Commentary
This is an informational piece to help investors assess how the State Street Sustainable Climate Bond Investment Solutions align with the Paris Agreement goals.
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State Street Sustainable Climate Bond Framework: Aligning With The Paris Agreement Goals

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The scientific report underpinning the Paris Agreement was authored by the Intergovernmental Panel on Climate Change (IPCC) in 2014. The IPCC is an intergovernmental body mandated by the United Nations, tasked with providing an objective, scientific view of climate change and its political and economic impacts.

The IPCC report explains in detail the relationship between increases in greenhouse gas (GHG) emissions and temperature levels. It provides a range of emission pathway scenarios with a key message that emissions must drop significantly over the next decade for the world to have a chance of staying within 1.5°C of global warming above pre-industrial levels, and thus avoiding the most catastrophic consequences of climate change.

In October 2016, the European Union formally ratified the Paris Agreement, which aims to strengthen the response to climate change, among other means by making investment flows consistent with a pathway towards low GHG emissions and climate-resilient development.

Yet, investors aiming to align their portfolios to the Paris Agreement goals have faced challenges in expressing the nuance of alignment credibility within a single temperature metric as well as recognising differences across sectors and markets.

To address these challenges, State Street Global Advisors has developed the State Street Sustainable Climate Bond Strategy. The strategy provides corporate bond investors with a framework to act now in aligning portfolio(s) with the climate transition opportunities and risks, and the goals of the Paris Agreement.

State Street Sustainable Climate Bond Framework

The State Street Sustainable Climate Bond framework considers that "Paris-aligned" investment means implementing an investment strategy that is consistent with the global goal of net zero emissions by 2050. Global net zero emissions by 2050 represents a low-overshoot scenario associated with a >66% probability of limiting temperature increase to 1.5°C and is therefore recommended as the appropriate precautionary approach to achieving the 1.5°C goal of the Paris Agreement .

While there is no 'one-size-fits-all' solution to alignment, it is essential that investors maximise efforts to achieve decarbonisation in the real economy and increase investments in the solutions needed to achieve net zero. This requires a comprehensive framework with concrete targets set at the portfolio level.

The State Street Sustainable Climate Bond framework is a solution for investors to act now. It is a thematic-based framework, which permits the construction of portfolios with specific exposure objectives encompassing climate-aligned and ESG goals versus a standard corporate bond index. It is designed to be compatible with the archetypal risk, return, diversification objectives and constraints requirements of investors.

Top-down and bottom-up reference targets are an important means to set direction and appropriate ambition for an investment strategy towards net zero, and to monitor whether that strategy is achieving the expected outcomes.

The table below provides a high-level overview of the six critical pillars and key metrics that we use to construct Paris-aligned corporate bond portfolios.

Figure 1 **Overview of the State Street Sustainable Climate Bond Framework**

	Mitigation				**+ Adaptation**	
	Current and Future Risk Exposure				**Resiliency**	**Opportunities**
Objectives	**Minimise** Carbon Emissions	**Minimise** Fossil Fuel Reserves	**Minimise** Brown Revenues	**Minimise** ESG Risks	**Build** Resilient Portfolio	**Maximise** Green Bonds & Green Proceeds
Metrics	Carbon Intensity Direct + First Tier Indirect Emissions	Total GHG emissions from fossil fuel reserves in million tonnes CO_2	Revenues from extractives activities	Norms-based and controversial product involvement screening	Adaptation Score on climate change preparedness	Certified Green Bonds
Units	Metric tons CO_2e/$m revenues	Metric tons	%	—	Scaled range 1–4	—
Definition	Greenhouse gas emissions over which the company has direct control or derives from suppliers, divided by revenue	Total embedded CO_2 emissions for the company in a financial year	Percentage of revenues from brown sectors and extractive sectors with high embedded carbon emissions	Adherence to international norms in relation to ecological protection, human rights, labour standards, anti-corruption, controversial weapons and tobacco	Position on Climate Change Greenhouse Gas Reduction Action Plans	Bonds which qualify as green according to the Climate Bonds Initiative Taxonomy
Target	↓ **≥70%**	↓ **≥95%**	↓ **≥95%**	↓ **100%**	↑ **1.5***	↑ **≥2.5x**

Source: State Street Global Advisors.

Pillar 1 — Carbon Intensity

A portfolio emissions reduction target shifts the distribution of assets within the investment portfolio from high to already lower-carbon assets and sectors. The Representative Concentration Pathway (RCP) 2.6 scenario states for there to be a likely scenario of staying below 2°C, a decrease in CO_2-equivalent (CO_2e) emissions of between 41% and 72% lower than in 2010 is needed by 2050 (IPCC, 2014a).

