

Spuerkeess'

Net Zero

Climate Target Report 2023



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Climate change is one of the most pressing issues of our time, requiring global mobilization, collaboration and action. As sustainability concerns us all, we must act now and as a bank, we have a particular responsibility and role to play in this transition process. Climate change presents both risks and opportunities for the financial industry, and it is our duty to navigate this new landscape with diligence and foresight.

Through our climate and net zero commitments, we are focused on actions towards a more sustainable economy and support the Luxembourgish National Climate and Energy Plan (NCEP) and thus the Paris Agreement Goals. Spuerkeess released its first Net Zero Climate Target Report in April 2022¹, laying down the foundation for its climate change mitigation strategy to support the global economy's transition towards net zero.

At Spuerkeess, we are committed to taking concrete steps to integrate climate considerations into our operations, lending and investment decisions, and risk management processes. We understand that the financial industry is intricately linked with the global economy and, as such, can significantly influence the transition to a sustainable future.

Our commitment goes beyond mere compliance. It is about actively contributing to positive change and that's why we are actively working to reduce our carbon footprint and transition to more sustainable banking practices. Furthermore, we are committed to engaging with our clients and partners to support them in their sustainability journey.

Spuerkeess believes that active collaboration with its stakeholders is key to make an impact in addressing sustainability-related challenges. Spuerkeess will continue to encourage the stakeholders within its sphere of influence to gradually shift towards new business models and sustainable companies.

As climate constitutes a core pillar of our business strategy, the challenge consists in helping and supporting our clients and stakeholders in their transition towards a more sustainable economy. As our focus is currently on climate change, Spuerkeess aims to transition its own operations GHG emissions and attributable GHG emissions from its lending and investment portfolios to net zero by 2050.

This report provides an overview of our targets, actions and initiatives in relation to our climate efforts. As we move forward, we will continue to communicate our progress and initiatives transparently, inviting you to join us on our sustainability journey.



Françoise Thoma
CEO of Spuerkeess

¹ [Net_Zero_Climate_Target_Report_2022.pdf](#)
([spuerkeess.lu](#))



**EXECUTIVE
SUMMARY**

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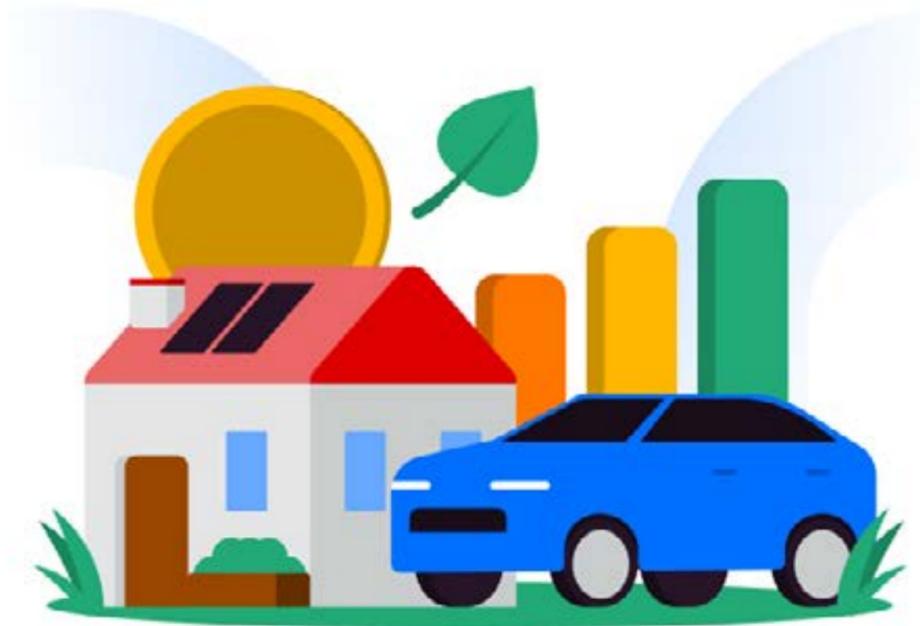
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Spuerkeess supports the Paris Agreement Goals and our ambition is to become net zero by 2050 by:

- reaching net zero emissions in our own operations and aligning all our lending and investment portfolios with the Paris Agreement goals by 2050 (or sooner),
- supporting our customers in their transition towards sustainability,
- reducing our ecological and environmental impact, by incorporating Environmental, Social, and Governance (ESG) factors into our lending and investment decisions,
- managing climate and environmental risks by ensuring the resilience and continuity of our business model.



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This report gives detailed insights to our stakeholders on Spuerkeess' climate commitments, engagements, initiatives and progress on our sustainability journey. More precisely, we will

- provide a clear and transparent report of how Spuerkeess is identifying, assessing, and managing climate risks across its operations and investment portfolios,
- outline our commitment to incorporating climate considerations into our governance and strategy processes,
- highlight our ongoing efforts on climate change, namely
 - the progress against the targets set in our Net Zero Climate Target Report 2022;
 - the elaboration of a transition action plan explaining how Spuerkeess aims to achieve its net zero targets by 2050 (or sooner) on main emitting sectors;
 - the collaboration with our stakeholders and contributing thus to the global transition towards climate resilience and a sustainable economy.

Furthermore, this report gives an insight into the carbon footprint stemming from our exposures on climate relevant sectors² and into our transition pathways to net zero for key sectors.

The emission figures are built with reference to the Partnership for Carbon Accounting Financials (PCAF) Standard³ by using a combination of reported and estimated greenhouse gases (GHG) emissions, as well as economic activity emission proxy factors⁴ for clients/issuers where no data is yet available.

In defining pathways to net zero, Spuerkeess uses the International Energy Agency's (IEA) Net Zero scenario (NZE) as applied by Transition Pathway Initiative (TPI)⁵, as well as decarbonisation rate from National Energy and Climate Plan (NECP) for Luxembourg's real estate sector.

We focus on five carbon intensive sectors for target setting by using sector-specific production based carbon intensity metrics which best capture the decarbonisation pathways of each of those sectors:

Portfolio	Sector	Territory	Metric	GHG emission scopes covered
Corporate bonds	Oil & Gas	International	g CO2e / MJ	Scope 1 + 2 + 3
Corporate bonds	Power generation	International	g CO2e / MWH	Scope 1
Corporate bonds	Automotive	International	g CO2e / KM	Scope 3
Corporate equities	Airlines	International	g CO2e / RTK	Scope 1
National residential mortgage loans	Real Estate	National	g CO2e / SQM	Scope 1 + 2

Additional disclosures are available at <https://www.spuerkeess.lu/en/about-us/sustainability/>

We welcome reactions and views, which can be emailed to sustainability@spuerkeess.lu

² We applied the definition of climate relevant sectors / activities as given by the Regulation (EU) 2020/1818, namely code nace A - H & L.

³ PCAF (2022). The Global GHG Accounting and Reporting, Standard Part A: Financed Emissions, Second Edition.

⁴ All our GHG emissions calculations are based on data coming either from our Data Provider MSCI (verified / non verified GHG emissions & economy activity emission proxy factors) or PCAF (sectoral emission proxy factors).

⁵ The Transition Pathway Initiative Global Climate Transition Centre (TPI Centre) is an independent, authoritative source of research and data into the progress being made by the financial and corporate world in making the transition to a low-carbon economy.

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OUR CLIMATE ACHIEVEMENTS AT A GLANCE

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The table below summarizes Spuerkeess' progress made on its journey to become net zero by 2050 (or sooner) for our five carbon intensive sectors/activities in our portfolios based on GHG emissions, GHG intensities and/or financial exposure

Sector / Activities	Outstanding Amount (in mio EUR) 2022	Outstanding Amount (in mio EUR) 2023	Metric	Pathway / Scenario	Baseline 2022	2023			Target 2030
					Portfolio Value	Pathway Value	Portfolio Value	Alignment	Pathway Value
Oil & Gas	287	220	gCO ₂ e/MJ	IEA 2°C	71,05	62,88	70,01	● 11,34%	52,76
Power generation	226	151	gCO ₂ e/Mwh	IEA 1,5°C	0,16	0,35	0,16	● -54,29%	0,14
Automotive	147	190	gCO ₂ e/km	IEA 2°C	129,60	127,94	125,00	● -2,30%	80,91
Cargo Airlines	535	349	gCO ₂ e/RTK	IEA 1,5°C	488,00	673,80	513,00	● -23,86%	370,00
Passenger airlines	496	422	gCO ₂ e/RTK	IEA 1,5°C	1.052,00	1.123,00	1.004,00	● -10,60%	616,00
Mortgages loans	15.257	15.908	kgCO ₂ e/Sqm	NPCE 1,5°C	28,89	/	28,43	/	24,10
						Value 2023	Target 2025	Target 2030	
Own operations		/	tCO ₂ e / FTE	/	1,17	1,02	1,00	/	/

● Below pathway ● <10% above pathway ● >10% above pathway

Please note that :

- for the time being our Oil & Gas portfolio is not aligned with the IEA 2°C scenario. Spuerkeess corporate bonds investment strategy relies on a “best in class” approach as well as on a divestment strategy from the “worst performers” which is reflected by the decrease in the outstanding amount from 2022 to 2023 for this sector.
- as from 2023, Spuerkeess excluded, in line with PCAF recommendation, its Green Bonds from its financed emissions computation of its corporate bonds portfolio. As a consequence, our carbon footprint and our baseline value of 2022 have been retroactively adjusted.
- as TPI transition pathways are regularly reviewed to ensure consistency with the latest science (IEA scenario), Spuerkeess adapts its target setting approach accordingly.
- for our national residential mortgage loans portfolio, our baseline value of 2022 (50,25 kg CO₂e / SQM) has been retroactively adjusted to 28,89 kg CO₂e / SQM reflecting the consideration of the new and more realistic PCAF emissions factors published in 2023 (for further details please refer to the section [6.2.3.3 National residential mortgage loans](#)). For the time being, we maintain the 2030 target at 24,10 kg CO₂e / SQM as this value is closely aligned to 2030 SBTi target for residential mortgage loans.
- for its own operations, Spuerkeess reached already in 2023 its 2025 target (scope 1 emissions) of 1,05 t CO₂e / FTE and has set therefore a new Target 2025 (market-based) of 1,00 t CO₂e / FTE.
- the five sectors for which Spuerkeess set 2030 targets, represent 35% of our total Scope 1, 2 and 3 financed GHG emissions and 62% of the latter without considering our business loans, which will be included at a later stage in our target setting approach.

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OUR CARBON FOOTPRINT OF OUR BANKING ACTIVITIES AT A GLANCE

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As of 31 December 2023, Spuerkeess' total exposure on climate relevant sectors was EUR 25.967 mio (24.549 mio in 2022) from which about 93% (compared to 96% in 2022) where covered by our financed GHG emissions calculation.

Exposures per asset class	Financed absolute GHG emissions 2023 from our banking activities						Financed absolute GHG emissions 2022 from our banking activities						Comments
	Gross carrying amount (in mio €)	Scope 1 & 2 (in tons of CO2e)	Scope 3 (in tons of CO2e) ⁶	PCAF coverage (in %) ⁷	Average data quality score	«Financial intensity «Scope 1 & 2» (t Co2e/mio EUR)»	Gross carrying amount (in mio €)	Scope 1 & 2 (in tons of CO2e) ⁸	Scope 3 (in tons of CO2e)	PCAF coverage (in %)	Average data quality score	Financial intensity «Scope 1 & 2» (t Co2e/mio EUR)	
Total climate relevant sectors - Non-financial corporations (included in GHG calculations)	24.019	1.137.102	3.452.749		3,20		23.358	1.247.657	3.401.643		3,17		A significant decrease in our Scope 1 & 2 financed emissions has been reached mainly through : - the reduction of companies' absolute emissions, - the reinvestment in companies with a lower carbon profile, - the improvement of the data quality. The attribution factor may be influenced by the rise/drop of share prices.
of which corporate bonds (without Green Bonds)*	2.484	164.468	1.884.662	100%	2,02	66,21	2.506	238.695	1.976.383	100%	2,11	95,25	
of which exposures from automotive sector	190	1.982	331.438				147	1.534	204.217				
of which exposures from power generation sector	151	23.913	85.828				226	77.063	164.017				
of which exposures from oil & gas sector	220	57.758	588.014				287	69.068	828.610				
of which corporate equities	831	416.428		93%	1,55	492,27	1.098	398.868		94%	1,48	503,49	
of which exposures from passenger airline sector	422	53.379					496	32.268					
of which exposures from freight airline sector	349	363.049					535	366.600					
of which residential mortgage loans	15.908	89.262		100%	2,93	5,61	15.257	146.033		94%	2,92	9,57	
of which business loans	4.796	466.944	1.568.087	100%	5,00	97,36	4.497	464.061	1.425.260	100%	5,00	103,18	
of which exposures from construction sector	1.470	36.567	1.011.216				1.242	31.051	858.689				
of which exposures from transportation & storage sector	510	133.010	125.226				464	135.451	131.621				
of which exposures from manufacturing sector	398	110.760	229.735				426	113.182	229.548				
of which exposures from electric utilities sector	325	114.486	62.842				333	109.704	61.293				
Total climate relevant sectors - Non-financials corporations (not included in GHG calculations)	1.948						1.191						Regarding our business loans portfolio, we maintained the emission factors from the PCAF/EXIOBASE Database version of 2022 as the recent update of the PCAF database introduced erratic emissions factors which need a more in depth analysis.
Total non climate relevant sectors	30.570						32.466						
of which financials	21.513						21.338						
of which governments	4.134						4.125						
Total Gross Carrying Amount	56.537						57.015						
Green Bonds issued by climate relevant sectors - Non-financial corporations	276						110						As from 2023, Spuerkeess decided, based on PCAF recommendation, to exclude its Green Bonds Portfolio from its financed emissions computation of its corporate bonds portfolio. As a consequence, our carbon footprint of 2022 has been retroactively adjusted.
*Green Bonds issued by non-climate relevant sectors	655						348						

⁶ For our airline companies in our corporate equities portfolio, their scope 3 emissions will be calculated accordingly to GHG protocol and disclosed in our Net Zero Climate Target Report 2024. For our national residential mortgage loan portfolio, Spuerkeess doesn't have any data for the time being on scope 3 emissions.

