White Paper
ESG

April 2022

Net Zero: An Investor's Implementation Guide

Hélène Veltman PhD
Senior Investment Strategist,
Investment Strategy and Research Group EMEA

STATE STREET GLOBAL ADVISORS

Contents

Introduction

Amid greater awareness of the rate of anthropogenic climate change, net zero investing has taken centre stage. Recent years have seen various investor and regulatory bodies propose investment frameworks to reach net zero. Examples are the European Union's sustainability-related regulations, the Net Zero Asset Owner Alliance, the Net Zero Asset Manager Initiative, the Institutional Investors Group on Climate Change's Paris-Aligned Investment Initiative and Science-based Targets Initiative for Financial Institutions.[1]

State Street Global Advisors joined the Net Zero Asset Manager Initiative in April 2021 and has committed to engage with clients to reach net zero emissions by 2050 (or sooner) and set interim 2030 emissions reduction targets.

Like all Net Zero Asset Manager Initiative signatories, we are weighing the prevailing net zero methodology approaches with an approach that best aligns to our commitments, our clients' goals, our investment process and our operational activities. As part of this we are setting up an internal framework to set targets (based on the Institutional Investors Group on Climate Change's (IIGCC) Net Zero Investment Framework) and will measure our progress towards our NZAM commitments which include assets under management, asset stewardship, investment solutions and client outreach efforts.

In general, all the net zero initiatives and frameworks seek to align investor goals with the Paris Agreement and achieve net zero emissions by a combination of:

- Decarbonising the portfolio
- Increasing investment in climate solutions or green technologies
- Improving reporting

There is recognition that transitioning to a low carbon world is a long and challenging process, and companies need to have the right incentives to make the required changes. The main options for investors with respect to their portfolio holdings are:

- Engagement with company boards and management
- Selective divestment from certain sectors or harmful activities
- Enhancing the carbon profile of portfolios via the integration of climate considerations
- Advocacy to encourage reporting

Most net zero frameworks will pull on these levers to varying extents to drive change in portfolio companies. In this article, we discuss these levers and how State Street Global Advisors can help with the implementation of portfolio net zero objectives from various angles.

What does "net zero" mean?

- Net zero means that the total greenhouse gas (GHG) emissions being emitted should be lower than or equal to the total GHG emissions being removed or absorbed. On a net basis, no additional emissions should be released into the Earth's atmosphere.

- Carbon neutrality is a related concept that means that an entity has offset its emissions by purchasing carbon credits or offsets equal to the amount of its emissions. This can be equivalent to net zero emissions, if and only if, the offsets are derived purely from removal of CO_2 emissions and not from avoided emissions. An additional nuance between the two concepts relates to the scope of emissions: carbon neutrality covers Scope 1 and Scope 2 emissions, with Scope 3 not required (but encouraged), while net zero covers Scope 1, 2 and 3 emissions.[2,3]

- Scientific models that target a temperature rise of less than 1.5°C over and above pre-industrial levels show that we need to achieve net zero emissions by the year 2050.[4]

1

Investment Approaches and Portfolio Construction

Climate change has become top of agenda for many institutional investors. This can be challenging as the topic is in rapid evolution and the investment management industry must respond with matching agility in meeting client demands. Alongside the classic investment approaches and investment strategy the institutional investor must implement its view on climate change and how it intends to measure and achieve this.

The portfolio implementation of a net zero investment strategy can be achieved through **Engagement** and **Exclusions**, as well as through the **Private and Public asset allocation**. **Reporting** combined with the right Key Performance Indicators (KPI's) will enable the investor the needed insight and quantitative understanding of how the climate change vision is translated and expressed in the portfolio.

Starting with Engagement, the investor first must select which companies it wishes to engage with and then how to exert influence at a companies' board level. The question arises if the investor decides to ask the pertinent questions directly or should it perhaps support an initiative, more powerful and more expert on the topic of climate change, to engage in the dialogue?

Exclusions appear simple in terms of implementation but can rapidly become complicated as these are driven by strong visions where the route to engagement has been cut off. As climate change is a new and evolving topic it renders exclusion criteria difficult and may need to be revisited and reviewed on multiple occasions.

Other investment decisions that must be made at the strategic level are the selection of eligible asset classes within the liquid portfolio as well as the decision if (illiquid) private markets are part of the total portfolio and size of the commitment. The liquid and illiquid asset categories are very distinct, not only in terms of reporting or investment horizon and commitment, but also with respect to implementation and monitoring of climate change views. For an illiquid portfolio the climate change views and measurement criteria must be clearly identified at the onset of the investment, whereas for a liquid portfolio adjustments can be made continuously if needed as new information becomes available.