In order to meet this goal, the Climate Bond Strategy targets a 70% or greater intensity reduction goal vs. the reference index. This is done using company-level carbon intensity information, rather than just broad "carbon intensive sector" exclusions, as research shows that there can be significant variations in emissions by companies classified as belonging to any given sector.

This 70% carbon intensity reduction is generally recognised as being suitably high to achieve the required emissions reductions and investment trajectories over time to reach global net zero by 2050 . We achieve this while keeping within archetypal risk, return, diversification objectives and constraints requirements of investors.

Carbon emissions intensity is measured by CO_2e/$m revenues. The data covers over 90% of a typical investment grade corporate bond index. Where carbon intensity data is not available (which applies to a relatively small proportion of companies), they are excluded from the eligible investment universe and identified for potential stewardship actions. Combining alignment and engagement incentivises companies to undertake action to deliver greater alignment of assets.

Pillar 2 — Brown Revenue

The Sustainable Climate Bond framework seeks to avoid companies that are involved in "brown sectors" with a target of 95% or greater reduction objective vs. the reference index. Brown sectors include — but are not limited to — bituminous coal and lignite mining, crude petroleum and natural gas extraction, drilling oil and gas wells, support activities for oil and gas operations, natural gas liquid extraction and tar sands extraction.

Companies with high brown revenue-generating business models will increasingly be challenged by investors and regulators, which can pose a substantial risk for the valuations of such business models. Reducing investment in such business models and assets is a crucial step towards aligning the portfolio to the Paris Agreement goals and also represents best-practice fiduciary management.

Pillar 3 — Fossil Fuel Reserves

While carbon intensity is a useful metric showing a company's emissions today, investors should also consider the forward-looking carbon risk potential of companies. This can be done by taking into consideration a company's fossil fuel reserves. The anticipated emissions from (the future) burning of proven reserves will lead to higher emissions. If we assume that not all proven reserves will actually be burned due to changes in economic viability, and greater regulations or restrictions under reasonable transition objectives, then these reserves could become stranded. To reduce the exposure to these assets the framework targets a 95% or greater reduction to issuers with fossil fuel reserves.

By substantially reducing the exposure to those reserves this is (more than) in accordance with the aforementioned of – 72% to – 41% emission reduction needed by 2050, according to RCP 2.6.

Pillar 4 — ESG Controversy and Norms-based Screening

The strategy is designed to avoid companies that not only do significant harm to the environment but that violate other ethical principles and ESG criteria such as corruption, human rights, labour standards, serious controversies, controversial weapons and tobacco.

Today, these broader and typically less climate-focussed considerations pose moral risks and financial risks, and also serve as minimum ethical standards for many ESG investors.

Pillar 5 — Adaptation and Climate Change Preparedness Grading

While metrics such as carbon intensity provide a backward-looking snapshot, the Paris Agreement is about long-term objectives. Also, an asset's value will be determined far more by where it is going, than by where it has been. It is therefore important for investors to consider forward-looking metrics on the likely future trajectory of a company's emissions, aggressive and credible plans to lower them and its alignment to a net-zero pathway.

As part of the Sustainable Climate Bond framework, companies are assessed on their stated position on climate change, and greenhouse gas emission targets and action plans. Companies are then ranked on a scale and excluded if they fail to meet the minimum score. In addition, our Stewardship team engages with companies to influence issuers and their policies to bring companies and their supply chains towards greater alignment with the Paris Agreement goals, including, for example, reporting according to the Task Force on Climate-related Financial Disclosures (TCFD) requirements.

Pillar 6 — Green Bonds

Green bonds were originally created to fund projects that have positive environmental and/or climate benefits. The majority of the green bonds issued are green "use of proceeds" or asset-linked bonds. Bond proceeds are used to fund green projects but are backed by the issuer's entire balance sheet.

Investing and tilting greater exposure to green bonds and climate-aligned issuers means that industries that provide climate solutions, but may themselves have significant direct emissions or who have a poor historical record on sustainability, are incentivised to invest in projects with environmentally beneficial objectives, including climate change mitigation.

The stricter reporting requirements of green-labelled bond issuance also offer another way to monitor the effectiveness and adequacy of those projects and the company's strategy. To identify green bonds, we use data from the Climate Bonds Initiative (CBI), which has a stringent process to identify and green labelled bond issues, therefore significantly reducing the risk of investing in green-labelled bonds that turn out to be "green-washed".