⁷ The PCAF coverage reflects the exposure of a given asset class considered for the calculation of our financed GHG emissions.

⁸ The PCAF data quality score gives an indication of the data used to calculate financial institutions financed GHG emissions. Scores are ranging from 1, highest data quality score (= reported verified / unverified GHG data) to 5, lowest data quality score (= estimated sectoral GHG data).

Our average data quality score⁸ slightly worsened to 3,20 (3,17 in 2022) due to a decrease in the average data quality score in our corporate equities portfolio.

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OUR CLIMATE STRATEGY AND SDG ALIGNMENT

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The section below highlights the link between our climate strategy and the way our strategic climate objectives has been aligned with the sustainable development goals (SDG). Further details on the link between our ESG strategy and the SDGs can be found in our “Sustainability report 2023⁹”.



The SDG 7 “Ensure access to affordable, reliable, sustainable and modern energy for all” is closely linked with some of our activities such as financing renewable energies.



The SDG 11 “Make cities and human settlements inclusive, safe, resilient and sustainable” twins with some of the following products and services of Spuerkeess:

- E-Mobility financing
- Low Carbon Households (EPC A&B) financing
- Sustainable renovation loan financing
- Aid and Finance advice & EIB Green Checker»



We are supporting the ambitions of the SDG 12 “Ensure sustainable consumption and production patterns” by the following actions:

- Own Operations rely on 100% renewable energy
- Responsible consumption of resources and waste management
- ESG Procurement Policy



The SDG 13 “Take urgent action to combat climate change and its impacts” goes hand in hand with some of the following measures undertaken by Spuerkeess:

- Portfolio alignment of hotspot sectors to the Paris Agreement
- ESG Policies among other our ESG exclusion Policy
- Exposure financing limit to climate relevant sectors



We strive to preserve the biodiversity by aligning with the SDG 15 “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”. Further details can be found in chapter “4.4. Other environmental risks” of this report.

⁹ Sustainability development report 2023: Part I. – Sections 1.2. & 2.3 and Part II section 1.3.



ESG
GOVERNANCE

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Our ESG governance is a fundamental component of how we are addressing sustainability and ethical considerations in our operations. ESG involvement of committees and relevant entities in managing the impacts on economy, environment and people:

BOARD OVERSIGHT

- The **Board of directors** approves the sustainability strategy and the sustainability policies, as well as their respective updates, as validated and submitted by the Executive Committee.

COMMITTEES AND OFFICERS

- The **Executive Committee** validates the ESG strategy to be submitted for approval to the Board of directors and is in charge of the implementation thereof; the Executive Committee informs the Board of directors on a regularly basis about the progress made in the implementation of the strategy. Responsibilities on ESG-related themes have been assigned to the CEO, President of the Executive Committee.
- The **Extended Management** ensures that the objectives of the Bank's strategy are met within the given timeframe. The Extended Management has decision-making power on sustainability and climate-related issues (subject to veto right of the Executive Committee Members).
- The **Nomination and Remuneration Committee** is, inter alia, in charge of analyzing and validating the remuneration policy, and to review the global variable remuneration granted to the Bank's employees. The remuneration policy does not contain any quantitative criteria which would encourage an undue risk taking, including at the level of ESG related matters.

- The **Risk Committee** monitors and analyses the adequacy of the risk management framework including the risks related to ESG which are embedded within the risks identified for the Bank (credit risk, liquidity risk, reputational risk, aso).
- The **Head of Sustainability** is responsible to propose to the management bodies the ESG strategy to be included in the Bank's overall corporate strategy. The Sustainability and Strategic Office (SSO), within the General Secretariat, is, inter alia, in charge of the review and the monitoring of the implementation of Spuerkeess' strategy by delivering quarterly progress reports to the Board of directors and the Executive Committee. The SSO is the center of competence pertaining to ESG related matters and as such assists the various business units in integrating ESG elements within their respective activities.

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RISK MANAGEMENT

Our Risk Management Department is responsible for the development of the Bank's holistic climate risks management framework and oversees the management of climate-related and environmental risks and its impacts on Spuerkeess' business model as well as the definition of key metrics and risk appetite thresholds. For further details on Spuerkeess' climate risks management approach, please refer to section 5 in this report.

ESG POLICIES

Our sustainability policy provides the framework on which are based Spuerkeess' ESG policies. Spuerkeess' policy on responsible credit and investment portfolio defines the guidelines for integration of ESG criteria (Environmental, Social and Governance), and outlines the reference principles involved, plus the screening criteria (exclusion policy) applicable to the activities of lending, investing own funds, and providing investment advice to clients.

For further information on our ESG policies, please refer to [Spuerkeess: CSR Policy of Spuerkeess](#)

TRAINING AND EDUCATION

As global changes in sustainability increasingly affect the business environment in ways that present both risks and opportunities for the financial sector, Spuerkeess recognizes the need for its management to be equipped with the tools necessary to cope with and benefit from these changes.

In addition to internal continuous training, courses are organized to gain a deeper understanding of the pressures facing the current financial system and to explore how sustainable financing strategies can create long-term value for society, the environment and Spuerkeess. As a result, the members of the Executive Committee and the Board of directors are regularly informed on ESG issues.

Besides, Spuerkeess developed a sustainability learning program for all staff members in the form of e-learnings as well as specific ESG trainings which are activity- and practical-oriented. These trainings will be continuously updated in line with the evolving regulations. Further details on our ESG trainings are presented in our "Sustainability development report 2023¹⁰".

¹⁰ Sustainability development report 2023 : Part I sections 2.3, 3.2, 4.3, and Part III, Section 2.1.1.

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**CLIMATE
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At Spuerkeess, we believe that our profitability is closely linked to sustainability. Being profitable in the long term goes hand in hand with the gradual improvement of our environmental and social performance.

As climate constitutes a core pillar of our business strategy, we committed to taking concrete steps to integrate climate considerations into our operations, investment and lending decisions, and risk management processes.

Our ESG policies as well as our inspiring principles and climate initiatives set out below form the cornerstones of Spuerkeess' sustainability strategy with respect to climate and environmental topics.

4.1.1. Our inspiring principles



As a transition enabler, Spuerkeess' business strategy relies on the Sustainable Development Goals (SDG's), as well as on the targets set in the Paris Climate Agreement and the relevant national initiatives.



In October 2019, Spuerkeess signed the Principles for Responsible Banking of the United Nations Environment Programme Finance Initiative (UNEP FI). The implementation of the Principles is part of our overall sustainability strategy and commitments.

4.1.2. Our climate initiatives



We were Luxembourg's first bank to commit to the Net Zero Banking Alliance (NZBA) in October 2021 and committed to transition our own operations and attributable GHG emissions to net zero by 2050 or sooner.



Spuerkeess joined the Partnership For Accounting Financials (PCAF) in June 2022 and uses its methodology to measure and disclose the GHG emissions financed by its banking activities.

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The before mentioned inspiring principles, climate initiatives and our ESG policies are the source and inspiration for Spuerkeess' climate target setting on our own operations and banking activities (portfolio target setting) to become net zero by 2050 or sooner.

4.2.1. Own operations targets

Spuerkeess set a target on the scope 1 emissions resulting from its own operations : Target 2025 (market-based) : 1,05 t CO₂e / FTE (-10% compared to 2022). Spuerkeess reached already in 2023 its 2025 target (scope 1 emissions) of 1,05 t CO₂e / FTE and has set therefore a new Target 2025 (market-based) of 1,00 t CO₂e / FTE.

4.2.2. Portfolio targets

As a member of the Net Zero Banking Alliance (NZBA) and following our strategic priorities, Spuerkeess has set climate targets on the Oil&Gas, Power Generation, Automotive and Aviation sectors as well as on its mortgage loan activities.

The targets, aligned with a 1.5°C respectively 2°C climate ambition, are summarized on section [2.3 Our climate achievements at a glance](#) above. Further details on our target setting methodology can be found in section [6.2.3. Target Setting](#).

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Climate change presents both risks and opportunities. Climate risks are commonly classified into two types of risks :

- **Transition risks** : These are financial losses that an institution might incur, directly or indirectly, as a result of the process of adapting to a low-carbon economy. It can arise, for example, from relatively abrupt adoption of climate policies, technological progress or shift in customer preferences.
- **Physical risks** : These are the financial effects of climate change which are either acute, such as extreme weather events (droughts, hurricanes or floods) or chronic, such as gradual change in climate patterns (rising mean temperatures, chronic heat waves or rising sea levels).

Physical and transition risks can both produce direct or indirect impacts. Spuerkeess believes that physical and transition risks are key drivers of several banking risk categories and sub-categories. Therefore, Spuerkeess does not consider the aforementioned climate-related risks as stand-alone risks in itself but as risk factors that impact traditional risks such as credit, liquidity, market, operational and / or reputational risks.

Please refer to the Risk Management section below for further details on our methodology and the different impacts climate risks can have on the existing types of financial and non-financial risks.

Beside climate risks, Spuerkeess aims to position itself to take advantage of climate-related opportunities by acting as a transition enabler to support our customers and economy on its journey towards sustainability by promoting sustainable finance solutions to finance the transition (e.g. renewable energy sources, improving energy efficiency of buildings, e-mobility,...)¹¹ and by promoting sustainable advisory services such as our aid and finance advice¹², the EIB Green Eligibility Checker¹³ or our green investment portfolio management¹⁴.

¹¹ Further details on how we engage with our clients and partners to support them in their sustainability journey, can be found in our "Sustainability development report 2023 : Part I section 4.3 and Part III sections 1.4 and 2.2.

¹² The aid and finance advice is an online simulator to support our clients in their energy efficiency projects and help them understand the aid and grants that are available to them.

¹³ The EIB Green Eligibility Checker supports financial intermediaries in originating, appraising, and reporting on green investments financed through the European Investment Bank's (EIB) intermediated debt products or through other financing sources. The EIB green (climate action criteria and environmental sustainability) criteria are aligned with the substantial contribution (SC) criteria as defined in the first Delegated Act developed under REGULATION (EU) 2020/852 (EU Taxonomy).

¹⁴ Activmandate Green is a theme focused portfolio management product which aims to contribute to sustainable development goals. The portfolio is based on three building blocks: Environment & Climate Equities, Thematic Equities (e.g. clean energy, water,...) and Green Bonds.

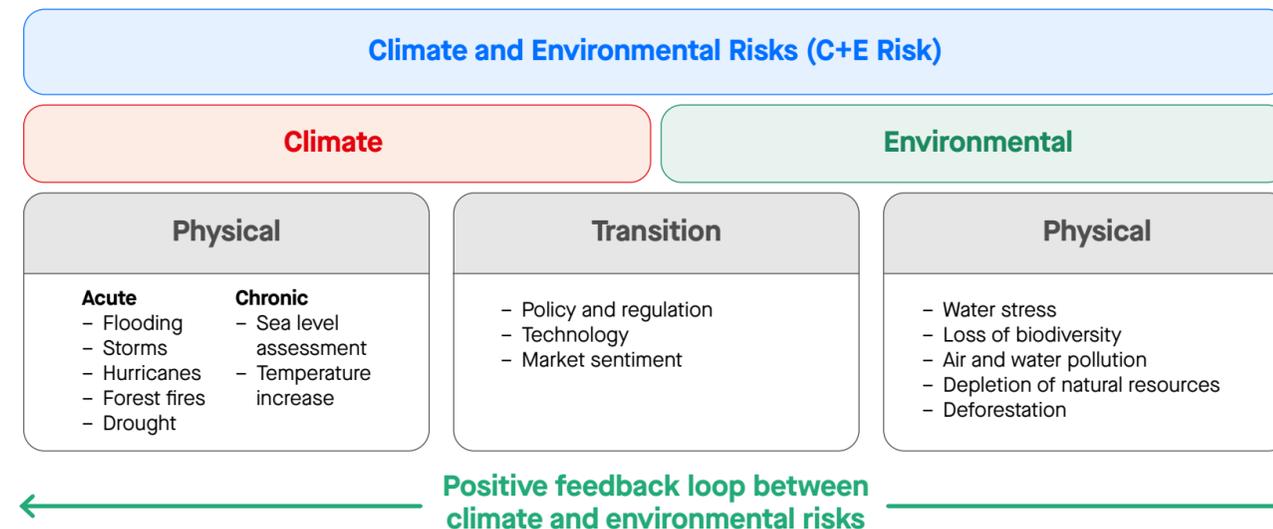
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A healthy natural environment is crucial for economic activities such as agriculture, fishing and forestry as they directly rely on the natural environment. Moreover, the environment serves as a source of energy and raw materials such as water, wood and minerals for many of our industrial processes and the energy production.

Furthermore, the interdependence between climate risks and environmental risks underscores the importance of safeguarding our natural resources to mitigate the adverse impacts of climate change on both economic activities and human well-being.