We next discuss each investment approach and how climate change considerations can be implemented.

2 Stewardship and Engagement

We approach stewardship using two axes: direct engagement with portfolio companies, or collective engagement as part of industry initiatives such as Climate Action 100+.

We are a signatory to Climate Action 100+, a global initiative led by investors to foster the clean energy transition by engaging the companies and sectors with the highest greenhouse gas emissions.

Our climate stewardship approach is built around the understanding that climate change poses challenges to companies as they balance their strategic directions, commitments and goals. On the other hand, forward-thinking companies will have the opportunity to benefit both financially and reputationally from the transition to a lower carbon economy. As outlined in our CEO Cyrus Taraporevala's Letter[5] *Our 2022 Proxy Voting Agenda*, company climate transition plans are a key focus of our agenda for the upcoming years.

At State Street, our climate stewardship approach encompasses four pillars employs:[4]

1. **Company Engagement** We engage with companies to understand their approaches to mitigating and managing the physical and transitional impacts of climate change. Our engagement approach the four dimensions of the Task Force on Climate-related Financial Disclosures (TCFD) framework: governance, strategy, risk management and metrics.

2. **Proxy Voting** Our voting on climate change is typically prompted by shareholder proposals. However, we may also take voting action against directors even in the absence of shareholder proposals for unaddressed concerns pertaining to climate change. We endeavour to engage with the proponents of shareholder proposals to gain additional perspective on the issue, as well as with companies to better understand how boards are managing relevant climate risks. We are committed to providing transparency on our approach to evaluating environmental shareholder proposals and on our voting decisions.

3. **Thought Leadership** At State Street, we aim to support our portfolio companies by publishing papers that provide insights into our thinking as well as sector-specific guidance on best practices related to climate-related disclosure. Our thought leadership is leveraged widely by boards, executives, clients, regulators, asset owners and other asset managers, thus advancing the conversation around climate action in the market.

4. **Policy and Regulatory Efforts** We utilise voting and engagement as effective tools to shape climate disclosure and practices on a company-by-company basis. Certain issues, such as a universal carbon price, however, must be addressed at the market level. As one of the largest asset managers in the world, we actively participate in collaborative initiatives that help shape the policy and regulatory landscape.

3 Exclusions

In general, exclusions or divestment is the selling of all or part of a holding by an investor when the investment thesis changes and can be due to multiple reasons. With respect to ESG, the traditional reason for divestment was ethics — investors wanted to exclude certain investments that did not align with their values-based ideals. Over the last 30 years, divestment has evolved from an ethical decision, to one more driven by investment considerations.

When it comes to climate change, some of the most natural divestments would include:

- Oil extraction and power generation
- Natural gas extraction and power generation
- Thermal coal extraction and power generation
- Shale extraction
- Oil sands extraction
- Arctic oil and gas exploration

Other custom divestments can be made based the volume of CO_2 emissions (in millions of tons) owned by a company, indirect ownership of companies involved with fossil fuels, or other particular metrics or indicators. However, determining appropriate thresholds for some of these metrics can prove complicated.

Reasons to Divest

There are several reasons why investors may want to divest or screen out particular investments in relation to climate change:

- Some investments may be deemed wholly unacceptable on climate grounds and are therefore systematically excluded (for example, thermal coal and oil sands).

- Investors may not believe in the ability or willingness of a company to adapt quickly enough to climate change. Rather, they may want to focus their capital on companies with strong climate and ESG performance. The challenge is that this can be a backward-looking approach.

- Certain regulatory frameworks, like the European Union's (EU's) Climate Transition Benchmark and Paris-Aligned Benchmark regulation require divestment from certain areas to qualify. In addition, frameworks like the EU Taxonomy for sustainable activities define which business activities are deemed *sustainable*.

- The growth of investor adoption of voluntary initiatives like the TCFD and Climate Action 100+ may also encourage investors to divest from companies that do not meet certain standards of climate disclosure and climate-related risk management (acknowledging that Climate Action 100+ is an engagement initiative).

