A Case For: Sustainable Climate Bond Strategy

Environmental, Social & Governance (ESG)

State Street Global Advisors has developed an innovative climate bond strategy. Our climate-aware investment process seeks to enable you to improve your portfolio's carbon profile and reduce climate risk, while maintaining target returns.

Key Features of the Sustainable Climate Bond Strategy

- **Paris Aligned** a comprehensive solution that enables investors to act now to minimise carbon intensity, reduce fossil fuel exposure and reduce brown revenue exposure. Avoids exposure to companies associated with high ESG controversies and commonly screened ESG issues (e.g. controversial weapons and UNGC violations).

- **Fund the Transition** increase exposure to green bonds, adapting companies and bond issuers investing in the solutions needed to achieve net zero by 2050.

- **Keep the Returns** a systematic and transparent approach that aims to deliver cost effective, diversified corporate bond exposure comparable to standard market-weighted corporate bond indices. Minimise active exposures that are not expected to outperform, such as currency, country, sector and industry exposure.

The Slow-Burning Crisis

The scientific evidence for man-made climate change is incontrovertible. The last seven years have been the hottest on record.[1]

Recent years have been marked by disaster caused by more frequent and extreme weather events brought about by climate change. The Australian wildfires, set off by a record heatwave, destroyed 44,400 square miles of bushland and forest and led to the killing or displacement of an estimated 3 billion animals.[2]

Warming has also led to unprecedented melting of ice and snow at the north and south poles. Sea level rise will mean coastal communities are much more exposed to flooding and extreme storms, leading many to migrate inland, putting pressure on infrastructure and resources. And with greater carbon dioxide in the oceans comes ocean acidification, degradation of marine ecosystems and reduction in marine biodiversity.

Research suggests that 'tipping points' such as the melting of huge ice sheets or the loss of the Amazon rainforest are much more likely to occur than previously thought.[3]

Tackling the Climate Threat

In recognition of the severity of climate risks, countries have committed to reducing carbon emissions in line with the 2015 Paris Agreement of limiting global warming to 2° Celsius or less over the 21st century. The European Union, UK and several other countries have committed to be carbon neutral by 2050. In advance of regulation, many companies are proactively taking steps to reduce their carbon footprints and disclose their exposure to climate risks. Below are three trends in the global response to climate change that investors will have to address.

1 The Seismic Energy Transition

Recent years have seen a sustained shift in energy use away from fossil fuels and towards renewable energy, driven largely by acknowledgement of the impact of fossil fuel pollution and the need to reduce carbon emissions. The falling costs of solar and wind energy has further increased their attractiveness compared to fossil fuels. The COVID-19 crisis has acted to hasten the decline in fossil fuel demand and by the time the global economy recovers, it is possible that most of the *growth* in energy demand may be met by renewable energy sources.[4] The transition to the low carbon economy will require companies in all sectors to decrease their carbon footprint.

2 Regulatory Tipping Point

In order to meet the Paris Agreement goals and reach net zero carbon emissions by 2050, a growing number of countries and local jurisdictions are making climate disclosure mandatory across the investment chain — from companies, to financial services firms, to end-investors.

In June 2020, the European Parliament approved the EU Taxonomy Regulation, which will be fundamental to the realisation of the European Green Deal, which aims to boost private sector investment in green and sustainable projects. The European Insurance and Occupational Pensions Authority has stated that pension funds and insurers can play a key role in the transition towards a low carbon economy and that they should actively incorporate climate change risks in their own risk management frameworks.

The European Commission is also seeking to integrate sustainability risks and sustainability factors into Undertakings for the Collective Investment in Transferable Securities (UCITS) schemes, the Alternative Investment Fund Managers Directive (AIFMD) and the Markets in Financial Instruments Directive (MiFID). This, in turn, will drive investment in more sustainable projects and activities.

3 Capital Allocations

High-quality disclosures about how organisations and assets will both impact and be impacted by environmental change is encouraging better-informed pricing and capital allocation.

A potential driver for the increased adoption of climate considerations in investment portfolios is the perceived robustness of sustainable investment strategies.