The figure below summarizes the links between climate risk and environmental risks. The distinction between climate-related physical risks and environmental physical risks is vague. Moreover, it should be noted that climate change exacerbates environmental issues, particularly biodiversity loss, pollution and natural resources scarcity. Climate and environmental risks are distinct but interact in a loop of adverse effects as shown hereunder :



By emphasizing, Spuerkeess does not consider climate and environmental risks as a new category of risk, but rather as a risk driver for existing risks categories. Risk analysis is based on the recommendation of the Taskforce on Climate related Financial Disclosures (TCFD) to develop processes for identifying and evaluating risks related to climate and environmental risks. The materiality analysis draws inspiration from the LEAP methodology (Locate, Evaluate, Assess, Prepare) of the Taskforce on Nature-related Financial Disclosures (TNFD) and it comprises four distinct phases:

- **Locate:** identify and locate nature related risks and opportunities within the organizations' operations;
- **Evaluate:** assess the significance and relevance of identified nature related risks and opportunities;
- **Assess:** prioritize the identified nature-related risks and opportunities based their materiality to the organization;
- **Prepare:** develop strategies, actions and disclosers to address and manage the prioritized nature related-risks and opportunities.

Spuerkeess bases its identification and evaluation of climate and environmental (C&E) risks on two different axes, combined with the LEAP approach. This allows for a precise understanding of potential impacts on the Bank. A geographical approach is used to assess whether a Banks counterparty is operationally active in a geographical area particularly affected by climate and environmental risks. This approach considers the specific characteristics of each location, adapting strategies to local challenges. The geographical approach is complemented by a sectorial analysis, identifying sectors heavily impacted by environmental degradation and heightened physical risks. By combining these two axes, a comprehensive vision emerges.

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4.4. OTHER ENVIRONMENTAL RISKS

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The geographical analysis of C&E risks for Spuerkeess is primarily conducted using national and international data providers to attain the most detailed perspective feasible at both the Luxembourg and global levels.

The sectorial analysis is primarily conducted using two tools:

- **ENCORE** (Exploring Natural Capital Opportunities, Risks and Exposure) is a tool designed to assess natural capital risks and opportunities associated with business activities and investment. It provides insights into how the Bank depends on and impact natural capital. ENCORE helps identifying potential risks related to natural resource availability, biodiversity loss and ecosystem degradation allowing for informed decision making.
- **WWF Biodiversity Risk Filter** is a tool developed by the World Wide Fund for Nature to assess the potential impacts on business activities on biodiversity, The Biodiversity Risk Filter assists companies and financial institutions in understanding and managing risks related to biodiversity loss and ecosystem degradation.

In summary, the materiality assessment of climate and environmental risks within Spuerkeess is of essential importance, especially given the escalating challenges posed by climate change. The materiality of risks identified through geographical and sectoral analysis commits the Bank proactive risks management and informed anticipation of emerging challenges. A comprehensive understanding of the Bank's exposure to these risks is strategically important, not only for protecting assets and investments but also for engaging in sustainability and environmental stewardship. Ultimately, proactive risk management is essential to ensure the long-term financial resilience of the Bank while contributing to global environmental preservation and well-being.

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At Spuerkeess, we believe that our profitability is closely linked to sustainability. In order to identify, evaluate and mitigate the aforementioned climate risks (part [4.3. Climate risks and opportunities](#)) and incorporate climate opportunities into our strategy, Spuerkeess is currently implementing climate scenario analysis (plausible future projections under different assumptions) for assessing the resilience of the Bank's strategy and identify their short, medium and long term impacts on the Bank's business model.

The aforementioned approach of Spuerkeess contributes to greater strategy resilience and flexibility by :

- testing a strategy and strategy options against a set of scenarios;
- identifying possible future threats or opportunities;
- serving as a basis for continuous monitoring and strategy adjustment.

The aim is to better understand how we as a Bank might be affected by physical and transition risks, how the latter might evolve under certain scenarios and under which time horizon (short, medium or long term). To do so, the Bank has identified its main sources of revenues that could be impacted by these risks, and has assessed its potential vulnerabilities on the:

- adequate diversification and liquidity on assets generating its future revenues ;
- exposures to carbon intensive activities that could impair the future revenue generation.

Please refer to the Risk Management section below for further details on our methodology and the different impacts climate risks could have on the various risk areas (financial and non-financial), what we have done to mitigate it and the steps that have been defined for the coming period. Spuerkeess is fully aware of the importance of incorporating climate risks and opportunities in its business strategy and we are doing so by

- implementing new metrics in our Risk Appetite Framework,
- client engagement,
- proposing ESG products and services to our clients,
- adapting a set of ESG policies among which exclusion policies.

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**RISK
MANAGEMENT**

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As climate risks becomes increasingly relevant, Spuerkeess started to identify and evaluate the potential negative impacts it could have on the Luxemburgish economy, its clients and thus on its business model.

As mentioned before, Spuerkeess does not consider the aforementioned climate-related risks as stand-alone risks in itself but as risk factors that impact traditional risks such as credit, liquidity, market, operational and / or reputational risk and therefore climate risks need to be well understood and managed.

The following sections describe our ESG risk management approach, meaning the processes and strategies employed by Spuerkeess to identify, assess, mitigate, monitor and report the risks associated with climate change which can affect our operations, finances and reputation.



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The identification of climate-related and environmental risks is part of the whole risk identification process of Spuerkeess. We use different tools for the risk detection, management, assessment and reporting such as the :

- Risk Identification and Assessment Process (i.e risk cartography) ;
- Risk Appetite Framework (including the Limit Handbook) ;
- Stress testing ;
- Risk management reporting.

All those processes and documents constitute the Risk Management Framework of Spuerkeess.

Spuerkeess opted for a “defensive” risk profile which is defined in our Risk Appetite Framework (RAF). The RAF includes strategic, operational and macroeconomic indicators for each of the Bank’s relevant risk categories and defines the level of risk the Bank is willing to bear to pursue its strategic objectives and to ensure its long-term survival. The definition of the limits (including “strategic limits”) is formalized in the Limit Handbook. Those different level of risks and the limits set for the various indicators are used to manage and monitor the risks Spuerkeess is exposed to.

More specifically, the Bank’s approach in identifying and assessing climate and environmental risks is organized around three main pillars:

1. The national portfolio (incl. retail clients, mortgages, domestic corporate finance and listed equity),
2. The international portfolio (incl. investment portfolio, depository bank),
3. The Bank’s own activities.

For each of these pillars, Spuerkeess assesses the type of climate and environmental risks (physical and transition) to which it could be directly or indirectly exposed and the transmission channels on traditional financial risks. The direct and/or indirect impacts on counterparties and/or assets held by the Bank are then identified in a qualitative manner with a time estimate of their potential materialization (short, medium and / or long term).

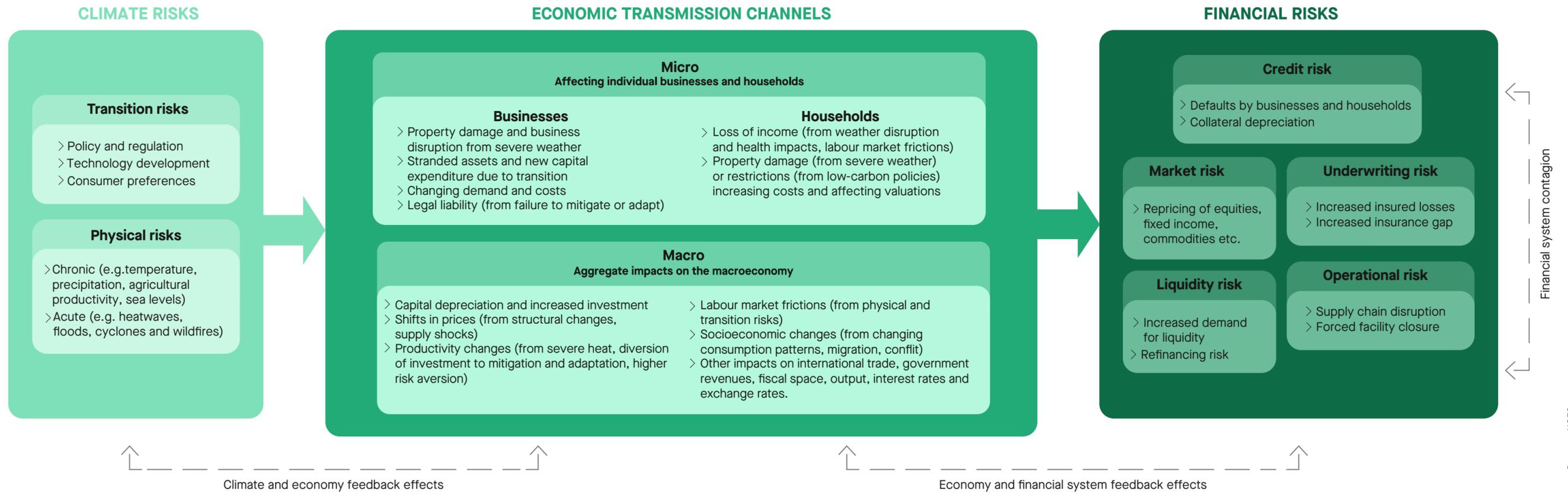
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The transmission channels are the causal channels linking climate risks factors to the financial risks faced by the Bank. They help explain how climate and environmental risks can materialize as a source of instability for the Bank and the financial system. These channels can be distinguished between microeconomic and macroeconomic transmission channels as highlighted in the figure below.



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The microeconomic transmission channels have direct impacts on the Bank's counterparties, assets and exposures. Macroeconomic transmission channels are indirect impacts on the Bank due to the effects of climate and environmental risks on economic indicators such as productivity and/or economic growth.

The Bank defines the link between climate and environmental risks with credit, liquidity, market, operational and reputational risk as follows:

- **Credit risk:** Various climate and environmental risk factors may negatively influence Spuerkeess' credit risk profile to the extent that they impact a client's or counterparty's ability to repay or service debt (the income effect), or the value of the collateral provided by the client or counterparty to the Bank (the asset effect). The risk factors may be both physical (e.g., damage to buildings caused by natural disaster leading to either a decrease in a client's rental income or a reduction in the value of the collateral in a mortgage loan) and transitional (e.g., the impact on the financial situation of certain counterparties of the implementation of a carbon tax on the most carbon-intensive activities or their inability to adapt to changes in consumer behavior due to climate change). These climate and environmental risk factors can therefore impact the credit quality of a counterparty (and therefore its probability of default or credit rating) and the recovery value of certain collateral (and therefore the loss given default).
- **Market risk:** Climate and environmental risk factors can lead to higher volatility and decreases in asset values in certain markets that are particularly exposed to physical and/or transition risks. These price adjustments can be sudden and significant when climate risks are not yet incorporated into market prices. These risks may also have an impact on the Bank's liquidity reserve.

- **Liquidity risk:** Spuerkeess' liquidity risk profile may be impacted by climate and environmental risk factors both directly through the bank's incapacity to obtain funding or liquidate assets under normal market conditions or indirectly through an increased need for liquidity from its customers.
- **Operational & reputational risk:** Physical risks are an evident direct source of operational risk, which can cause damage to the Bank's assets (headquarters, branches, IT equipment, etc.) and thus undermine business continuity. A reversal of consumer perception on climate issues can lead to reputational and liability risks due to scandals arising from the financing of environmentally controversial activities. In addition, transitional risk factors such as changes in climate change policies and regulations and shifts in customer preferences may also affect certain subcategories of operational risk, particularly those related to customers, products, and business practices. Indeed, the products and services offered by banks must adapt to new sustainability requirements, desires and expectations. If products are sold that are not compliant or not aligned with these new standards, the Bank may be exposed to risks of sanctions by supervisors or legal recourse by certain customers.

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The table below shows the potential climate risk impacts as per traditional banking risk category:

	Credit risk	Market risk	Liquidity risk	Non-financial risk
Transition risk	Exposure to carbon-intensive industries (energy, transport, buildings, etc.) could be impacted by an accelerated transition to a low-carbon economy. Regulatory pressures aimed at reducing GHG emissions may lead to challenges for borrowers within these sectors, such as increased operational costs or declining market demand for high-carbon products. These challenges can strain the financial health of borrowers, potentially leading to an increase in loan defaults or downgrades, especially in the case they do not follow a certain transition pathway.	Stranded assets can have an impact on the Bank's market risk profile through the potential revaluation or write-downs of these assets. Regulatory changes aimed at reducing carbon emissions and promoting a low-carbon economy can render certain assets obsolete or unprofitable. For example, stricter environmental regulations or carbon pricing mechanisms may decrease the value of fossil fuel reserves or infrastructure. Additionally, shifts in market sentiment towards low-carbon solutions and products, driven by factors such as consumer preferences, technological advancements, or investor activism, can further devalue stranded assets.	Transition risk can increase market volatility, particularly in sectors facing policy changes or technological shifts. This volatility can reduce the liquidity of assets, making it more difficult to sell them quickly to meet short-term funding needs.	Reputation: non-compliance with commitments in favor of sustainable activities (PRB, NZBA) or efforts deemed insufficient by external parties (clients, NGOs, etc.).
	Stranded assets can lead to a devaluation of the collaterals securing the Bank's loan portfolio. Loans extended to counterparties heavily invested in these assets may become non-performing or impaired if the value of their assets declines sharply or if they face difficulties in generating revenue.			Risks of tougher climate and environmental regulatory requirements. Carbon tax on direct emissions from Spuerkeess own operations.
Physical risk	Increased probability of default of counterparties whose assets and production processes (including the supply chain) are disrupted by climatic events.	Severe physical risk events could push markets to revise their expectations and lead to a revaluation of assets. Extreme weather events destroying company sites and raw materials in certain geographic areas could push markets to revise their revenue forecasts for these companies (which could influence stock prices).	Following extreme climate-related events, customers often require immediate funds to repair damages to their homes or business activities. This can lead to a surge in demand for increased liquidity withdrawals.	Physical risks may have an impact on Spuerkeess sites (headquarter and branches) and on the Bank's ability to continue to provide its services to its clients.
	In the event of default, the Bank is faced with a loss of its commitment due to a drop in the value of the collateral in the real estate portfolios.			
Impacted business lines	Retail Banking	Global Markets	Treasury	Banking and non-banking activities
	Corporate Banking	Unlisted Equity	ALM	
	Global Markets			

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Transition risks can lead to various levels of financial and non-financial risks. The following table shows the main identified transition risk categories and their potential financial impact on Spuerkeess and its clients. The climate-related and environmental risks are classified in three categories by Spuerkeess: short (ST : < 1 year), medium (MT : 1-5 years) and long-term (LT : 5-30 years).