Proponents of divestment argue it is a means to influence a company's climate-related activities by reducing its share price and increasing its cost of capital. Dordi and Weber[6] find that divestment announcements decrease the share price of fossil fuel companies and that divestors can influence the share price of their target companies. The implication is that certain poor ESG practices or lagging performance will lead to financial losses that have not yet been properly priced in by the markets. Assuming that (all else equal) divestment will lead to a lower share price, this reduces the value of management's share-based remuneration, thereby giving senior executives an incentive to integrate ESG considerations.

Why Not to Divest

Strategically, the intent of climate investing is to foster change and provide momentum to the transition to net zero. Divestment blindly penalizes, and equally treats companies in the same business lines, despite their forward-looking pathways. Many of these Energy, Utility, and Material companies screened out are incredibly important, and will be relied upon during the transition. The goal is to assist those companies who have the will and a planned net zero pathway, while penalizing those who don't. Divesting is indiscriminate and doesn't separate these types of companies.

We generally prefer an approach that incorporates forward-looking climate metrics without the use of blind divestment. Optimisation strategies often reduce holdings below buying thresholds to achieve climate objectives, leading to de facto divestment. However, optimisation is also a very efficient way of solving for multiple objectives simultaneously. By using forward-looking metrics within an optimisation, investment into current climate emitters with clear reduction goals is encouraged, resulting in more industry alignment compared to the benchmark, and hence a lower tracking error.

Portfolio Impact from Divestment

As with many things, a practical example using the list of divestments above, can provide insights into real world impacts on what it means to blindly "divest" without the use of any optimization.

Figure 1
Fossil Fuel-Related Divestment versus No Divestment Comparison

	MSCI World Excluding Divestments	MSCI World
Climate		
Carbon Intensity — Direct+First Tier Indirect*	123.02	194.96
Total Reserves Emissions	29.69	147.33
Brown Revenue	0.39	2.05
Green Revenues	3.34	3.36
Adaptation Score	0.63	0.63
Divestment Category Involvement (# of Securities)		
Thermal Coal Flag	0.00	18.00
Oil Sands Flag	0.00	4.00
Arctic Drilling	0.00	0.00
Oil & Gas Flag	0.00	76.00
Shale Energy Flag	0.00	10.00
Divestment Category Involvement (% Weight)		
Thermal Coal Weight	0.00	0.79
Oil Sands Weight	0.00	0.22
Arctic Drilling Weight	0.00	0.00
Oil & Gas Weight	0.00	5.30
Shale Energy Weight	0.00	0.67
Risk Analytics		
Predicted Tracking Error (Axioma)	0.81	—

Source: MSCI, FactSet, State Street Global Advisors, Axioma, as of 31 January 2022. Predicted Tracking Error using Axioma World Wide Fundamental Equity Risk Model Medium Horizon 4.
* Carbon Intensity-Direct+First Tier Indirect improves upon a simple Scope 1 + Scope 2 metric as it will include some upstream Scope 3 emissions.

The table above shows the MSCI World index compared to the same index that has excluded the list of fossil fuel divestment categories previously mentioned. From a climate perspective, it does indeed improve the Carbon Intensity, Total Reserves, and Brown Revenue profiles, but lacks any improvement on forward leaning metrics like Green Revenues and Climate Adaptivity. From a risk perspective, blindly divesting these categories leads to a predicted tracking error of 0.81%.

Figure 2
Sector Analysis

	MSCI World Excluding Divestments	MSCI World	Difference
Energy	0.22	3.80	-3.58
Utilites	1.25	2.78	-1.53
Real Estate	2.90	2.74	0.16
Materials	4.41	4.21	0.20
Industrials	10.35	10.05	0.29
Consumer Staples	7.49	7.07	0.42
Communication Serivces	8.72	8.24	0.48
Consumer Discretionary	12.55	11.85	0.70
Health Care	13.07	12.34	0.72
Financials	14.80	14.00	0.80
Information Technology	24.25	22.90	1.34

Source: MSCI, FactSet. Data as of 31 January 2022. For MSCI World Excluding Divestments weights are re-adjusted pro-rata, so that total weight is again 100%.

Looking deeper at the sector profile, the results show the shift within sectors. There are two sides of the divestment coin. It's not simply only about what exposure is removed. Further understanding is needed to see what it's replaced with. In the sector case, exclusions are replaced with overweights to IT and Financials. From a country perspective, even more weight goes to the US, which already makes up 2/3rds of the benchmark, adding to its concentration.

Further, optmisation techniques can assist those investors looking to improve tracking error, sector/country exposures, or other metrics such as green revenues.