We believe that the growth of the green bond market is a strong indicator of industrial and corporate activity that supports a low carbon future. Therefore, we chose to include an additional green bond goal, as part of the State Street Climate Bond Strategy design objectives. All verified green-labelled bonds in the baseline universe are retained. The market value weight of eligible green-labelled bonds is scaled up by 2.5x or greater versus the reference index weight. Green bonds which are not eligible for inclusion are those where the issuer is identified as being engaged in controversial weapons or extreme controversies, has violated the United Nations Global Compact (UN GC) Principles or is on the Swedish Ethical Council recommended exclusions list.

Climate Transition Benchmarks (CTB) and Paris-Aligned Benchmarks (PAB)

The EU Technical Expert Group Report on Climate Transition and Paris-aligned Benchmarks (the TEG report), published in September 2019 and the handbook on climate benchmarks, published in December 2019, provide another reference point to analyse Paris-alignment. These outline the proposed TEG requirements that have provided the basis for the draft delegated acts by the EU Commission (April 2020).

These criteria are not mandatory but merely act as recommendations for benchmarks, rather than portfolios. Benchmark providers can still use any methodology they want to when devising indices — but the criteria seek to provide a trustworthy and transparent standard for products coming to the market making big sustainability claims.

The recommended criteria for "Paris-Aligned Benchmarks" seek to harmonise the minimum standards for benchmark administrators that choose to opt-in for the rules, provide investors a reference for consistency with Europe's climate ambitions and encourage investors to shift away from carbon-intensive companies towards companies developing solutions necessary for the transition to a low-carbon world.

The TEG report specifies minimum requirements for a benchmark to be classified as an EU CTB (Climate Transition Benchmark) and PAB (Paris-Aligned Benchmark). The latter set of requirements are more progressive in terms of climate targets. The TEG report lays out the trajectory for climate transition over a 10-year window beginning in 2020. The trajectory aligns with global targets aiming to reduce carbon emissions by 50% by the end of 2030.

At the heart of the plans is a requirement for indices to reduce carbon emissions annually by 7%, across both high- and low-carbon sectors, to demonstrate meaningful progress on climate transition. In the Sustainable Climate Bond framework, we target a greater reduction of 70% or greater versus the reference index, instead of applying a 50% reduction and 7% annual reduction. We use multiple indicators to fully capture a company's strategic alignment to contain the rise in average temperatures to below 2°C above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C.

In addition to brown revenue, fossil fuel reserves, and norms-based and activity-based exclusions, we use an adaptation score and green bonds to assess a company's forward-looking commitments or target-setting, combined with carbon intensity data, as explained in the previous section. The adaptation factor and green bond factor indicate intention and a clear strategy for a company to implement policies to reduce carbon footprint and manage future carbon risks, which go beyond a standalone carbon intensity reduction strategy.

The draft EU regulation published in April 2020 no longer specifies a mandatory requirement to improve exposure to companies with significant sources of green revenue. However, in our research on applying the framework to fixed income indices, we found the green revenue data for the fixed income universe to be almost non-existent and, as such, we opted to focus on green bonds.

The green bond objective ensures that our Sustainable Climate Bond framework not only improves the ratio of brown revenues, but also significantly increases the market-weighted allocation to green bonds relative to the benchmark by 2.5x or greater.

The table in Appendix 1 offers a comparative summary of the Sustainable Climate Bond Framework compared to the targets set out for the EU CTBs and EU PABs and whether or not the Framework is recognised as aligned, partially aligned or not aligned, supported with a brief description.

Conclusion

A range of methodologies and initiatives exist that aim to assess the alignment of a portfolio with an implied temperature score. Assessments that provide an aggregation of company temperature scores at a portfolio level is a striking option to express portfolio alignment, but it is challenging to express the nuance of alignment credibility in a single temperature metric. Given the limitations of underlying data (pathways, emissions disclosure and appropriate factors), there is a risk of such measures being misleading with regards to a portfolio's trajectory towards the net-zero emissions goal.

Standard market cap "climate" benchmarks, including those based on the EU CTB and PAB offer convenience but don't guarantee better results. We believe that some of the thresholds, such as carbon intensity reduction, do not go far enough and better results can be achieved by changing the specification. Furthermore, focusing on a target 7% year-on-year carbon reduction does not take into account benchmarks with different regional or geographic exposures and may necessarily require different emissions reduction pathways.