Risk factor ¹⁵	Time horizon	Potential impacts of climate risks factors	Indirect impact via our clients		Direct impact
			Wholesale	Retail	Spuerkeess
Technology	ST-MT	Depreciation of existing assets carried on the balance sheet due to technological developments (stranded assets).	×		×
	MT-LT	Costs of transition towards products and services emitting less carbon emissions (e.g. renewable energies, circular economy, carbon capture and storage, etc.).	×	×	×
	MT-LT	New emerging technologies that could lead to substantial changes in production and operating costs and competitiveness.	×		
Policy and Regulation	ST-MT	Rapid regulatory changes (e.g. carbon taxes, energy efficiency standards) that result in additional costs for customers and counterparties.	×	×	×
	MT-LT	The additional capital requirement applicable to carbon-intensive banks could increase financing costs.	×		×
	ST-LT	Strengthening reporting obligations and related costs.	×		×
	ST-LT	Establishment of a regulatory framework for the management of climate financial risks (stress testing, taxonomy, reporting) increases operational risk.	×		×
	ST-LT	In the real estate sector, possible regulatory policy changes could influence property values.	×	×	×
Market	ST-MT	Sudden and unexpected changes in energy costs.	×	×	×
	MT-ST	The revaluation of assets (e.g. fossil fuel reserves) could contribute to increasing liquidity risks for coal sector assets.	×		
	LT-MT	Decrease in demand for goods and services due to a shift in consumer preferences.	×		
Legal	ST-MT	Customers and the Bank could face potential litigation due to the environmental and climate impact of their activities.	×		×
Reputation	ST-MT	Decrease in income resulting from a contraction in demand for goods/services from stigmatized sectors and counterparts.	×		×

¹⁵ These risk factors have been initially defined by the Task Force on Climate-related Financial Disclosures (TCFD). All EU regulations as well as the Network for Greening the Financial System (NGFS) have adopted this classification as their official definition of climate transition & physical risk. Spuerkeess is following this classification and the above figure shows the potential impacts of these factors on the Bank's activities.

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Physical risks arising from climate change are subdivided into **acute** (resulting from weather-related events) and **chronic** (resulting from gradual, long-term climate change) physical risks. Physical risks are likely to cause financial effects to financial institutions and businesses, such as direct damage to assets and indirect impacts caused by supply chain disruption. The firms' financial performances can be affected by changes in the water availability, water provisioning and water quality, food security

and extreme temperature changes affecting facilities, operations, supply chains, transportation and worker safety.

The following table illustrates the main physical risk categories and their potential impact on Spuerkeess and its clients:

Risk factor ¹⁶	Time horizon	Potential impacts of climate risks factors	Indirect impact via our clients		Direct impact
			Wholesale	Retail	Spuerkeess
Acute	MT-LT	The increase in extreme and increasingly severe climatic events could result in a reduction in revenues due to repercussions on the value chain or on destination markets.	×		
	MT-LT	A depreciation in the value of assets in the sectors and risk areas concerned	×	×	×
	MT-LT	An increase in equity costs (to repair damage to facilities) and insurance costs to cover possible future damage	×	×	×
	MT-LT	Spuerkeess' operational resilience will mitigate the risks of business interruption and asset damage.			×
Chronic	CT-MT	A depreciation in the value of assets in the sectors and risk areas concerned.	×	×	×
	MT-LT	The evolution of climatic phenomena could result in a drop in revenues in areas where business models and operating sites would be negatively affected.	×		

¹⁶ These risk factors have been initially defined by the Task Force on Climate-related Financial Disclosures (TCFD). All EU regulations as well as the Network for Greening the Financial System (NGFS) have adopted this classification as their official definition of climate transition & physical risk. Spuerkeess is following this classification and the above figure shows the potential impacts of these factors on the Bank's activities.

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To define its material challenges, Spuerkeess relied on a risk analysis of its current and/or future significant impacts, which were defined according to its business activities. An important element of the sustainability strategy is the implementation of an exclusion policy that excludes investments and financing in activities and sectors that are predominantly subject to climate and environmental risks.

In light of climate risks mitigation, the Bank committed to progressively align with the objectives of the Paris Agreement as well as the National Energy and Climate Plan (NECP) of Luxembourg. To anchor these ambitious challenges, Spuerkeess joined the Net Zero Banking Alliance (NZBA) and the UN Principles for Responsible Banking (PRB).

In order to manage climate and environmental risks in a more effective way, Spuerkeess developed in the second half of 2023 a climate risk policy which defines roles and responsibilities for evaluating and managing climate and environmental risks. Spuerkeess is reviewing and enhancing existing models, particularly those for deriving conditional credit risk parameters (rating, probability of default, loss given default,...) to be able to quantify more precisely climate-related and environment risks. As the quantitative assessment of climate and environmental risks consists primarily of a forward-looking analysis, the Bank will primarily make use of stress test and scenario analyses. In this context, the European Central Bank (ECB) climate stress test and the NGFS¹⁷ climate scenarios are used as a basis.

Spuerkeess participated in the ECB's stress test on climate-related & environmental risks. First analysis and results from the ECB climate stress test have revealed that climate and environmental risks have a rather low impact on the Bank's risk profile compared to peers. Furthermore, Spuerkeess' activities are not located in areas subject to high physical risks.

Finally, in a materiality analysis, the Bank identified the main impact of physical risks on the credit, market, liquidity, operational and reputational risk. This approach was integrated into the Banks' risk taxonomy and risk assessment process in which Spuerkeess defines and evaluates climate-related and environmental risks with regard to different time horizons. The Bank incorporated various climate-related and environmental key risk indicators into the Bank's Risk Appetite Framework (RAF) such as the Banking Book Taxonomy Alignment Ratio (BTAR) on its corporate bonds portfolio which gives an indication of the taxonomy-alignment of the Bank's corporate bonds and household portfolio. Other KPIs calculated by Spuerkeess are GHG emissions and carbon intensity.

The strategy of Spuerkeess regarding the climate-related and environmental risk management combines a "Top-down" approach to monitor and limit climate transition risks as well as a "Bottom-up" approach which includes indicators and criteria in the credit and investment policies and procedures.

Spuerkeess is currently developing an internal climate stress test framework, which aims to simulate the impact of different climate scenarios on credit risk (i.e. probability of default, loss given default, etc). In this regard, the Bank is applying the NGFS scenarios.

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Furthermore, our decarbonization strategy aims at reducing GHG emissions stemming from our own operations and banking activities by setting specific targets to achieve net zero emissions by 2050 (or sooner) and by outlining the measures we will take to reach our goals (see section 6 hereunder for further information) thus limiting the potential impacts rising from transition risk.

Regarding the further quantification of physical risks, Spuerkeess, in close collaboration with the Luxembourg Institute of Science and Technology (LIST), is currently working on the establishment of a model taking into account forward looking data based on climate scenarios for the short, medium and long term, allowing us to measure:

- vulnerabilities on asset level of clients through floods,
- the potential impact of those physical risks on the Bank's business model.

The intended early stage, preliminary scenario modelling of domestic housing loans will be limited to a flood risk indicator at the client asset level.

Lastly, Spuerkeess is currently analysing, via Key Performance Risk Indicators, the resilience of its business model by applying different NGFS scenarios to the Bank's key banking activities in terms of revenue generation to identify the impact and thus their resilience based on the simulated climate risk scenarios.



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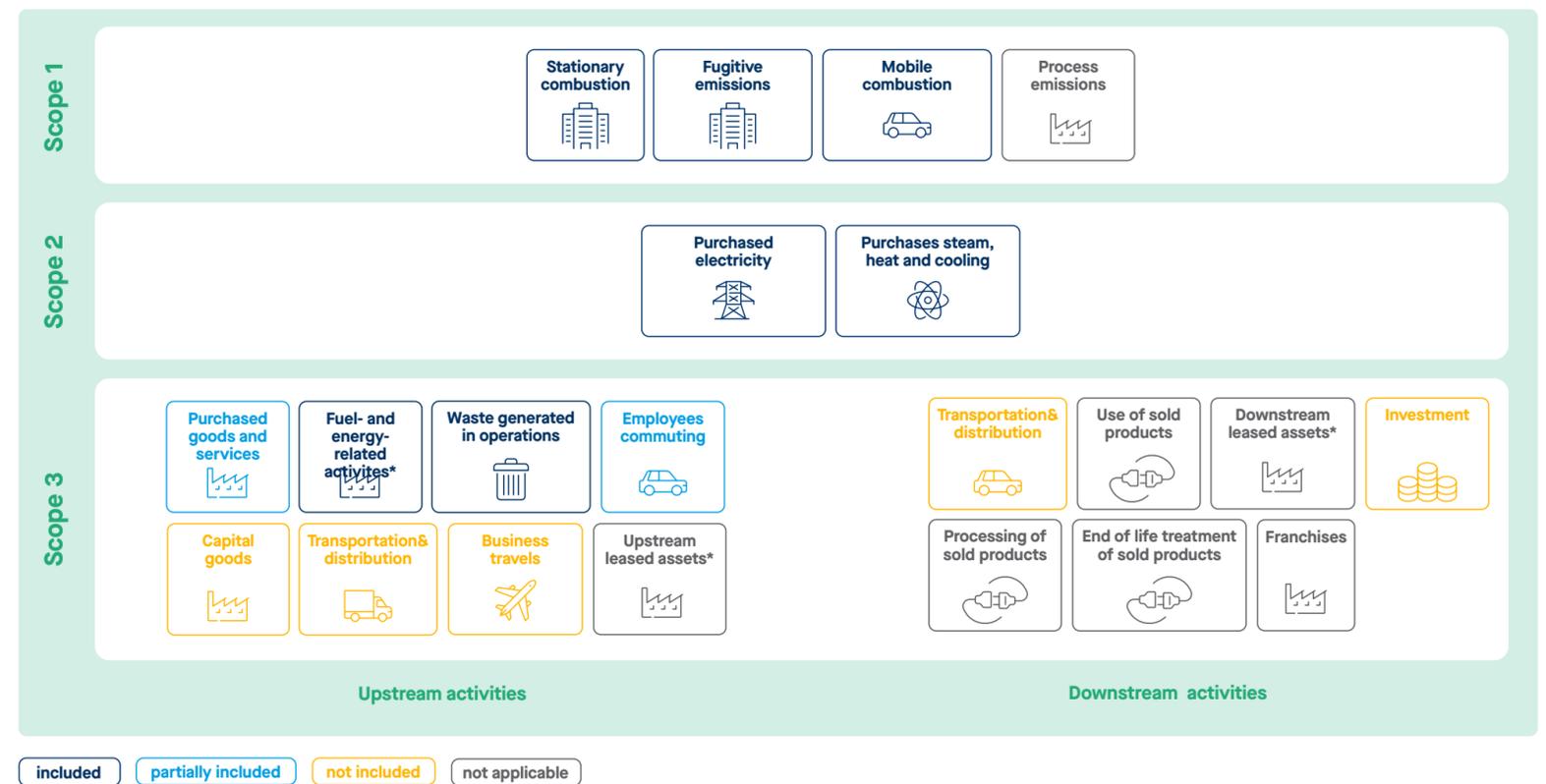
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Spuerkeess aims to transition its own operations GHG emissions and attributable GHG emissions from its lending and investment portfolios to net zero by 2050 or sooner.

The figure below highlights the different activities included in Spuerkeess' carbon footprint of its own operations (scope 1, scope 2 and upstream scope 3 emissions related to its headquarter and branch network buildings), as well as of its banking activities (downstream scope 3 emissions related to its lending and investment activities):



The following sections highlight the efforts made by Spuerkeess on its decarbonization strategy as well as its actions planned in the future to achieve its net zero target. Another focus will be put on the Bank's efforts in assisting its clients and stakeholders in their transition towards a more sustainable economy.