Engage vs. Divest

The debate around engagement and divestment is nuanced and it should be clear that it is not an either/or matter. There is room for both approaches, depending on an investor's objectives. When evaluating the two approaches to address climate change, it is important to differentiate between immediate improvement in portfolio climate metrics and creating long-term environmental and societal investor impact. Divestment can be an immediate solution to reduce specific ESG and climate risks.

However, it fails to address the systemic, long-term impacts of climate change. Divestment also abrogates responsibility for tackling climate change to another party. Therefore, an investment approach purely founded on divestment is not desirable in our view. To sell companies within the fossil fuel value chain with immediate effect would forego the opportunity to engage with these companies, to help them adapt and ultimately be a part of the climate solution. However, we expect divestment to remain an option for certain activities (like thermal coal) whose ESG thesis will remain unconvincing.

4 Asset Allocation

Private Markets

Asset owners have increasingly carved out capital to private assets, such as Private Debt, Private Equity or Infrastructure. From a portfolio construction perspective, unique considerations are needed for private assets. For instance, tracking error analysis is not relied upon like it is for public markets.

Despite private assets sharing many of the same risks and goals as public assets, there are unique considerations when it comes to climate investing as well.

Increasing allocations to private equity, along with their long-term holding profile raises the importance of a clear plan and strategy of achieving net zero. Private equity deals often last up to 7 years, so to hit a 50% GHG reduction by 2030, consideration and clear goals for decarbonisation need to be understood and planned out now. Without a clear plan, stranded assets may become a risk, and exit price volatility could dampen returns. Public equities have a bit more leeway, in that investors can be quick and nimble on a year-to-year basis to ensure their portfolio is hitting proper targets.

Similar to public investments, the net zero disclosures for private equity continues to develop, but unfortunately the private equity complex is further behind. Aligning and vetting Limited Partners (LPs) and General Partners (GPs) beliefs on net zero initiatives is imperative, especially in an area of less freely available information and disclosures. A GP with a process, the experience, and know-how of asking the right questions enables the LP to assess and ensure alignment of the Private Equity portfolio with the investment beliefs." [7,8]

Public Markets

The strategic asset allocation for the liquid portfolio encompasses the listed asset classes ranging from sovereign bonds to equity markets. The weighted allocation will typically be shaped by risk return assumptions for a given horizon, where a given risk budget is provided to the overall liquid portfolio. In addition the asset owner's Climate Change policy will need to be implemented which requires the definition of measurable parameters at the underlying company level that can be aggregated, evaluated and monitored at the total portfolio level.

Climate Change parameters can be characterised as being linked to mitigation or adaptation, or alternatively as being historical or forward-looking.

Examples of historical parameters are a company's current carbon intensity, green assets or brown assets.[9] In order to aggregate for example the carbon exposure for an equity portfolio it makes sense to work with GHG intensities, such as GHG per unit of revenue or per unit of Enterprise Value Including Cash (EVIC). Cash is added so that the number remains positive). This allows the emissions of a small company to be normalised versus those of a large company. For a corporate fixed income portfolio or high yield portfolio these metrics still work as the bond issuance can always be linked to the parent company. For further discussion see the methodology described by the GHG Protocol.[10]

For sovereign bonds such definitions don't apply. In addition there is the issue of double-counting assuming that a country's carbon emissions is the sum of the carbon emissions produced by the country's companies. Still intensities can be calculated such as GHG per unit of GDP or capita. Here another double-counting issue arises, as GDP is the sum of Domestic, Imports and Exports.

In terms of a forward-looking metric this is typically associated with the transition path of greenhouse gas emissions between now and a net zero value targeted in the second-half of this century. The choice of transition paths is endless, generated by many models. Initiatives, like the sectorial TPI or the SBTi, provide the investor with transparency and support for the evaluation of the company's proposed transition pathway. In addition, there are models that allow for a forward-looking assessment at the aggregate level such as an implied temperature rise model model or Climate Value at Risk model.

For sovereign bonds a country's current planned policies and its Nationally Determined Contribution (NDC) would all be part of a forward-looking evaluation. In its implementation guide the Paris Aligned Investment Initiative[8] suggests a country-scoring methodology as developed by the CCPI index.[11]

Green bonds are a fast-growing segment in the fixed income universe. They are instruments that invest in projects focused on the transition to clean energy generation and carbon-neutral processes. Companies that issue such green bonds display a commitment and effort to the transition. In the absence of a standardised framework at this time, we assume zero carbon emissions for green bonds even if issued by a high emitter. The aim is to reward projects that contribute to the transition, however a very rigorous framework should be applied for a strategy to be categorised as a green bond. In this context we can mention the Climate Bond initiative[12], of which we are a partner.

