocation of new management mandates	46
Decisions taken in terms of sector disengagement policy	15
Information concerning the portion of assets managed for activities dependent on the exploration, production, transformation, transport, refining and sale of fossil fuels.	19-21
Information on the strategy for alignment with the international objectives for limiting global warming defined by the Paris Agreement	15
Information on the strategy for alignment with long-term objectives related to biodiversity	37-40
The process of identifying, evaluating, prioritizing and managing risks related to the consideration of environmental, social and quality of governance criteria	46
A description of the main environmental, social and quality of governance risks incorporated and analyzed (including physical risks, transition risks)	14-21
An indication of the review frequency of the risk management framework	6-7
An action plan aimed at reducing the entity's exposure to the main environmental, social and quality of governance risks taken into account	14-21
A clear distinction between the risks emanating from impacts caused by the investment strategy and the risks emanating from the biodiversity dependencies of the assets and activities in which the entity has invested	24-37

Appendix 11 - Biodiversity - contribution to COP15 objectives

Protection and preservation of natural spaces

No.	Target	Associated action(s)
Target 1	Spatial planning → Bring the loss of areas of high biodiversity importance close to zero by 2030, while respecting the rights of indigenous peoples and local communities,	These targets mainly concern national objectives (FR: 2030 national biodiversity strategy / EU: 2030 European Union strategy for biodiversity). Nonetheless, Ircantec can contribute indirectly to achieving these targets, for example through its engagement in various initiatives.
Target 2	Restoration → Ensure that by 2030 at least 30% of areas of degraded terrestrial, inland water and coastal and marine ecosystems are under effective restoration.	
Target 3	Protect terrestrial and marine environments → Ensure and enable by 2030, that at least 30% of terrestrial, inland water, and of coastal and marine areas are effectively conserved and managed.	

Protect species

No.	Target	Associated action(s)
Target 4	Management actions to protect species and genetic diversity → Halt human induced extinction of threatened species and foster the recovery and conservation of species, in particular those threatened.	Target 4 is covered by exclusions concerning GMO. Also appearing in the Ircantec SRI Charter is the requirement to observe "the Rio Declaration on Environment and Development, as well as the main conventions on the preservation of natural resources, protection of biodiversity and management of waste." Investment in companies that do not observe this declaration could be questioned by Ircantec.
Target 5	Sustainable use, harvesting and trade of wild species → Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over.	

Reduce invasive alien species and pollution

No.	Target	Associated action(s)
Target 6	Prevent and reduce invasive species → Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and reduce their rate of introduction by 50% by 2030.	Concerning target #7, exclusion thresholds on pesticides partly meet the objectives. Engagements are also planned in terms of plastics. Regarding invasive species, Ircantec is committed to monitoring the presence of invasive species through its forest asset manager. Furthermore, the climate policy meets certain aspects of this objective.
Target 7	Reduce pollution → Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity; reduce excess nutrients lost to the environment (fertilizer) by at least half; reduce the overall risk from pesticides and highly hazardous chemicals by at least half; and also prevent, reduce, and work towards eliminating plastic pollution.	

Minimize the impacts of climate change

No.	Target	Associated action(s)
Target 8	Target 8 aims to minimize the impacts climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, through nature-based solutions and/or ecosystem-based approaches.	Ircantec fully addresses this target through its SRI Charter and its climate policy. Furthermore, the voting policy includes rules on invested company energy transitions.

Sustainable management of species and areas

No.	Target	Associated action(s)
Target 9	Protect the benefits → Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for those most dependent on biodiversity.	The scheme works towards target #10 through its investments in forestry assets. These are managed sustainably with specific biodiversity protection actions in place.
Target 10	Ensure sustainable area management → Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably (sustainable intensification, agroecology, etc.)	

Integration of biodiversity in public sector policy and corporate strategy

No.	Target	Associated action(s)
Target 11	Maintain and increase nature's contributions → Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as regulation of air, water, and climate, soil health, pollination and reduction of disease risk.	Of the three targets indicated, Ircantec can indirectly respond to objective #12. Indeed, through its investments in the OPPCI, the scheme promotes biodiversity across its sites through the environmental management of parks and gardens.
Target 12	Increase green and blue spaces in urban areas → Significantly increase the area and quality and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, and ensure biodiversity-inclusive urban planning.	
Target 13	Access and share the benefits → Ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources. By 2030, facilitate an increase in the sharing of these benefits.	