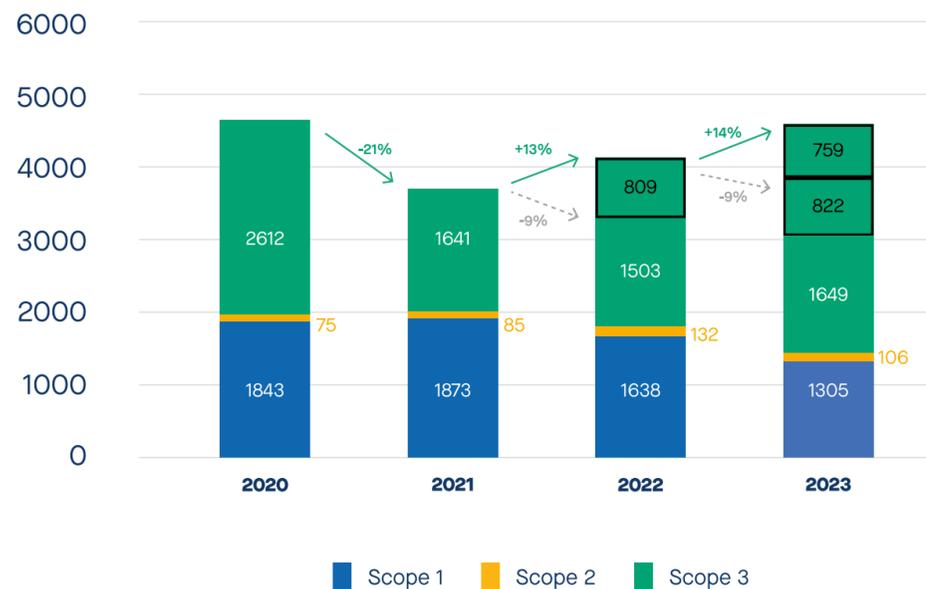
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In 2022, we integrated for the first time the emissions related to the “Employee commuting activity” (only for our headquarter) where the related emissions increased from 809 tons of CO2e in 2022 to 822 tons of CO2e in 2023.

In line to constantly improve the coverage of our carbon footprint, we have expanded in 2023 the scope of our employee commuting to all our buildings (headquarter and branches). Our methodology was to accurately estimate¹⁸ total emissions (tCO2e/km) linked to commuting, focusing on the main mode of transport used by our employees rather than vehicle specifics. This implied that our scope 3 employee commuting emissions have nearly doubled from 809 tons of CO2e in 2022 to 1.581 tons of CO2e in 2023.

Evolution of our own operations GHG emissions (tCO2e)



However, without the Employee Commuting activity, we further managed to reduce our total emissions by 9% during 2023 following a reduction of 9% in 2022 and 21% in 2021.

The most important reduction of our CO2e emissions took place in our scope 1 emissions, where emissions decreased by 20% compared to 2022 basically due to the adaptation of **heating and air conditioning temperatures** in our offices (max heating at 21°C in winter / air conditioning from 25°C in summer).

Our indirect scope 2 emissions related to the steam and heat consumption slightly decreased compared to 2022. Besides, our scope 2 emissions, our electricity consumption already relies on 100% renewable sources since 2019. Nevertheless, Spuerkeess continued its efforts to further reduce its scope 2 emissions by

- Commissioning of a **PV installation** with a power of 24kWp in **injection** (since October 2023). Annual production estimated at 23.5MWh/year and estimated CO2e reduction → 141kg CO2e/year (marked based).
- Commissioning of **PV installation** with a power of 29.6kWp for **self-consumption** (since August 2023). Annual production estimated at 29.8MWh/year. Estimated CO2e reduction - > 178.8kgCO2e/year (marked based).
- **Replacing more than 1.219 lighting fixtures with LED lighting fixtures and more than 1.677 neon tubes with LED.** The estimated savings in kWh/year are 154MWh/year. The estimated CO2e savings per year are 0.925tCO2e/year (market based).

¹⁸ Individual commuting distance (based on postal codes) * Number of days worked (HR data) * Equivalent CO2 emissions per kilometer for each individual mode of transport (Statistical data)

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For our indirect scope 3 emissions, we account for a reduction in all of our activities except for the waste generated in operations activity which is due to an update of the related emission factors.

Spuerkeess reached already in 2023 its 2025 target (scope 1 emissions) of 1,05 t CO₂e / FTE and has set therefore a new Target 2025 (market-based) of 1,00 t CO₂e / FTE.

The management practices introduced by Spuerkeess over the last years to limit its negative impacts on the environment are now bearing fruits as shown in the evolution of our own operations GHG emissions figure above :

- Spuerkeess electricity consumption (scope 2) relies on 100% renewable sources since 2019 and despite the age of some of our buildings and their classification as historic monuments, considerable efforts have been made since 2008 to reduce our energy consumption (scope 1 & 2).
- The ongoing digitalisation of our internal processes, underpinned by the development of online banking and digital communication channels, is allowing us to continually reduce our paper, toner and cartridge consumption. Spuerkeess has committed to reducing its consumption of disposable plastics, and to refusing to purchase or distribute the items that contribute the most to plastic pollution, such as plastic cups, non-reusable plastic plates, utensils, straws and stirrers, non-reusable food containers, plastic bottles and non-reusable plastic bags. Spuerkeess is in this way supporting the development of sustainable solutions in line with the circular economy and the principles of: Refusing - Reducing - Reusing – Recycling.
- We strongly promoted working from home and increased our digital contacts with our customers. This development led to a sharp reduction in paper consumption and waste production.
- In terms of water consumption, we have introduced a close monitoring, where we have the greatest leeway to make any potential changes.

For the forthcoming years, Spuerkeess will continue its digitalisation efforts, introduce further energy cost containment and innovative measures to further reduce its carbon footprint and thus its negative impact on the environment of its own operations.

In terms of future projects to reduce our GHG emissions from our own operations, Spuerkeess is currently analysing the following levers :

- **Heat pump installation**
 - installation of a heat pump in order to recover the calories from our computer centers
 - Estimated CO₂e savings = 532tCO₂e/year (reduction in our gas consumption)
- **Flex-Desk Project**
 - Reduction of administrative areas
 - Estimated CO₂e savings between 180 and 250tCO₂e/year
- **Soft Mobility Transition Action plan**
 - Development of strategies and concepts in order to reduce our indirect scope 3 employee commuting CO₂e emissions.
 - First effects expected from 2025 onwards
- **Continued awareness raising among our staff to foster ecological behaviour.**

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Spuerkeess' Net Zero Climate Target Report

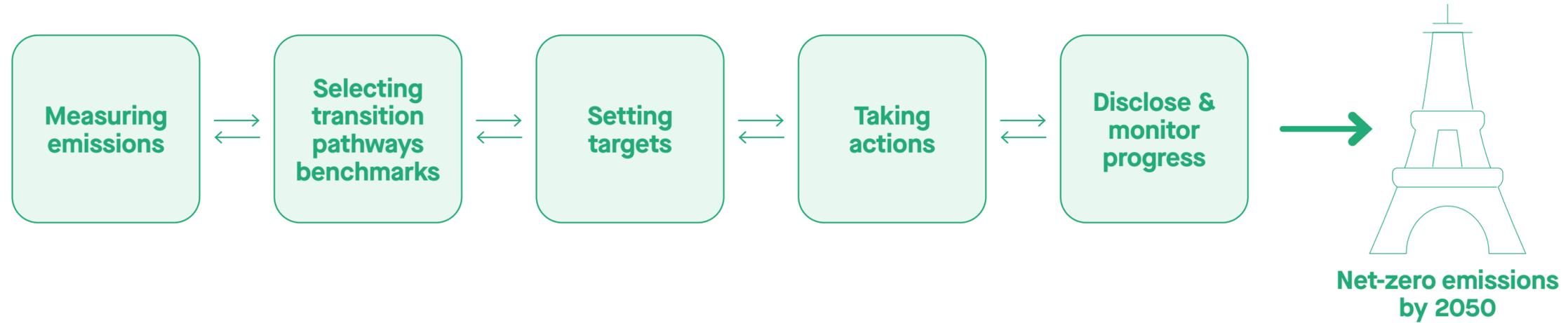
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BANKING ACTIVITIES

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With respect to the establishment of our carbon footprint, our approach consists of five phases that will enable us to transparently achieve emissions reductions across the Bank's entire value chain:



Thus the measuring of our financed GHG emissions allow us to

- establish the carbon footprint of our loan and investment activities,
- identify the most GHG-intensive and GHG-emitting sectors in our portfolios,
- set science-based short-, medium- and long-term targets based on scientifically recognized transition benchmarks pathways,
- design strategies, implement concrete actions and monitor the reach of our targets set to become Paris aligned and net zero by the latest in 2050.

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6.2.1. Measuring emissions

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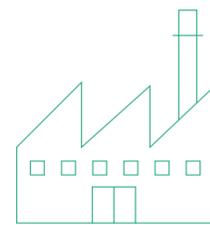
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In terms of calculating the financed GHG absolute emissions¹⁹, we apply the Global GHG Accounting & Reporting Standard from PCAF (Partnership for Carbon Accounting Financials). Spuerkeess discloses its financed GHG emissions across the following main asset classes:



Listed equity and corporate bonds



Business loans



Mortgages

Source : PCAF²⁰

DEFINITION OF SCOPE 1, 2 AND 3 EMISSIONS²¹

Emissions type	Scope	Definition
Direct emissions	Scope 1	Emissions from operations that are owned or controlled by the reporting company
Indirect emissions	Scope 2	Emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company
	Scope 3	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions

Spuerkeess' carbon footprint of its lending and investment activities includes its clients/issuers scope 1, scope 2 and scope 3 emissions where relevant and appropriate reliable data exists.

¹⁹ Cf Appendix 7.1 page 45
²⁰ PCAF (2022). The Global GHG Accounting and Reporting Standard Part A: Financed Emissions. Second Edition, page 7
²¹ World Resources Institute and World Business Council for Sustainable Development (2011). Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard, page 28

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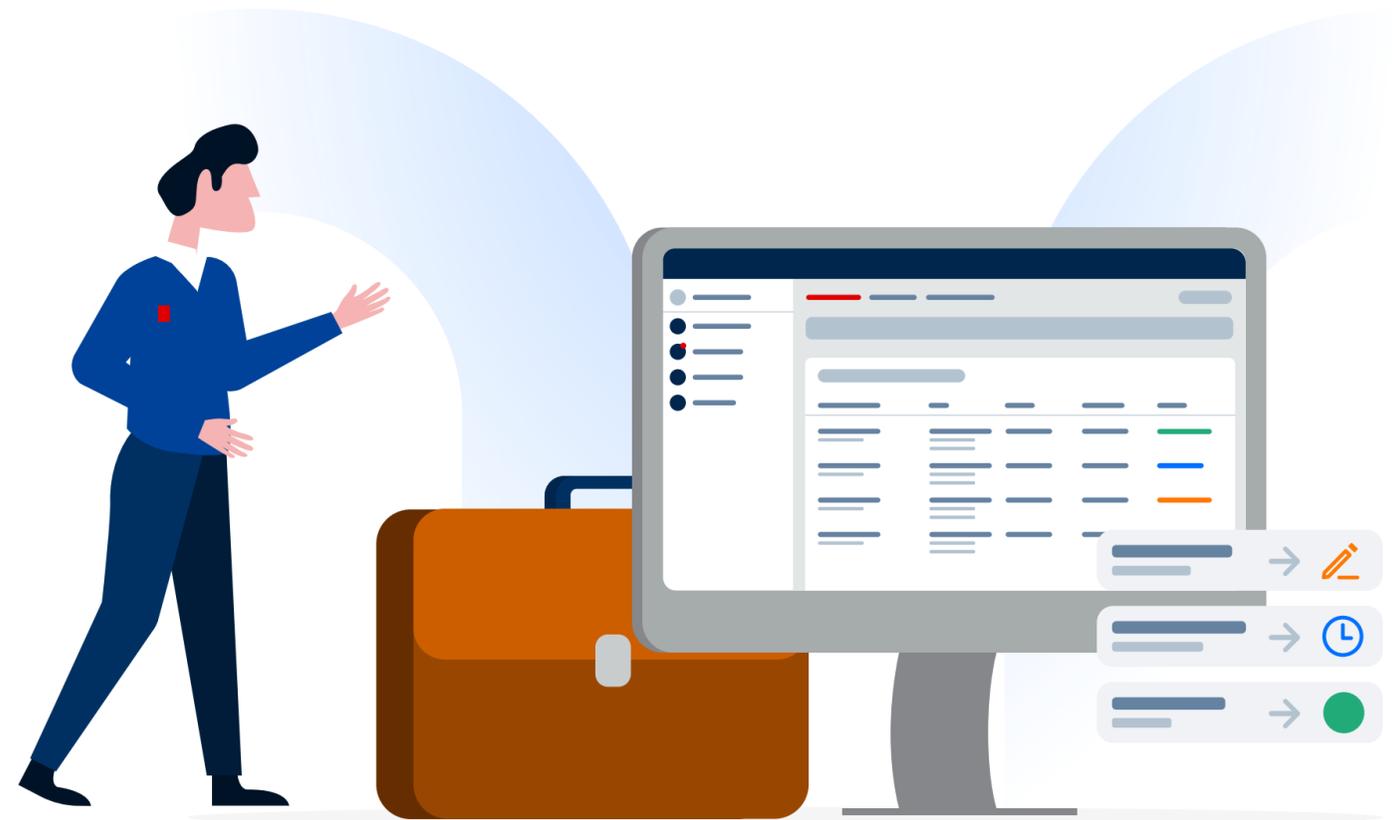
Our approach consists on focussing on climate relevant sectors (higher probability of transition risk) as defined by the Regulation (EU) 2020/1818. Based on this definition, we concluded in 2023 that approximately 46% (43% in 2022) of Spuerkeess total assets (or EUR 25.967 mio) as of 31 December 2023 stemmed from exposures on climate relevant sectors (following PCAF recommendations, Green Bonds were excluded from our GHG calculation). Our financed GHG emissions calculation covered nearly 93% of the climate relevant exposures (EUR 24.019 mio) of Spuerkeess.