Figure 3
Historical and Forward-Looking Climate Change KPI's for Different Liquid Asset Classes

Asset Class	**Historical Carbon Intensity Measure**	**Forward Looking Metric or Model (Non-exhaustive)**
Equity Liquid Alternatives Corporate Bonds High Yield Bonds	• Weighted Average Carbon Intensity (WACI) • Enterprise Value Including Cash (EVIC)	• Implied Temperature Rise • Climate VAR • Sectorial TPI • SBTi
Emerging Market Debt Sovereign Bonds	• GHG Emissions per GDP • GHG Emissions per Capital	• Country Scoring Methodology
Green Bonds	0	N/A

Source: At State Street Global Advisors, in the absence of a standardised framework at this time, zero carbon emissions are assumed for green bonds even if issued by a high emitter.

Ultimately the investor may wish to align the portfolio to a transition path according to its Climate Change Policy. This can be done for example by favouring companies that have a (vetted) transition plan. If the allocation is well chosen then the portfolio will have minimal exposure to potential stranded assets while at the same time decarbonisation occurs automatically. If not well chosen then the portfolio will need to be readjusted which is easily achieved for a liquid allocation but could potentially lead to significant turnover. Simply allocating the portfolio to low-carbon emitters defeats the purpose of a smooth transition from a fossil fuel energy derived economy towards a clean energy economy.

The view of a smooth transition can be found as well as part of the EU PAB and CTB indexes characteristics such as decarbonisation rate of an annual 7% combined with the exposure to the high emitting sectors at least equal to that of the benchmark. Only broad corporate and equity indexes are eligible, sector benchmarks are not.[13]

The Liquid Investment Portfolio

To illustrate the impact of the choice of climate change strategy, we examine tracking error, current carbon intensity and implied temperature rise of the liquid investment fund relative to the market cap benchmarks for equity and corporate and high yield fixed income.

- The tracking error (TE) measures the impact of the implemented climate change strategy, which encompasses exclusions as well as modified weighting relative to the benchmark.
- The current carbon intensity can be considered realised, thus historical parameter.
- The implied temperature rise of the fund was calculated using MSCI's model. It is an indicative measure of a consumed expected carbon budget, so a forward-looking parameter. It's highly indicative, and takes many assumptions and approximations, but nevertheless can provide interesting high level insight.

Figure 4
Numerical Illustration of Tracking Error, Historical and Forward-Looking Climate Change KPI's for Different Liquid Asset Class Investments

	Index Investment	Tracking Error	Carbon Intensity	Implied Temperature Rise
Global Equity	MSCI World	N/A	184	2.69
	State Street Global Advisors Sustainable Climate	1%	69	2.26
	MSCI ACWI	N/A	208	2.83
	State Street Global Advisors Global Transition Strategy	4%–8%	122	2.21
Corporate Bonds EUR	BB Euro Agg Corporates (6% Green Bonds)	N/A	213 (191)	2.72 (2.65)
	State Street Global Advisors Sustainable Climate Euro Corporates (18% Green Bonds)	1%	103 (49)	2.26 (2.05)
US High Yield	Bloomberg US Corporate High Yield 2% Issuer capped index (1.4% green bonds)	N/A	374 (367)	3.47 (3.45)
	State Street Sustainable Climate US High Yield Bond Strategy (2.6% green bonds)	1.85%	90 (79)	2.56 (2.51)
Green Bonds	N/A	N/A	0	1.15

Source State Street Global Advisors, MSCI and Trucost as of 31 December 2021. For the corporate bonds, high yield bonds and equity the carbon intensity is measured as carbon direct plus first tier indirect divided by revenue per company in the portfolio. Values in parentheses assume zero carbon for the green bonds in the index and portfolio. The tracking error is calculated with respect to the full reference index universe. The carbon intensity and the implied temperature rise are calculated normalized to the data covered universe.

Some comments and interesting observations can be made:

- The State Street Global Advisors Sustainable Climate fund has a carbon reduction of over 60% relative to the benchmark, and not surprisingly it has a low implied temperature rise of 2.26 degree Celsius. In other models the fund would perhaps achieve net zero in 2050. However this depends strongly on the model assumptions and transition path designs of projected carbon emissions.