Portfolio Impact

Investors are recognising that climate risks are financial risks. Climate change is the highest priority among UN PRI[5] signatories, representing over 3,000 investors and over $100 trillion of assets.[6] For investors, climate change and its impact on asset valuations are becoming important criteria for investment decisions. The risks from climate change can be split into four broad categories:

Figure 1 **Climate Change Risks**

Systemic Risk to financial markets as they seek to digest impact on economic growth, societal disruption and energy-mix change	**Country Risk** to petro-states that fail to reinvent themselves in time
Corporate Risk in sectors across the world, from drilling to diesel engines and from transport to banks	**Asset Value at Risk** as investors digest vast amounts of potentially stranded fossil fuel assets Fossil fuel and related sectors comprise about a quarter of all equity and debt markets

Companies face a multitude of climate-related risks, including supply chain disruptions and shortage of raw materials, falling demand for products and services, and carbon taxes and other regulations.

Accepting that climate risks must be addressed, what should an optimal climate-aware approach look like? Limiting carbon emissions is clearly necessary but insufficient on its own.

Asset owners must also build long-term resiliency into their portfolios. Resiliency is critical in a world that will be shaped by climate change for decades, perhaps centuries, to come.

A ‘Mitigation and Adaptation’ Approach

We believe in an investment approach that incorporates both **mitigation** of greenhouse gas emissions, and **adaptation** to the future impacts of climate change. These are complementary approaches to reducing climate risks and correspond with asset owners’ need to balance short- and long-term risks and opportunities.

- Mitigation aims to reduce the flow of heat-trapping greenhouse gases into the atmosphere and increase exposure to new energy and green companies.

- Adaptation aims to increases exposure to companies working proactively to minimise their exposure to the actual or expected physical, economic and regulatory impacts of climate change and the transition to a low-carbon economy.

Introducing the Sustainable Climate Bond Strategy

Imagine if you could improve your portfolio’s carbon profile and reduce climate risk, all while keeping risk and return characteristics broadly in place.

This is the rationale behind the State Street Sustainable Climate Bond Strategy, which adopt a systematic mitigation and adaptation approach that targets Paris-aligned reductions in carbon emissions and fossil fuel exposure and reallocates capital towards companies benefiting from low-carbon technologies.

The Strategy aims to achieve the following objectives in relation to the following five climate categories utilised in the portfolio construction process:

Figure 2 **Sustainable Climate Bond Strategy: Key Metrics and Targets**

	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 & Climate-Aligned Bonds
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 & Climate-Aligned 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	Securities that are present or likely to qualify for inclusion into the Climate Bonds Initiative Green Bonds and Climate-Aligned Database.
Target	↓ **≥70%**	↓ **≥95%**	↓ **≥95%**	↓ **100%**	↑ **1.5***	↑ **≥2.5x**

Source: State Street Global Advisors. The information contained above is for illustrative purposes only.
* 1.5 is the ‘Adaptation Score’ below which a company will be ineligible for inclusion in a Paris Aligned portfolio.
The above targets are estimates based on certain assumptions and analysis made by State Street Global Advisors. There is no guarantee that the estimates will be achieved.

Our approach follows a four-step process:

1 Start with the Right Universe

Clients can select any standard investment grade or high yield credit or aggregate benchmark which include corporate bonds. For each exposure, we first incorporate a set of screens that are aligned with our climate and ESG objectives. If a client has their own climate metrics they would like included then we can potentially accommodate this in a separately managed account.