The asset classes to whom we applied the PCAF methodology were:

- Corporate bonds,
- Corporate equities,
- Mortgage loans,
- Business loans.

In 2023, we improved the coverage of our Scope 3 financed emissions by including all the climate relevant sectors for our corporate bonds and business loans portfolio. This helps us in our internal prioritisation of sectors and companies selected for targeted emission reductions and risk management (mainly transition risk) following our commitment becoming net zero by 2050 (or sooner).

The emission figures are built with reference to the Partnership for Carbon Accounting Financials (PCAF) Standard by using a combination of reported and estimated greenhouse gas (GHG) emissions, as well as economic activity emission proxy factors for clients/issuers where no data is yet available.





6.2.2. Selecting transition pathways benchmarks

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Defining the transition pathways benchmarks to net zero goes first of all along with selecting Paris aligned climate scenarios, key sectors and key metrics.

Spuerkeess foresees a multiphase process to establish its portfolio-level climate transition pathways. In order to strike a balance between initial coverage of carbon-intensive sectors and overall portfolio coverage, a first materiality analysis determined that the most exposed sectors included oil and gas, power generation, aviation, and automobiles.

Available transition pathways and net zero target frameworks included, among others, the Science-Based Target Initiative (SBTi) and the Transition Pathway Initiative (TPI).

Even through the SBTi offers a broader corporate coverage and seemingly additional methodological granularity, the TPI offers a straightforward process to establish a first assessment for Spuerkeess' aforementioned carbon-intensive sectors.

Furthermore, its data is publicly available and based on publicly disclosed self-reported data and targets from corporates. Albeit its use of IEA climate scenarios is narrower than the SBTi reliance on IPCC scenarios, the IEA scenarios offer a good alignment for energy and commodity-related sectors. Furthermore, IEA climate scenarios have also to be applied by banks under the EBA ESG Pillar III.

TPI tracks carbon intensity and scopes 1-3 for specific carbon intensive sectors. Whereas SBTi expresses alignment in degrees of warming, TPI presents a more straightforward carbon alignment time series.

Based on these factors, we selected TPI in first instance to track the climate transition pathway alignment of companies across four of the most carbon-intensive sectors represented in our portfolios. For our national residential mortgage loans portfolio, we use the decarbonisation rate from the National Energy and Climate Plan (NECP) for the Luxembourg's real estate sector.

In the following years, we intend to use the insights from the TPI exercise to expand our portfolio-level climate transition pathway monitoring onto almost the entirety of our business activities, from investment portfolios to mortgage loans.

We anticipate that SBTi, with its wider corporate coverage, reliance on IPCC scenarios, absolute emissions and carbon intensity, could complement the TPI data and allow a more granular and even more accurate representation of the point-in-time alignment of our portfolios with given emissions scenarios and pathways, ideally in line with scenarios in between 1.5°C and 2°C warming.

Spuerkeess is currently working on the definition of an holistic approach to tackle the coverage and transition of its portfolios to the goals of the Paris Agreement.

The following section details specific sector benchmark pathways per asset class and intermediary targets we've set to align with our net zero emission ambition.



6.2.3. Setting targets

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As required by NZBA, Spuerkeess applies selection criteria on its sectors/activities based on GHG emissions, GHG intensities and/or financial exposure. We focus on five carbon intensive sectors/activities in our portfolios:

- Oil & gas,
- Power generation,
- Automotive,
- Airline,
- Real estate.

We have prioritised those sectors based on the Bank's financial exposure and/or on their relative share of our financed emissions.

The five sectors were prioritised based on an initial top-down assessment of the overall Spuerkeess portfolio, which indicated that they represent over 72% (unchanged compared to 2022) of the Bank's total climate relevant assets and 35% (compared to 65%²² in 2022) of Spuerkeess' financed emissions. Over time, other non-climate-relevant sectors and asset classes will be included as data availability and data quality will evolve and as we refine and expand our net zero approach.

To set science-based targets, companies are required to select a baseline year for emissions reductions. We set our baseline emissions year using emissions as reported for the year 2021 (or earlier) and using and applying it to the Bank's exposures as of 2022 (to be compliant with the financial statements) due to data availability issues with respect to GHG emission data.

Based on the results of our analysis, our ambition is to reach net zero emissions at the latest by 2050. Therefore, Spuerkeess has set intermediary targets for 2030 for its GHG-intensive sectors which will be reviewed, and if necessary revised, at regular intervals to ensure consistency with the latest science and data availabilities.

The following sections give a deep insight into our action plan established for every asset class covered in our carbon footprint.

²² This decrease is due to the fact that we integrated all our clients / issuers scope 3 emissions for our corporate bonds and business loans portfolio in 2023.

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6.2.3.1. Corporate bonds portfolio

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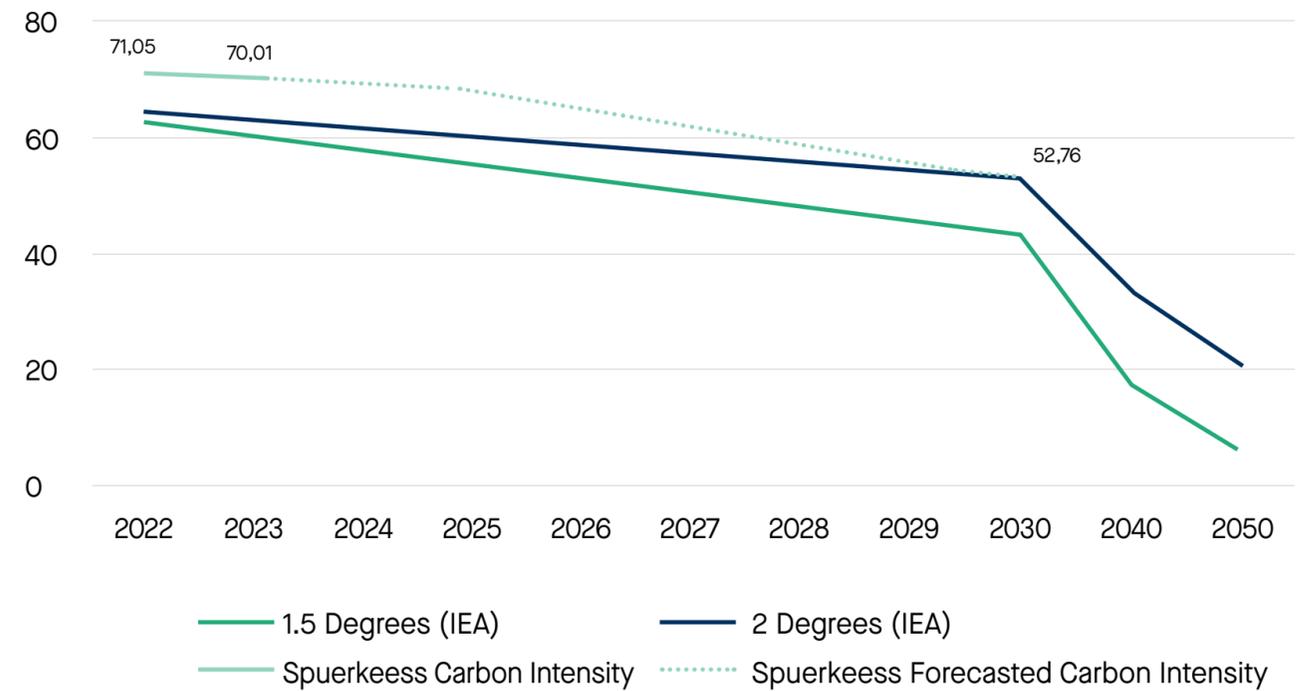
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Among our corporate bonds portfolio, we focus, as explained, on the oil & gas, automotive and power generation sectors as they have the most significant impact on climate change within our portfolio.

Spuerkeess, depending on the considered sector, is aiming to align those sectors with the 2°C (Oil&Gaz and Automotive sector) or 1,5°C (Power Generation and Aviation sector) IEA scenario by 2030 and become net zero by 2050 or earlier.

6.2.3.1.1. Oil & Gas

Transition pathway (g CO₂e/MJ)





6.2.3.1.2. Automotive

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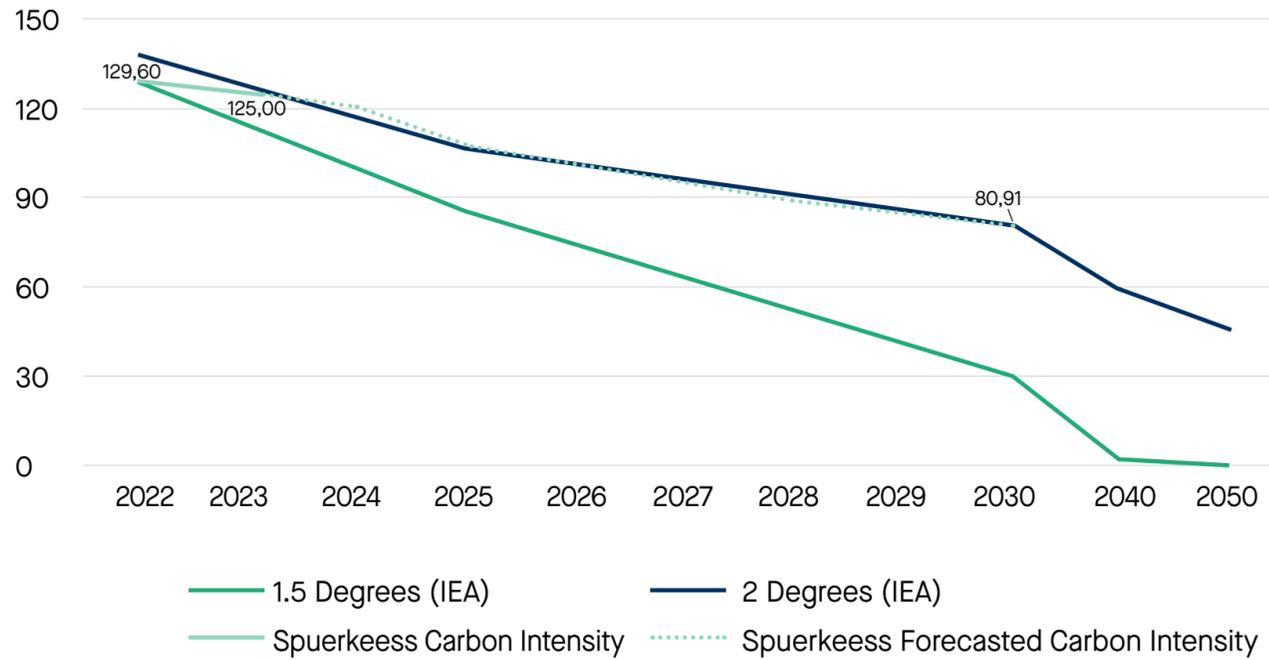
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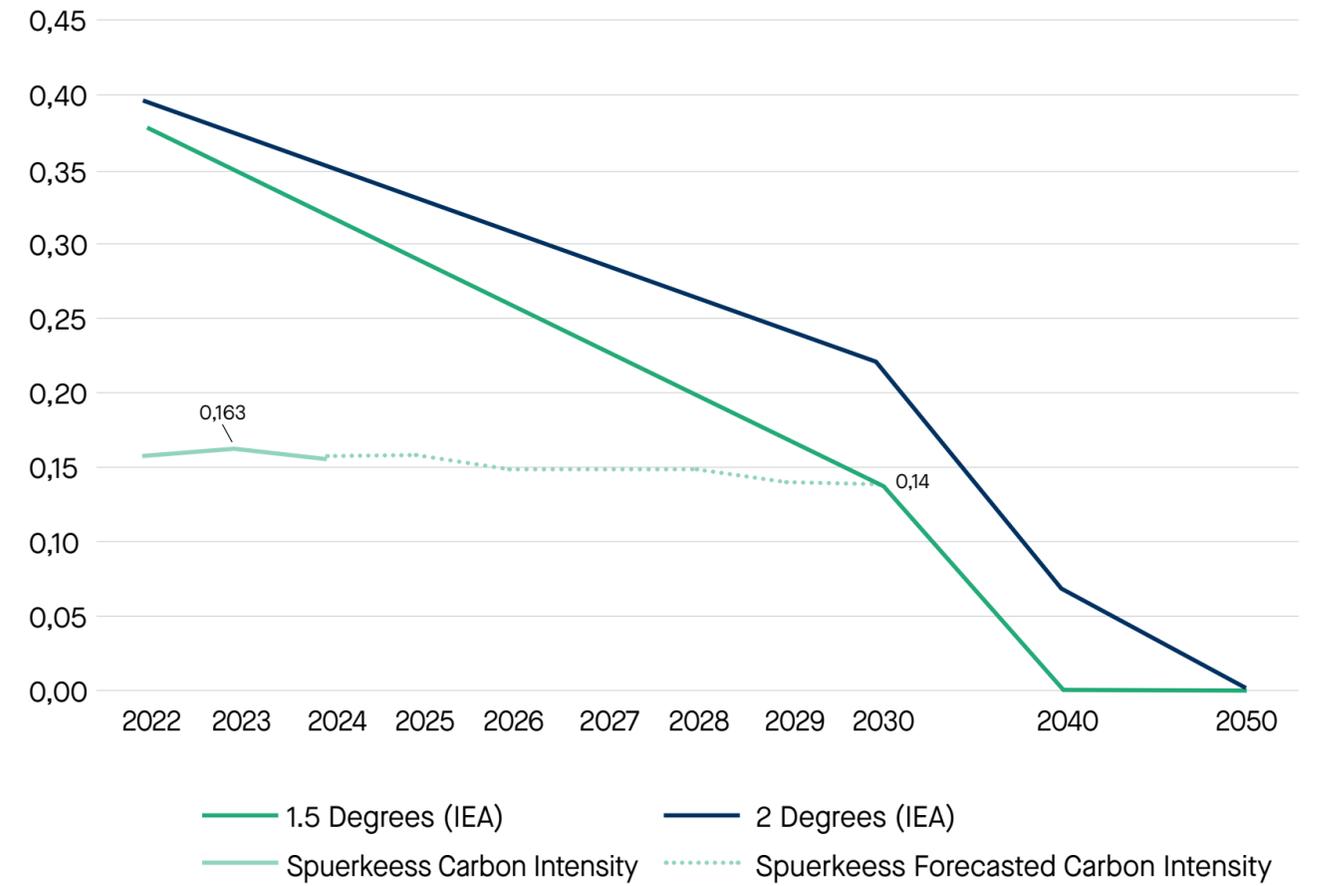
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Transition pathway (g CO₂e/km)



6.2.3.1.3. Power generation

Transition pathway (g CO₂e/Mwh)





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To achieve our net zero targets set for our corporate bonds portfolio, we will examine our corporate customer portfolio by identifying which companies / investments :

- do we no longer want to finance in the future ?
- do we support in their transition process because we believe in their future viability?