- The State Street Global Advisors Global Transition Strategy has close to double the current carbon intensity as the Sustainable Climate fund, but similar implied temperature. This demonstrates the different approaches; one is focussed on the transition, and looks for companies with exemplary target transition paths, while the second one follows a somewhat more historical approach with more emphasis on existing low emitters.

- The High Yield Asset Class has the highest carbon intensity as well as the highest implied temperature rise given its high allocation to energy and manufacturing sectors.

- For Green Bonds we assume that they do not consume any carbon budget, therefore the implied temperature rise is equal to today's level of 1.15 degrees.

- Green bonds feature as part of the corporate (and high yield) bond portfolios as the Green Bond universe is as yet relatively too small to be considered a separate asset class.

5 Our Solutions

State Street Global Advisors offers ESG solutions across investment styles such as exclusionary screening, best-in-class investment selection, thematic investing, and integration, along with highly customised client mandates in the ESG/climate investing area. In particular, an overview of our climate investment solutions across our various investment teams is provided below.

Sustainable Climate Equity and Fixed Income Strategies

The State Street Sustainable Climate Strategies are long-only investment approaches that use a mitigation and adaptation methodology to build climate change thematically into equity and fixed income portfolios. Designed from the ground up to be flexible, the customisable framework allows us to create client portfolios that target reductions in current and future carbon emissions, increased exposure to green revenues and projects, and increased resiliency to the risks posed by climate change.

Low Carbon Equity and Fixed Income Framework

State Street's Low Carbon Equity and Fixed Income Solutions use advanced portfolio construction techniques that are designed to achieve the most efficient trade-off between carbon reduction and tracking error, while achieving long-term returns broadly in line with the underlying index benchmark. The Solution allows clients to customise their portfolios to align with their specific carbon goals and risk budgets. In addition to setting the level of targeted carbon emission reduction or tracking error, investors can pre-select the developed market benchmark that represents their chosen starting universe.

ETFs aligned with the EU Paris Aligned Benchmark Regulation

SPDR has launched a suite of four Climate Paris Aligned broad equity ETFs, which track leading MSCI indices. These ETFs are designed to help investors meet their climate objectives now and into the future by decarbonising their portfolios swiftly, effectively and cost-efficiently.

Climate Integration in Active Quantitative Equity

Climate Enhanced Equity Seeks to provide a return in excess of global developed equity markets, while targeting climate change considerations. It allows us to create client portfolios that target both a risk-adjusted return objective through our enhanced equity process and customisable climate objectives through reductions in current and future carbon emissions, increased exposures to green revenues, and increased resiliency to the risks posed by climate change.

Climate Defensive Equity Seeks to generate capital growth over the medium to long term through investment in global equity securities, while exhibiting lower volatility than standard market cap-weighted benchmarks and simultaneously targeting climate change considerations. The process allows us to create custom client portfolios that target both a return and a total volatility objective through our defensive equity process, and a climate objective through reductions in current and future carbon emissions, increased exposure to green revenues, and increased resiliency to the risks posed by climate change.

Climate Integration in Fundamental Equity

The team incorporates ESG considerations into the quality assessment of a company using a proprietary metric called the Confidence Quotient (CQ). This is based on our belief that companies that are strong on ESG are more likely to deliver the sustainable growth we seek. ESG considerations are therefore integral to our alpha thesis, and are not merely an overlay in the process. The team's overall ESG analysis includes both the direct impact of climate change on a company's business prospects and indirect impact through regulation and changing customer preferences. This is an integrated ESG approach results in portfolios that have a natural tilt toward better ESG and lower carbon intensities.

Additionally, State Street's Fundamental Growth & Core Equity team has developed climate-related strategies which will aim to generate long-term capital growth through investment in equity securities which contribute directly towards climate change mitigation and/or are leaders in their respective industries regarding climate change preparedness with credible transition plans.

Investment Strategy and Research

In designing and managing multi-asset portfolios, we evaluate a client's ESG objectives as part of their broader investment objectives and constraints, and construct a portfolio aligned to these holistic objectives in as consistent and coherent a manner as possible. Within our long-term asset class forecasts, we take explicit account of ESG considerations, including climate, in determining our outlook. We have found that changes in a company's R-Factor™ (State Street's proprietary ESG score), can, at an aggregate level, influence the future risk prospects of a given asset, and thus, the overall asset allocation. We also take into account scenario analyses and stress tests when developing our portfolio recommendations. For these, we use a wide variety of data inputs and hope to include forward-looking climate projections when available. We believe that using forward-looking data, rather than relying solely on historical data better equips us to deal with the rapidly changing investment and environmental landscape.