We utilise three sets of exclusions based on product involvement and prescriptive regulatory screens and updated on a quarterly basis:

Figure 3 **Exclusionary Screening Criteria**

Climate Related Exclusions	**Carbon Intensity**
	Fossil Fuel Reserves
	Brown Revenues
ESG Risks and Reputation Risk Related	**UN Global Compact Violators** Provide universal principles on human rights, labour, environment and anti-corruption
	Controversial Weapons/Armaments Screen companies involved in production and distribution of weapons that have disproportionate and indiscriminate impact on civilians
	R-Factor Laggards, Tobacco, Thermal Coal
	Severe ESG Controversies
Based on Prescriptive Regulatory Screen	**Swedish Ethical Council** Focused on influencing companies to operate in a more sustainable way by acting to bring about positive change in companies associated with violations of international conventions on environment and human rights

Our product involvement framework has two core criteria — drivers of product involvement and scope of resulting restricted list:

Figure 4 **Drivers of Product Involvement**

Three Drivers of Product Involvement	Description	Focused Involvement	Broad Involvement
1. Revenue	*What percent of a company's total revenue is derived from this industry, product, or topic?*	Higher revenue threshold	Lower revenue threshold
2. Activities	*What part of the value chain is the company involved in?*	Direct involvement inthe product	Direct and/or indirect involvement in the product
3. Significant Ownership	*Is the company an owner of, or owned by, another company with involvement in this issue?*	Companies whose primary business activity is the product in question, or who own a significant portion of a company with involvement	Companies with any ownership relationship to the product in question are screened

← **Scope** →

Fewer names screened — More names screened

The metrics used in a particular screen depend on the availability from our data providers. For example, some weapons only have revenue metrics, others only activity metrics.

We follow a well-defined methodology that leverages best-in-class available data from multiple data providers where accessible to us.

2 Source Quality Data

All investment strategies rely on relevant and high-quality data and climate strategies are no different. At State Street Global Advisors, we employ an open architecture to source available data. We have selected the following data providers for the Sustainable Climate Bond Strategy:

- **Trucost** for carbon emission intensity, fossil fuel reserves and brown revenues
- **Climate Bonds Initiative** for green bonds & climate-aligned issuers
- **ISS ESG** for adaptation score

- **Sustainalytics and MSCI** for product and controversy involvement
- **R-Factor™** for ESG rating

3 Design for Optimal Outcomes and Balance for Risk-Adjusted Return

We utilise a mitigation and adaptation framework to rebalance the portfolio towards companies that will achieve our stated objectives:

Figure 5 **Designed for Maximum Impact**

↓	**Reduce Exposure** to companies with worse climate profiles. Eliminate highly polluting sectors.
↑	**Increase Exposure** to green bonds which fund projects that have positive environmental and/or climate benefits.
↑	**Increase Resiliency** by targeting companies that are positioned to benefit from the transition to the coming low-carbon economy.

We then balance the portfolio to target the highest expected risk-adjusted return, given the desired constraints.

We model the portfolio based on the following specifications:

- 70% or greater reduction in GHG emissions
- 95% or greater reduction in companies involved in brown sectors or that have fossil fuel reserves
- 100% exclusion of companies that violate ethical principles relating to corruption, human rights, labour standards, serious controversies, controversial weapons and tobacco
- 1.5 "Adaptation Score", below which a company will be ineligible for inclusion in a Paris-aligned portfolio
- 2.5x or greater increase in green bonds (recognised as green according to the green bond standards and EU taxonomy defined by the Climate Bonds Initiative)

4 Maximise Value with Indexed Offer

The portfolio is implemented using an indexed approach to deliver a consistent, cost-efficient and diversified investment exposure. This approach is built around stratified sampling which State Street Global Advisors pioneered. With about ten thousand issues in the broad corporate bond market, buying every bond is not a cost-effective approach for replication.

Skilled sampling can replicate the broad risk profile of the relevant corporate index efficiently and effectively, with a fewer but still highly diversified set of holdings.

In addition, we employ sophisticated indexing techniques focussed on minimising costs and tightly controlling systematic risks, while also adding value. Our value-add indexing approach is underpinned by minimising fund turnover relative to that of the index, effective trading and execution, harnessing the 'new issue premium' and a relative value (RV) security selection process.