The answer to the first question is provided by our ESG exclusion policy meaning that we do not support companies or investments in companies that meet one of these criteria defined in our ESG exclusion policy²³. We assist all the other companies / investments not affected by our exclusion policy as we believe that they have the ambition to tackle their sustainable transformation and therefore have a high level of financing requirements.

Spuerkeess corporate bonds investment strategy relies on an “best in class” analysis, meaning that a counterparty is compatible with our investment strategy when its financial carbon intensity (CO₂e / mio turnover) is

- lower than the average financial carbon intensity of our corporate bonds portfolio,
- higher than the average financial carbon intensity of our corporate bonds portfolio but the counterparty figures in the top 33% of its sub-industry in terms of financial carbon intensity,

In case where a counterparty’s financial carbon intensity is higher than the average financial carbon intensity of our corporate bonds portfolio and the counterparty figures not in the top 33% of its sub-industry in terms of financial carbon intensity, the investment is possible but a detailed environmental risk analysis is required :

- Credible emission reduction targets and / or carbon intensity reduction trajectory in line with the Bank’s objectives,
- Investment in a security certified as a green bond,
- Presence of other environmental risk mitigation strategies.

Beyond, complementary to the above, if a counterparty is part of the Oil & Gas, Power Generation or Automotive sector, its physical carbon intensity profile has to be fully aligned with the decarbonization pathways presented under the section 6.2.3.1. above. Otherwise, the investment is only possible if the counterparty has a credible decarbonization strategy or it’s an investment in a security certified as being a green bond.

In case where the counterparty is not part of the aforementioned sectors, no additional analysis in terms of physical carbon intensity profile is required.

However, it goes without saying, that the achievement of the above mentioned targets is highly dependent on the efforts made by the various actors in the forthcoming years in those sectors in order to improve their carbon footprint and thus consequently our corporate bonds portfolio alignment to the Paris Agreement goals.

²³ [Spuerkeess: Statement of the ESG exclusion policy](#)

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6.2.3.2. *Corporate equity portfolio*

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Among our corporate equities portfolio, we focus on the aviation sector as it has the most significant impact on climate change within our portfolio.





6.2.3.2.1. Passenger airline

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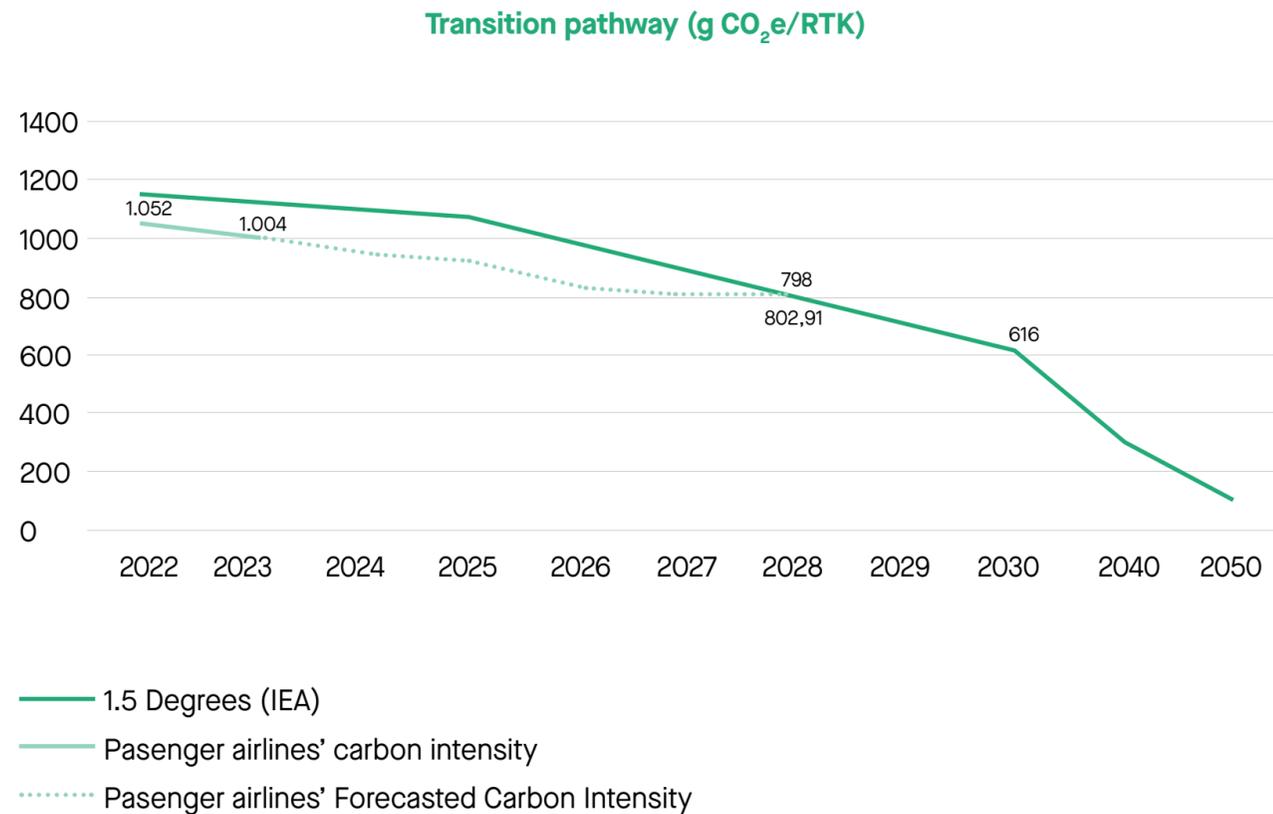
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The forecasted transition pathway until 2028 shown hereunder for our passenger airline company stems from the company and expresses its ambition to stay below the 1,5°C IEA scenario from TPI and become net zero by 2050.



With respect to our passenger airline, the latter engaged to

- **undergo a refueling exercise** by replacing at least one third of its current fleet by purchasing new generation aircrafts which will significantly reduce fuel consumption and CO₂ emissions compared to their current generation of aircraft, thus enabling our client to pursue its journey towards carbon neutrality by 2050,
- **gradually increase the use of Sustainable Air Fuel (SAF)** based on its availability and price which may represent, beside the refueling exercise, a major lever to reduce significantly GHG emissions in the aviation sector.
- **optimize flight management in order to** select the most efficient routes based on traffic & weather conditions with the aid of technology and operational procedures.

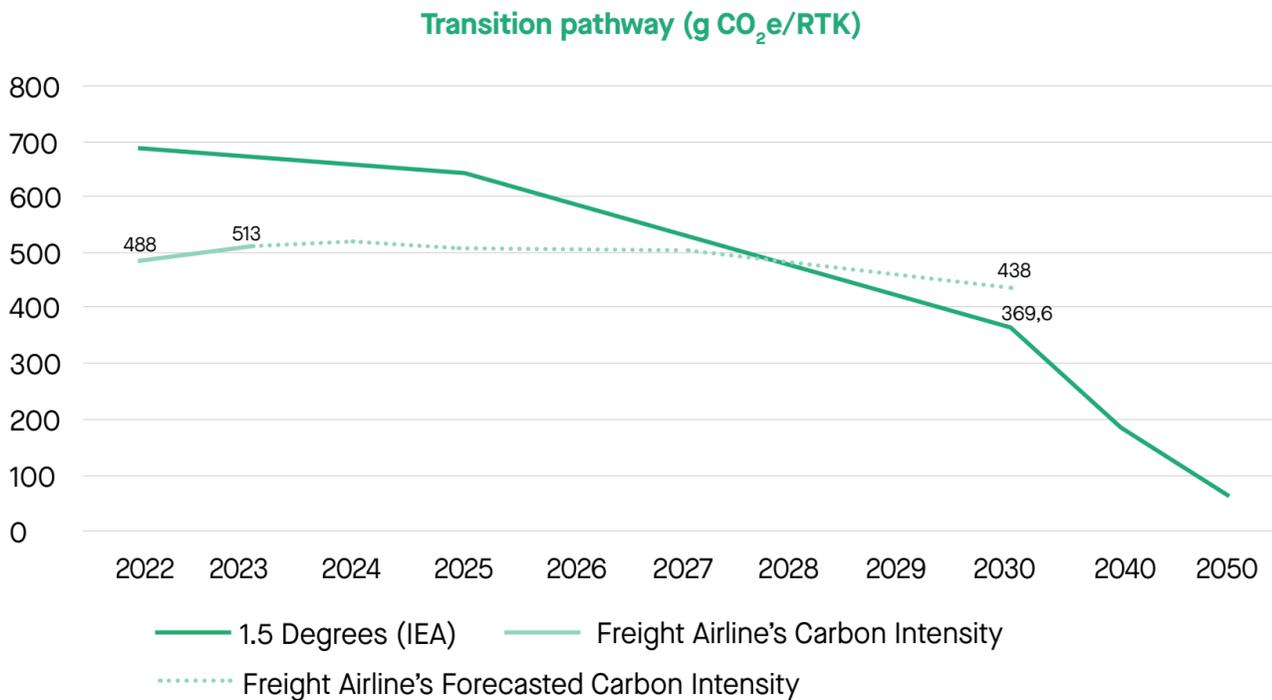


6.2.3.2.2. Freight airline

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As the Transition Pathway Initiative (TPI) benchmarks for the aviation sector mainly fits for passenger airlines, we concluded, based on the Science Based Targets Initiative (SBTI) benchmarks provided for freight airlines, that the latter are 40% lower than for the rest of the sector over time.

Therefore, Spuerkeess used the TPI benchmark pathway for its passenger airlines and derived a pathway for freight airlines (- 40% of the TPI passenger airline benchmarks).



The CO₂ reductions foreseen by our freight airline company will mainly be achieved through the following levers:

- **Planned fleet renewal** : 10 new 777-8 Freighters with options for six additional airplanes for the replacement of its less efficient 747-400 Freighter fleet which comprises up to 50% fleet renewal and underlines its strong commitment in establishing long-term sustainability. The new freighters, to be delivered from 2027 onwards, offer reduced emissions (+-30%) through lower fuel use and operating costs per ton of any large freighter. Furthermore, the new generation aircraft are expected to be the first to be compatible with 100% Sustainable Aviation Fuel (SAF), which has also played as an important factor in its selection.
- **Sustainable Air Fuel (SAF)** : Gradually increase the use of SAF in the future based on its availability, price, and customer acceptance, which is a strong commitment to lower carbon emissions and towards cleaner skies. Nevertheless, as our freight airline company is mainly operating internationally, where SAF availability is virtually nonexistent for the time being contrariwise to Europe, this lever has little impact on the carbon trajectory for now (< 5% until 2030). Highlighting the ambitious commitments of our freighter airline, direct investments have been made into the development of SAF's future technologies that would yield a higher emission reduction vs currently available SAF. Long-term offtake commitments paired with a vision for further participation in other projects through equity, offtake, or project development, accentuates their forward-looking strategy on sustainable solutions to decarbonize the aviation industry.
- **Air Traffic Control and airways optimization** will reduce emissions by 0,1% per annum over 2019 - 2030, or a 1,1% overall contribution in 2030, in line with IATA's Net Zero roadmap.

The above set of measures foreseen allows both of our airline companies to stay well below the 1,5 Degrees (IEA) scenario until 2028. Those are the first steps undertaken for a more sustainable future of flying and a net zero achievement by 2050. More is yet to come over the coming years as the aviation sector needs transformation to ensure its long-term viability.