6 Reporting

We can provide reports and assessments of our clients' investment portfolios that include several ESG components, including TCFD metrics and climate profiles such as carbon intensity, weighted average carbon intensity, Scope 1 and 2 carbon emissions, and total reserves of carbon emissions. In the event that additional climate metrics such as green revenue and brown revenue share and/or climate adaptation scores are integrated, we can report on these as well. Lastly, we are also able to provide climate scenario analysis results via specialised third-party analytics tools. To summarize, we are able to provide covering the following areas:

- Carbon Emissions related data (including TCFD aligned metrics)
- Climate data (including fossil fuels, brown/green revenues, adaptation score)
- General ESG scoring using our proprietary R-Factor framework
- Engagement highlights
- Climate scenario analysis via third-party reporting tools

How We Can Help

For many investors looking to implement or improve their sustainable investment policy it can be difficult to overcome problems of approach, data, regulation or even terminology. We can help.

Understanding the governance structure and decision-making framework of each organisation is key, since no two boards are identical in their ESG beliefs, priorities and journey.

We find a common language to help our clients translate their ESG beliefs, and the right interpretation of regulatory obligations, into investment policy, objectives and implementable actions.

Risk management and thus measurement is key — tracking and reporting reliably when data, regulations and ESG beliefs continues to evolve requires forward thinking and planning.

Using our ESG frameworks and tools we are in a position to help our clients implementing their sustainable investment objectives and beliefs, and be part of their journey to ESG investment success.

Endnotes

1 journey-to-net-zero-june-2021.pdf (ssga.com).

2 ghgprotocol.org

3 https://edie.net/68601/pr/What-is-thedifference-between-Net-Zero-and-carbon-neutral/41523.

4 https://ipcc.ch/sr15/chapter/chapter-2/

5 Letter on Our 2022 Proxy Voting Agenda.

6 https://mdpi.com/2071-1050/11/11/3122

7 https://iigcc.org/resource/private-equity-component-for-the-net-zero-investment-framework/

8 https://parisalignedinvestment.org/media/2021/03/PAII-Net-Zero-Investment-Framework_Implementation-Guide.pdf

9 Climate Metrics: A Primer for Investors.

10 The Global GHG Accounting and Reporting Standard for the Financial Industry|Greenhouse Gas Protocol (ghgprotocol.org).

11 Climate Change Performance Index (ccpi.org).

12 Climate Bonds Initiative|Mobilizing debt capital markets for climate change solutions.

13 TEG final report on EU climate benchmarks and benchmark ESG disclosures — 30 September 2019 (europa.eu).

14 https://msci.com/eqb/methodology/meth_docs/MSCI_ACWI_EU_PARIS_ALIGNED_REQUIREMENTS_INDEX_FINAL.pdf

References

The three asks | Climate Action 100+.

Climate Action 100+ Net Zero Company Benchmark PDF.

For a comparison and discussion of Paris-aligned strategies see the paper “Understanding Paris-Aligned Indexes” from February 2022.

For portfolio implementation such as screening, tilting, optimisation : see “reducing carbon in equity portfolios by Jen Bender, Maya Beyhan, Rehan Mohamed, Xiaole Sun.

https://transitionpathwayinitiative.org/methodology

https://ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_Chapter2_Low_Res.pdf

Climate Solutions Investments (statestr.com).

About State Street Global Advisors

Our clients are the world's governments, institutions and financial advisors. To help them achieve their financial goals we live our guiding principles each and every day:

- Start with rigor
- Build from breadth
- Invest as stewards
- Invent the future

For four decades, these principles have helped us be the quiet power in a tumultuous investing world. Helping millions of people secure their financial futures. This takes each of our employees in 30 offices around the world, and a firm-wide conviction that we can always do it better. As a result, we are the world's fourth-largest asset manager* with US $4.02 trillion† under our care.