Integration of biodiversity in public sector policy and corporate strategy

No.	Target	Associated action(s)
Target 14	Fully integrate biodiversity in the public and all economic activities through policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, fiscal and financial flows with the goals and targets of the post-2020 framework.	Ircantec clearly responds to target #15 through applicable French regulations (article 29 ECL) and its biodiversity policy.
Target 15	Integrate biodiversity in the private sector → Develop non-financial reporting by business on their dependencies and impacts on biodiversity along their operations, supply and value chains and portfolios.	
Target 16	Integrate consumer biodiversity awareness to foster more sustainable consumption choices.	

Biotechnologies & reduction of subsidies for harmful activities

No.	Target	Associated action(s)
Target 17	Target 17 aims to establish, strengthen the capacity for, and implement in all countries biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity.	The two targets imply country-level action. Consequently, it may be difficult for the scheme to work toward these targets. Nonetheless, the creation of a biodiversity-related exclusion policy may have an impact on target #18.
Target 18	Target 18 aims to identify by 2025 and eliminate incentives and subsidies harmful for biodiversity. It foresees a reduction to the tune of USD 500 billion per year by 2030 (which matches the OECD 2020 estimate of the world total). Positive incentives for the conservation and sustainable use of biodiversity will be scaled up.	

Financial engagements decided at COP 15

No.	Target	Associated action(s)
Target 19	(1) A target of USD 200 billion in financing from all sources (national, international, public and private) to be obtained every year by 2030. This financing must contribute to implementing national biodiversity strategies and action plans. (2) A target of USD 30 billion in financial resources from developed countries transferred to developing countries to be achieved by 2030, with an intermediate objective of USD 20 billion by 2025. - This triples the current international financial resources according to the OECD (\$8 billion on average between 2015 and 2020). - Certain developing countries (Africa group, Brazil and Argentina) were seeking an objective of USD 100 million per year.	The target concerns developed countries and other donors: multilateral organizations (international banks and financial institutions or the private sector (implicitly mentioned), for which the financing potential is largely untapped. Ircantec will investigate the possibility of working towards this target, in particular through thematic fund financing.

Mobilization of non-financial resources and integration of diversity

No.	Target	Associated action(s)
Target 20	Mobilization of non-financial resources → Strengthen capacity-building and access to technology in developing countries.	These targets can be met through appropriate engagement, which Ircantec will support through collaborative engagement opportunities.
Target 21	Traditional knowledge → Ensure that the best available data, information and knowledge, are accessible to decision makers and that practices and technologies of indigenous peoples and local communities are only be accessed with their free, prior and informed consent.	
Target 22	Inclusion → Ensure inclusive representation in decisions relating to biodiversity with regard to women and children, young people, indigenous peoples and people with disabilities.	
Target 23	Gender → Ensure gender equality in the implementation of the framework through a gender-responsive approach where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention.	

Appendix 12 TNFD reporting

Governance

A. Describe the control exerted by the Board of Trustees on nature-related dependencies, impacts, risks and opportunities.

B. Describe the role of management in the assessment and management of nature-related dependencies, impacts, risks and opportunities.

C. Describe the engagement policies and activities by the organization in terms of human rights and the control exerted by the Board of Trustees and Management in terms of indigenous peoples, local communities, impacted people and other stakeholders in the assessment of the organization, and the response to nature-related dependencies, impacts, risks and opportunities.

The Ircantec Board of Trustees plays a central role in **reviewing and validating** the SRI policies of the pension scheme, including the biodiversity policy. This policy represents one of Ircantec's current ESG priorities. It aims to create a **biodiversity impact mitigation approach**.

To urgently respond to these issues, the Board of Trustees is seeking to implement tangible measures, notably through the creation of exclusion thresholds for activities that are particularly harmful to biodiversity.

Ircantec is also a committed investor in promoting human rights in business. As part of its commitment to the Investors Alliance for Human Rights (IAHR), Ircantec has signed several declarations on this issue, including:

- The *Make Finance Work for People and Planet* declaration dated February 2019, which invites the members of the European Commission to require investors to put in place a systematic due diligence approach throughout the value chain, as part of the European Commission's action plan to finance green growth.
- The *Investor Case for Mandatory Human Rights Due Diligence* declaration of September 2019 to support the implementation of mandatory human rights due diligence for all companies.