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6.2.3.3. National residential mortgage loans

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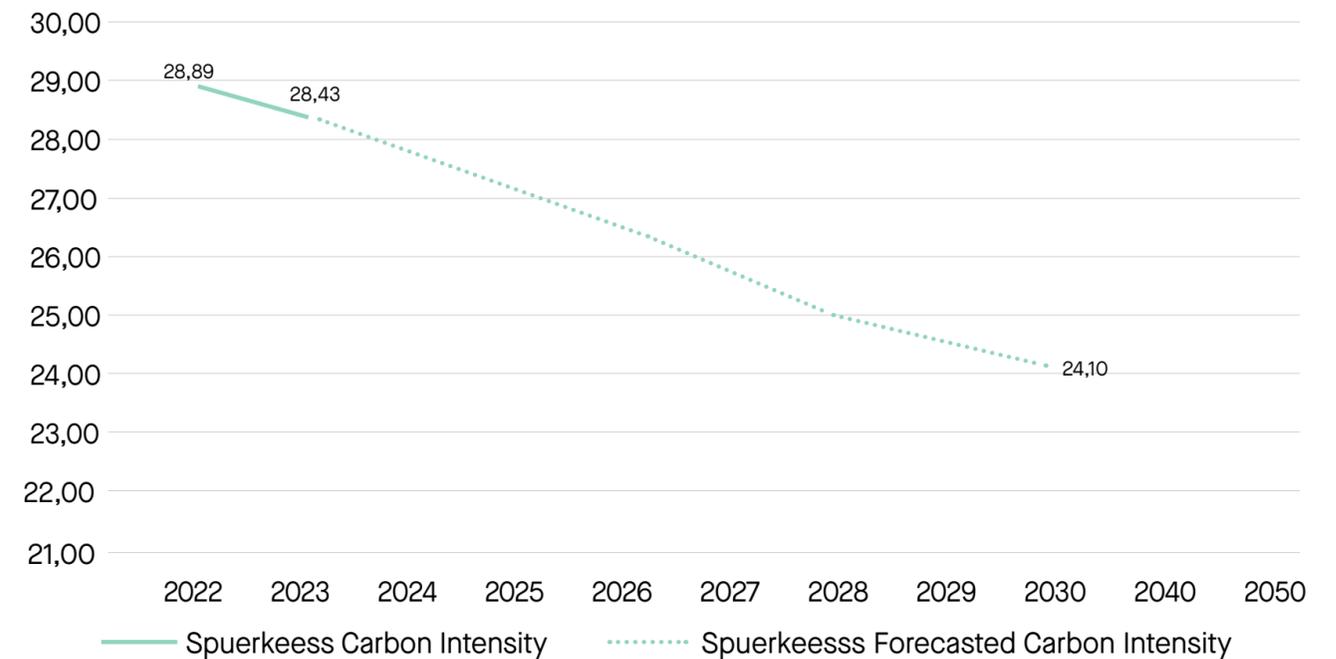
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In 2022, we used for our national residential mortgage loans portfolio the decarbonisation rate²⁴ from the National Energy and Climate Plan (NECP) for the Luxembourg's real estate sector. The national rate, which consists of a 64% reduction from 2005 until 2030, led us to a 2030 target of 24,10 kg CO₂e / SQM.

As the PCAF database were updated during 2023, we noticed a nearly 40% decrease in our financed GHG emissions and carbon intensity for our residential mortgage loans portfolio compared to 2022. This is mainly due to the updated PCAF emission factors, which, contrariwise to 2022, are now available per year and per type of dwelling and thus reflecting the reality more closely. We noted that for Luxembourg, the 2023 emission factors for a given energy class are now on average nearly equivalent to the emission factors from the PCAF database (compared to a 49% difference in 2022). As a consequence, our baseline value of 2022 (50,25 kg CO₂e / SQM) has been retroactively adjusted to 28,89 kg CO₂e / SQM reflecting the consideration of the new and more realistic PCAF emission factors.

Transition pathway (kg CO₂e/SQM)



²⁴ The decarbonisation rate from the NECP considers only scope 1 GHG emissions but for all kind of buildings (residential, commercial and administrative buildings).



6.2.3.3.

National residential mortgage loans

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In order to align with the NECP target for the real estate sector in Luxembourg, Spuerkeess will maintain the 2030 target at 24,10 kg CO₂e / SQM for this reporting period but will review the latter during 2024 as the recent PCAF database update significantly changed our transition pathway for our mortgage loans portfolio.

In line to constantly improve our carbon intensity of our mortgage loans portfolio, Spuerkeess identified two main levers :

1. Financing of A&B energy performance certificate classes,
2. Financing of ecological and energy efficiency renovations.

The impact of the first lever seems quite challenging due to the macroeconomic circumstances we are currently facing (i.e. high interest rates and high real estate prices which had as a consequence a reduction in mortgage loans granted to our retail clients). Beyond, as every new residential construction in Luxembourg has at least an EPC class of B, the proportion of high EPC classes in our residential mortgage loans portfolio will automatically increase over time.

In addition and in line with our role as an Transition Enabler, we encourage retail clients to improve the energy efficiency of low EPC class homes via our “*Aid and Finance Advice*” concept. We support our clients in their ecological, energy efficiency or sustainable development projects contributing to the improvement of the energy performance of their building.

Finally, Spuerkeess is constantly liaising with its clients to systematically collect the EPC from their mortgage loans, which will result in an improvement of our data quality score. In this context, for the new mortgages we granted in 2023, we had an EPC collection rate of 60% which we want to increase to 75% for 2024. Spuerkeess is currently analysing different measures to be implemented in order to encourage our clients with existing mortgages loans to send us their EPC.

All the beforementioned levers will enable Spuerkeess to progressively decarbonize its mortgage loans portfolio.



6.2.3.4. Business loans to SMEs

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For our SMEs portfolio, we identified the main climate intensive sectors based on the PCAF methodology. Beyond, Spuerkeess set a 1 billion EUR exposure limit on those sectors, which are also, according to the ECB, classified as being highly vulnerable on climate risks. The latter are :

- Mining and quarrying,
- Manufacture of chemicals and chemical products,
- Manufacture of other non-metallic mineral products,
- Manufacture of basic metals,
- Manufacture of fabricated metal products, except machinery and equipment,
- Electricity, gas, steam and air conditioning supply,
- Water transport.

At a first glance, the limit exposure on those sectors of 1 billion EUR seems quite high. However, we want to highlight that :

- we are no longer financing activities which are contradictory towards our ESG Exclusion policy²⁵,
- we aim, in our role as a “Transition Enabler”, actively supporting all the other companies / investments not affected by our exclusion policy as we believe that they have the ambition to tackle their sustainable transformation and therefore have a high level of financing requirements.
- a quarter of the limit exposure is reserved for green finance purposes.

Finally, we continue to engage with top emitting companies in each of those sectors based on emission data and exposure levels by helping in defining decarbonisation targets and in supporting the transition to net zero by 2050.

²⁵ [Spuerkeess: Statement of the ESG exclusion policy](#)



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As part of our commitment to net zero and our ambition to decarbonise our portfolios to become Paris aligned, we intend to

- review our intermediate goals and set further intermediate targets on a regular basis to be sure to align portfolios to net zero by 2050,
- continue defining climate-related targets and commitments together with our stakeholders for sectors where transition pathways do not yet exist,
- continue developing concrete action plans to decarbonise our portfolios and reaching the defined targets,
- develop climate friendly products and services to reorientate capital flows towards more sustainable assets,
- increase our data quality score over time.

6.2.5. Disclosing & monitoring progress

Our ambition is to reach net zero emissions by 2050 and meet our intermediary goals to contribute towards a climate-safe future.

As part of that commitment, we will publish our progress annually in order to keep our stakeholders informed of our efforts.

As transition pathways and targets may be subject to changes as data availability, quality and granularity improves over time and the regulatory and industry environment evolves, we will continuously review and update our approach.

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6.3. CHALLENGES AND LIMITATIONS

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In general, climate-related data are not yet comprehensively available today. Data availability and quality, however, will improve over the coming years as climate and ESG-related data disclosures are emerging world-wide.

Nevertheless, despite these current data limitations, we believe that it is key, especially for transparency reasons to our stakeholders, to disclose the data and methodologies we used for the establishment of financed GHG emissions as well as our climate action plan to decarbonize our portfolios to become net zero by 2050 or earlier.

Finally, we would like to mention that several external factors, out of the Bank's control, could significantly impact the financed GHG emissions of some of our portfolios via a change in the PCAF attribution factor (outstanding amount/EVIC). For example, the company's EVIC can be affected by a raise/drop in its share price which can then lead to lower/higher financed emissions on our side due to a decrease/ increase in the PCAF attribution factor. The same holds for foreign exchange effects (i.e. EUR/USD, EUR/CHF, etc.) as we have to report in EUR currency.





APPENDIX

7

7.1.

CALCULATION OF OUR FINANCED EMISSIONS

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Based on the above defined scope and data sources, we used the following PCAF formulas to calculate our financed GHG emissions.

<p>Corporate Bonds Portfolio: For listed companies:</p> $\sum_i^n \frac{\text{Outstanding amount}_i}{\text{EVIC}_i} * \text{Company Emissions}_i \quad \left. \vphantom{\sum_i^n} \right\} \text{Data Quality Score} = 2$ $\sum_i^n \frac{\text{Outstanding amount}_i}{\text{EVIC}_i} * \text{Revenue}_i * \frac{\text{GHG emissions}_s}{\text{Turnover}_s} \quad \left. \vphantom{\sum_i^n} \right\} \text{Data Quality Score} = 4$ <p>For unlisted companies:</p> $\sum_i^n \frac{\text{Outstanding amount}_i}{\text{Total equity} + \text{debt}_i} * \text{Company Emissions}_i \quad \left. \vphantom{\sum_i^n} \right\} \text{Data Quality Score} = 2$ $\sum_i^n \frac{\text{Outstanding amount}_i}{\text{Total equity} + \text{debt}_i} * \text{Revenue}_i * \frac{\text{GHG emissions}_s}{\text{Turnover}_s} \quad \left. \vphantom{\sum_i^n} \right\} \text{Data Quality Score} = 4$ <p>Where i = investee company and s = sector</p>	<p>Corporate Equity Portfolio:</p> $\sum_i^n \frac{\text{Outstanding amount}_i}{\text{Total equity} + \text{debt}_i} * \text{Company Emissions}_i \quad \left. \vphantom{\sum_i^n} \right\} \text{Data Quality Score} = 1 \text{ or } 2$ <p>Where i = investee company</p> <p>Business Loans:</p> $\sum_i^n \text{Outstanding amount}_i * \frac{\text{GHG emissions}_s}{\text{Assets}_s} \quad \left. \vphantom{\sum_i^n} \right\} \text{Data Quality Score} = 5$ <p>Where i = investee company and s = sector</p> <p>Portfolio data quality score:</p> $\frac{\sum_i^n \text{Outstanding amount}_i * \text{Data Quality Score}_i}{\sum_i^n \text{Outstanding amount}_i}$				
<p>Residential Mortgage Loans:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; padding: 5px;"> $\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Supplier specify emission factor}_e} * \text{Actual energy consumption}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 1$ </td> <td style="width: 50%; padding: 5px;"> $\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Floor area}_b * \text{Average emission factor}_e} * \text{Estimated energy consumption from statistics}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 4$ </td> </tr> <tr> <td style="padding: 5px;"> $\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Floor area}_b * \text{Average emission factor}_e} * \text{Estimated energy consumption from energy labels}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 3$ </td> <td style="padding: 5px;"> $\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Number of buildings}_b * \text{Average emission factor}_e} * \text{Estimated energy consumption from statistics}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 5$ </td> </tr> </table> <p>Where b = building and e = energy source</p>		$\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Supplier specify emission factor}_e} * \text{Actual energy consumption}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 1$	$\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Floor area}_b * \text{Average emission factor}_e} * \text{Estimated energy consumption from statistics}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 4$	$\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Floor area}_b * \text{Average emission factor}_e} * \text{Estimated energy consumption from energy labels}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 3$	$\sum_{b,e}^n \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b * \text{Number of buildings}_b * \text{Average emission factor}_e} * \text{Estimated energy consumption from statistics}_{b,e} \quad \left. \vphantom{\sum_{b,e}^n} \right\} \text{Data Quality Score} = 5$
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GLOSSARY

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GLOSSARY

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8 Glossary

A	ATC	Air traffic control
	AUM	Assets under management
B	BTAR	Banking Book Taxonomy Aligned Ratio
	C&E	Climate & Environmental
C	CEO	Chief Executive Officer
	CO₂e	Carbon dioxide equivalent
	CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
	EBA	European Banking Authority
E	ECB	European Central Bank
	EIB	European Investment Bank
	ENCORE	Exploring Natural Capital Opportunities, Risks and Exposure
	EPC	Energy Performance Certificate
	ESG	Environment, Social & Governance
	EVIC	Enterprise Value Including Cash
	FTE	Full Time Employee
	GHG	Greenhouse Gas Emissions
I	IATA	International Air Transport Association
	IEA	International Energy Agency
K	KM	Kilometre
L	LEAP	Locate, Evaluate, Assess and Prepare
	LED	Light-emitting diode
	LIST	Luxembourg
	LT	Long term

M	MJ	Megajoule
	MT	Medium term
	MwH	Megawatt per hour
N	NCEP	National Climate and Energy Plan
	NGFS	Network for Greening the Financial System
	NGO	Non-governmental organisation
	NZBA	Net Zero Banking Alliance
P	PCAF	Partnership for carbon accounting financials
	PRB	Principle for responsible banking
	PV	Photovoltaics
R	RAF	Risk Appetite Framework
	RTK	Revenue ton per kilometre
S	SAF	Sustainable Aviation Fuel
	SBTI	Scientific Based Target Initiative
	SDG	Sustainable Development Goals
	SME	Small and medium-sized enterprises
	SQM	Square metre
	SSO	Strategic & Sustainability Office
	ST	Short term
T	TCFD	Task Force on Climate Related Financial Disclosures
	TNFD	Taskforce on Nature-related Financial Disclosures
	TPI	Transition Pathway Initiative
U	UNEP-FI	United Nation Environment Programme Finance Initiative
W	WWF	World Wide Fund