* Pensions & Investments Research Center, as of December 31, 2020.
† This figure is presented as of March 31, 2022 and includes approximately $73.35 billion USD 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.

ssga.com

State Street Global Advisors Worldwide Entities

Abu Dhabi: State Street Global Advisors Limited, ADGM Branch, Al Khatem Tower, Suite 42801, Level 28, ADGM Square, Al Maryah Island, P.O Box 76404, Abu Dhabi, United Arab Emirates. Regulated by the ADGM Financial Services Regulatory Authority. T: +971 2 245 9000. **Australia:** State Street Global Advisors, Australia, Limited (ABN 42 003 914 225) is the holder of an Australian Financial Services License (AFSL Number 238276). Registered office: Level 14, 420 George Street, Sydney, NSW 2000, Australia. T: +612 9240-7600. F: +612 9240-7611. **Belgium:** State Street Global Advisors Belgium, Chaussée de La Hulpe 185, 1170 Brussels, Belgium. T: +32 2 663 2036. State Street Global Advisors Belgium is a branch office of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. **Canada:** State Street Global Advisors, Ltd., 1981 McGill College Avenue, Suite 500, Montreal, Qc, H3A 3A8, T: +514 282 2400 and 30 Adelaide Street East Suite 800, Toronto, Ontario M5C 3G6. T: +647 775 5900. **France:** State Street Global Advisors Europe Limited, France Branch ("State Street Global Advisors France") is a branch of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. State Street Global Advisors France is registered in France with company number RCS Nanterre 899 183 289, and its office is located at Coeur Défense — Tour A — La Défense 4, 33e étage, 100, Esplanade du Général de Gaulle, 92 931 Paris La Défense Cedex, France. T: +33 1 44 45 40 00. F: +33 1 44 45 41 92. **Germany:** State Street Global Advisors Europe Limited, Branch in Germany, Brienner Strasse 59, D-80333 Munich, Germany ("State Street Global Advisors Germany"). T: +49 (0)89 55878 400. State Street Global Advisors Germany is a branch of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. **Hong Kong:** State Street Global Advisors Asia Limited, 68/F, Two International Finance Centre, 8 Finance Street, Central, Hong Kong. T: +852 2103-0288. F: +852 2103-0200. **Ireland:** State Street Global Advisors Europe Limited is regulated by the Central Bank of Ireland. Registered office address 78 Sir John Rogerson's Quay, Dublin 2. Registered Number: 49934. T: +353 (0)1 776 3000. F: +353 (0)1 776 3300. **Italy:** State Street Global Advisors Europe Limited, Italy Branch ("State Street Global Advisors Italy") is a branch of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. State Street Global Advisors Italy is registered in Italy with company number 11871450968 — REA: 2628603 and VAT number 11871450968, and its office is located at Via Ferrante Aporti, 10 - 20125 Milan, Italy. T: +39 02 32066 100. F: +39 02 32066 155. **Japan:** State Street Global Advisors (Japan) Co., Ltd., Toranomon Hills Mori Tower 25F 1-23-1 Toranomon, Minato-ku, Tokyo 105-6325 Japan. T: +81-3-4530-7380. Financial Instruments Business Operator, Kanto Local Financial Bureau (Kinsho #345), Membership: Japan Investment Advisers Association, The Investment Trust Association, Japan, Japan Securities Dealers' Association. **Netherlands:** State Street Global Advisors Netherlands, Apollo Building 7th floor, Herikerbergweg 29, 1101 CN Amsterdam, Netherlands. T: +31 20 7181 000. State Street Global Advisors Netherlands is a branch office of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. **Singapore:** State Street Global Advisors Singapore Limited, 168, Robinson Road, #33-01 Capital Tower, Singapore 068912 (Company Reg. No: 200002719D, regulated by the Monetary Authority of Singapore). T: +65 6826-7555. F: +65 6826-7501. **Switzerland:** State Street Global Advisors AG, Beethovenstr. 19, CH-8027 Zurich. Registered with the Register of Commerce Zurich CHE-105.078.458. T: +41 (0)44 245 70 00. F: +41 (0)44 245 70 16. **United Kingdom:** State Street Global Advisors Limited. Authorised and regulated by the Financial Conduct Authority. Registered in England. Registered No. 2509928. VAT No. 5776591 81. Registered office: 20 Churchill Place, Canary Wharf, London, E14 5HJ. T: 020 3395 6000. F: 020 3395 6350. **United States:** State Street Global Advisors, 1 Iron Street, Boston, MA 02210-1641. T: +1 617 786 3000.

Important Information

ID1006619-4663349.1.1.GBL.RTL 0422
Exp. Date: 30/04/2023