In 2018, Ircantec joined the *Know The Chain* initiative (partnership between NGOs, research centers and non-financial audit firms), which produces benchmarks on respect for human rights within the subcontracting companies of major contractors. In 2022, the scheme also signed a declaration in favor of more robust regulations against forced labor (Forum for responsible investment - FIR, and IAHR), as well as a declaration on due diligence via the FIR in March 2023.

Strategy

A. Describe the nature-related dependencies, impacts, risks and opportunities identified by the organization for the short, medium and long term.

B. Describe the nature-related dependencies, impacts, risks and opportunities on the organization's business model, value chain, strategy and financial planning, as well as any transition plans or analyses in place.

C. Describe the resistance of the organization's strategy to the nature-related risks and opportunities, taking into account different scenarios.

D. Indicate the location of assets and/or activities in the organization's direct activities and if possible, in the upstream and downstream value chains which meet priority location criteria.

Ircantec is currently examining the implications of these **nature-related dependencies, impacts, risks and opportunities** on the organization's business model, strategy and financial planning.

Ircantec intends to publish a **biodiversity policy** in 2024, and thus provide the initial elements in responding to the requirements of article 29 of the French Energy & Climate law. Initially, the strategy to mitigate the impacts of Ircantec investments on biodiversity involves **the exclusion of activities harmful to biodiversity** beyond a certain level of associated turnover. Moreover in terms of the **forestry and real estate scope**, Ircantec is working with asset managers to reinforce the biodiversity-related approaches and strategy.

In 2023, the Ircantec **stewardship policy** has been extended to integrate a fourth main theme: **preservation of biodiversity**, a core purpose of the marketplace work and the basis of article 29 of the French Energy and Climate law. The aim of this new theme of engagement is to promote a measurement of company biodiversity footprints, while working to preserve and restore biodiversity.

In 2022, Ircantec signed an [Investor PRI statement](#) ahead of the COP15 conference on Biodiversity, to support the creation of a global framework to halt and reverse biodiversity loss. In 2023, Ircantec signed two declarations on plastics, sponsored by VBDO and Client Earth:

- For business: declaration to encourage companies which make intensive use of plastic packaging to take robust and immediate measures.
- In European regulations: signature of a letter addressed to the main EU policy decision makers. The letter recalls the key messages of the declaration on plastics and asks the European Parliament and Council to adopt an ambitious position on the reform of the "*Packaging and Packaging Waste Regulation*" (PPWR).

In 2022 and 2023, Ircantec proposed questions relating to biodiversity as part of the collaborative engagement campaign orchestrated by FIR for the CAC 40 (ESG questionnaire for listed companies).

Currently, the pension scheme intends to join **initiatives in favor of biodiversity**, notably *Nature Action 100*, the section of *Climate Action 100+* devoted to biodiversity. The scheme has also signed the PRI Spring initiative on biodiversity.

Lastly, in 2024, Ircantec decided to disclose its **PAI (Principal Adverse Impacts)**, in line with the European SFDR regulation. The aim of the principal adverse impacts is to examine the negative effects on ESG issues generated by an investment decision. A mandatory PAI (activities negatively impacting biodiversity-sensitive areas) and several optional PAI (deterioration of soils, desertification, soil sealing, anti-deforestation policy) are associated with biodiversity.

Risk and impact management

A(I) Describe the processes implemented by the organization to identify, assess and prioritize the nature-related dependencies, impacts, risks and opportunities in the course of its direct activities.

A(II) Describe the processes implemented by the organization to identify, assess and prioritize the nature-related dependencies, impacts, risks and opportunities in its value chain(s) upstream and downstream.

B. Describe the organizational processes implemented to manage nature-related dependencies, impacts, risks and opportunities.

C. Describe how the processes of identification, evaluation, prioritization and monitoring of nature-related risks are integrated into the organization's global risk management processes and clarify them.

Ircantec is fully aware of the risks related to biodiversity. It is seeking to integrate these concerns into its management processes through **targeted exclusions** considered harmful to biodiversity above certain related turnover thresholds.

Article 29 of the French Energy-Climate law demands the use of a biodiversity footprint. A call for proposals will be implemented in late 2024 to identify a biodiversity footprint service provider.