The State Street Sustainable Climate Bond Strategy provides investors with a framework to act now in aligning their broad corporate bond portfolio with the climate transition and the goals of the Paris Agreement. The strategy combines State Street Global Advisors' expertise in indexing with climate information from multiple data sources on the world's largest and most carbon-exposed/intensive public companies. The strategy tilts towards those companies that are playing a critical part in the low-carbon transition, while also avoiding exposure to those associated with high ESG controversies and commonly screened ESG issues. We do this using a systematic and transparent approach, while still delivering a broad and highly diversified investment exposure.

Our Sustainable Climate Bond strategies are also reinforced through ongoing company engagements to influence issuers and their policies in order to bring companies and their supply chains towards greater alignment with the goals of the Paris Agreement.

Appendix 1

Figure 2: **Comparison of the State Street Sustainable Climate Bond Strategy Framework with the EU Climate Transition and Paris-Aligned Benchmarks Minimum Standards**

Minimum Standards	EU CTB	EU PAB	State Street Climate Bond Framework
Risk-oriented minimum standards:			
Minimum Scope 1+2(+3) Carbon intensity reduction compared to investable universe. Scope 3 being phased-in during a four-year timeframe. (Article 5)	30%	50%	**Aligned** >70%
Baseline exclusions	Controversial weapons Societal norms violators* *Societal norms include UNGC Principles or OECD Guidelines for Multinational Enterprises		**Aligned** Controversial weapons Violations of UNGC Principles and severe ESG controversies R-Factor™ laggards Swedish Ethical Council recommended exclusions
Activity exclusions	No	**Tobacco** Coal (1%+ revenues) Oil (10%+ revenues) Natural gas (50%+ revenues) Electricity producers with carbon intensity of lifecycle GHG emissions higher than 100gCO_2e/kWh (50%+ revenues)	**Partially aligned** As well as being largely captured by the brown revenue screen, we also apply the following product involvement screens: Tobacco (10%+ revenues) Thermal coal extraction or power generation (10%+ revenues) Artic oil & gas (10%+ revenues) Oil sands (10%+ revenues)
Opportunity-oriented minimum standards:			
Year-on-year self-decarbonisation of the benchmark	At least 7% on average per annum: in line with or beyond the decarbonisation trajectory from the IPCC's 1.5°C scenario (with no or limited overshoot)		**Partially aligned** While our framework allows for this, instead of delivering PAB goal of 50% and then the 7% annual reduction, we have simplified this and target an immediate 70% or greater decarbonisation verses the reference index.

Minimum Standards	EU CTB	EU PAB	State Street Climate Bond Framework
Minimum green share/brown share ratio compared to investable universe **(VOLUNTARY)**	TEG recommendation: At least equivalent	TEG recommendation: Significantly larger (factor 4)	**Aligned** Not all indicators are broadly applicable to a diversified investment universe (e.g. green/brown revenue share for financial actors financing the energy transition. With this in mind and given that our strategy is for fixed income exposures, we approach this from two standpoints — brown revenue screening and green bonds. Brown revenue screening. Using this approach, we exclude companies that are involved in "Brown sectors" according to Trucost Data. Reducing exposure to assets that would be stranded under such reasonable transition expectations is a crucial step towards aligning a portfolio and also best practice fiduciary management. Instead of green revenue, we consider green bonds. Many of the needed solutions for a low-carbon economy will come from highly-emitting sectors. A simple decarbonisation approach can therefore lead to an underweighting of the sectors where most of the solutions necessary to a low-carbon economy lie. Generally, all green bonds in the baseline universe are retained and the market value weight of those green bonds is scaled up.
Exposure constraints	Minimum exposure to sectors highly exposed to climate change issues is at least equal to equity market benchmark value		**Not applicable** This is for equity benchmarks to ensure that equity investors who support the objectives of the Paris Agreement maintain their influence, via engagement and voting, on the transition of the company towards more sustainable activities.
Corporate target setting	Weight increase shall be considered for companies which set evidence-based targets under strict conditions to avoid greenwashing		**Partially aligned** Adaptation Score
Disqualification from label if 2 consecutive years of misalignments with trajectory	Immediate	Immediate	**Not applicable** Our framework is for construction at the fund level and not at the benchmark construction level.

Minimum Standards	EU CTB	EU PAB	State Street Climate Bond Framework
Relevance-oriented minimum standards:			
Review frequency:	Minimum requirements shall be reviewed every three years to recognise market development as well as technological and methodological progress.		**Aligned** We would expect to conduct a review at least every three years, and possibly as frequent as annually to ensure that ambitions recognise market development, as well as technological and methodological progress.

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* This figure is presented as of December 31, 2020 and includes approximately $75.17 billion of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.

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