Figure 6 **Euro Corporate Bond Strategy Back-Test Results**

31 December 2014–30 June 2021	Climate Strategy — gross of fee (back-tested)	Climate Strategy — net of fee (back-tested)	Bloomberg Barclays Euro Corporate Bond Index
1-yr Return (%)	3.79	3.52	3.89
3-yr Annualised Return (%)	2.69	2.42	2.66
5-yr Annualised Return (%)	2.02	1.76	2.05
Since Inception Return (%)	2.12	1.85	2.11
1-yr Volatility (%)	2.33	2.33	2.32
1-yr Sharpe Ratio	0.77	0.65	0.81
Max Drawdown (%)	8.14	8.29	8.12
TEV Since Inception (%)	0.17	0.17	—

Source: As at 30 June 2021.

As an example, on average for a Euro Corporate Bond Strategy, we are able to achieve a carbon intensity reduction of 73.1%, brown revenue and fossil fuel reserves reductions of 95–100%, full removal of ESG Controversies and a green bond market value increase of 3.2x (i.e. an increase from 5.4% of the market value weight to 17.3%), compared to the corresponding Bloomberg Barclays Euro Corporate Bond Index.

Paris Alignment

The Paris Agreement is an international accord that aims to limit the rise in global average temperatures to below 2°C above pre-industrial levels by the end of this century, and to pursue efforts to limit it to 1.5°C. While there is no 'one-dimension-fits-all' portfolio solution "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 no-or 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 (IPCC, 2018).

The objective for the Sustainable Climate Bond Strategy is to maximise efforts that achieve decarbonisation in the real economy and increase investments in the solutions needed to achieve net zero. When applying this to investments, this requires the implementation of a comprehensive framework with concrete targets set at the portfolio level, as shown on the previous page.

These top-down and bottom-up reference targets are an important means to set direction and appropriate ambition for an investment strategy and serve as an ongoing reference point to monitor whether that strategy is achieving the expected outcomes. Issuers that do not meet the criteria are typically excluded from the eligible investment universe rather than underweighted. Our Sustainable Climate Bond Strategy are also reinforced through our company engagements to influence issuers and their policies in order to bring companies and their supply chains towards greater alignment with the Paris Agreement goals.

Who We Are

State Street Global Advisors' ESG experience covers portfolio management, investment research, proxy voting and engagement, as well as valuable relationships with third-party research providers.

We apply a multi-dimensional approach to our ESG investing solutions. During more than 30 years of ESG investing, we have advanced our portfolio management and stewardship capabilities to deliver value to our clients.

Through our extensive ESG data and research, we can help develop and implement solutions for our clients that align policy, principles and values, yet seek maximum performance or minimum tracking error within the constraints.

1 Based on NASA data (2021).

2 'Australia's 2019–2020 Bushfires: The Wildlife Toll', WWF (2020).

3 'Climate tipping points — too risky to bet against', Lenton et al (2019).

4 'COVID-19 and Energy in the New World', State Street Global Advisors and Carbon Tracker Initiative (2020).

5 Principles for Responsible Investment.

6 UN-backed PRI (as at 31 March 2020).

About State Street Global Advisors

For four decades, State Street Global Advisors has served the world's governments, institutions and financial advisors. With a rigorous, risk-aware approach built on research, analysis and market-tested experience, we build from a breadth of active and index strategies to create cost-effective solutions. As stewards, we help portfolio companies see that what is fair for people and sustainable for the planet can deliver long-term performance. And, as pioneers in index, ETF, and ESG investing, we are always inventing new ways to invest. As a result, we have become the world's fourth-largest asset manager* with US $3.90 trillion† under our care.

* Pensions & Investments Research Center, as of December 31, 2020.
† This figure is presented as of June 30, 2021 and includes approximately $63.59 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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Hypothetical Climate Corporate Bond Strategy (the "Climate Bond Strategy").

Purpose of theoretical Model Performance: The Climate Bond Strategy seek to create portfolios with improved climate risk exposure while maintaining low tracking error with respect to the reference benchmark. Over a fixed period, typically on a yearly basis, a back-test is performed to check the indicative impact of Climate Bond methodology relative to a broad reference credit benchmark in terms of Tracking Error and Tracking difference. Once a strategy is live then the model will be used to identify securities which may be considered for inclusion in a Climate Bond Strategy portfolio based on key climate input metrics.