Nonetheless, the 2022 and 2021 sustainability reports already highlight **several biodiversity-related indicators** before arriving at footprint tool solutions:

- **Environmental intensity**, provided by Trucost, quantifies in Euros the environmental impact of investments, assigned an environmental cost to each resource and pollutant. The Institution's global portfolio generated lower environmental costs than its benchmark in 2022 and generally succeeded in reducing them between 2021 and 2022;

- **Biodiversity score**, also provided by Trucost, evaluates the awareness of business to risks related to biodiversity. It seeks to know if they integrate stakeholders in the development of their biodiversity strategy and if this implementation is subject to an internal or external assurance process. Biodiversity scores are taken from the annual *Corporate Sustainability Assessment* process and represent the weighted average of individual biodiversity scores of companies making up the portfolio or the benchmark. Although the Ircantec portfolio was slightly below its benchmark in 2022, the focus is on continuous improvement.

By continuing to demonstrate its engagement toward biodiversity, Ircantec intends to **scale-up its biodiversity strategies in the real estate and forestry scopes**. These measures will further reinforce the monitoring and assessment of the dependencies and impacts in terms of biodiversity.

Metrics and objectives

A. Indicate the parameters used by the organization to evaluate and manage significant nature-related risks and opportunities, in line with its strategy and its risk management process.

B. Indicate the parameters used by the organization to evaluate and manage dependencies and impacts on nature.

C. Describe the targets and objectives used by the organization to manage the nature-related dependencies, impacts, risks and opportunities, as well as its performance in relation to these targets and objectives.

Ircantec has already introduced **metrics to evaluate and manage nature-related risks and opportunities**, aligned with its strategy and risk management process, as set out in its 2022 sustainability report. Two indicators are currently used for this purpose, namely **environmental intensity and the biodiversity score**. The two indicators are supplied by Trucost:

- **Environmental intensity** is calculated at corporate portfolio level. It quantifies the environmental impact of greenhouse gas emissions, water use, waste, air, soil and water pollutants, as well as the use of natural resources. The analysis not only incorporates the impacts associated with the company's own activities, but also those of its upstream suppliers, up to the extraction of raw materials;
- **The biodiversity score** is a weighted average of the individual biodiversity scores of companies making up the portfolio or benchmark. This evaluation examines the awareness of risks related to biodiversity, the inclusion of stakeholders in the development of their strategy, and if this implementation is subject to internal or external assurance process.

In a continuous improvement approach, Ircantec is currently preparing a call for proposals to **select a biodiversity footprint service provider by the end of 2024**. This initiative aims to complete existing tools

by providing a specific biodiversity dependence and impact score, thereby reinforcing Ircantec's capacity to assess and manage its interactions with nature in the most comprehensive manner possible.

Appendix 13

Definition of non-conventional fossil energies

Ircantec considers the following fossil fuel energies to be non-conventional:

- Shale gas and oil

Stored deep underground in impermeable and non-porous rock, extracted by fracking. This method raises many issues, especially the extensive use of water and chemical products that can pollute sub-soils, the resulting emission of methane and the risk of earth tremors.

- Oil sands

These comprise a mixture of rough tar, sand, mineral clay and water. For this reason they are very viscous and cannot be pumped like conventional oil. The production of oil from oil sands (or tar sands) required immense quantities of water and energy. The production of a barrel of oil from oil sands generated over 190 kg of greenhouse gases. Using a life cycle analysis, it is estimated that the fuel derived from oil sands generates up to 37% more greenhouse gas emissions than fuel derived from conventional oil.

- Extra-heavy oil with an API gravity above 15°.

Due to its composition, its extraction and refining process, extra-heavy oil consumes large amounts of energy and high emissions levels.

- Hydrocarbons in very deep waters

This concerns sea wells with a depth equal or greater than 1,500 m. These extraction operations are controversial because it is impossible to contain potential leaks at this depth, which would result in adverse environmental impacts.

- Coal gas

This gas is extracted from coal veins, usually by fracking. It presents multiple issues (methane leaks, water contamination, health risks for local populations, etc.).

- Arctic oil and gas resources

The definition of Arctic used by Ircantec is that of the Arctic Monitoring and Assessment Program (AMAP): "The terrestrial and marine areas north of the Arctic Circle (66°32'N), and north of 62°N in Asia and 60°N in North America, modified to include the marine areas north of the Aleutian chain, Hudson Bay, and parts of the North Atlantic Ocean including the Labrador Sea." Potential leaks cannot be mitigated in cold waters and would have an adverse impact on fragile marine and coastal ecosystems of the Arctic. This also contributes to developing maritime traffic in the region and black carbon emissions limit the region's capacity to reflect solar radiation, which limits climate change.

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