



JONATHAN BAILEY

Head of ESG Investing

DAVID M. BROWN

Global Co-Head of Investment Grade

ALEX GITNIK

Client Portfolio Manager—Fixed Income

Transitioning to Net-Zero in Credit Portfolios

A large and influential portion of the investment industry has committed to measure and manage portfolio carbon emissions, and ultimately aims to eliminate them.

In this article, we describe how we worked with the U.K.'s Brunel Pension Partnership to put a multisector high yield credit portfolio on the glidepath to net-zero emissions by 2050. From defining and setting interim targets from day one, to the critical role of bondholder engagement, we look at the first steps and the longer-term requirements of net-zero credit investing.

Executive Summary

- Investors are focusing on how to manage climate-related portfolio impacts, with many asking what it takes to embark on a journey toward “net-zero portfolios.”
- We describe work we have done with the U.K.’s Brunel Pension Partnership (“Brunel”) to set its multi-asset credit portfolio onto a feasible glidepath to net-zero emissions by 2050, with a target of at least 50% of the reduction coming by 2030.
- Setting the Parameters: Ultimate and Interim Targets
 - We describe the five metrics we are measuring to assess the portfolio’s current climate-related positioning and monitor progress toward the net-zero target.
 - We set out interim targets for those five metrics.
- Optimizing Emissions-Reduction and Yield
 - Top-down and bottom-up approaches to security selection are combined with portfolio optimization aimed at achieving the desired emissions reduction while maintaining the desired duration and yield characteristics.
- Progress Through Engagement
 - Once the initial portfolio is in place, progress depends much more upon urging portfolio companies to make substantial emissions reductions.
 - We describe our approach to engagement and offer some key examples of successful engagement programs during 2019 – 21.

“Crucially, [the portfolio] aligns with our Climate Change Policy. During the interview process, we only considered managers who showed awareness of whether companies are aligned with the Paris Agreement. We also questioned them closely to ensure they knew where carbon data was weak in specific bond sub-sectors, and how they could work towards meeting Paris alignment despite these issues.”

Daniel Spencer, Portfolio Manager, Brunel Pension Partnership Limited

The Intergovernmental Panel on Climate Change (IPCC) estimates that to maintain global temperature within 1.5°C of pre-industrial levels this century, net-zero global greenhouse gas emissions will be necessary by 2050. Government and corporate net-zero commitments are gathering momentum. In investment management, there is growing discussion about how to manage the physical, economic and portfolio impacts of climate change, climate-related policy developments, and the fast-moving technologies related to mitigation and adaptation. Specifically, investors are asking what it takes to embark on a journey toward “net-zero portfolios.”

A net-zero portfolio is generally defined as one with attributable net emissions equal to zero, where carbon allowances or carbon removal units are used to offset emissions only where there is no other technologically or financially viable solution.¹

A growing number of our clients are seeking advice on how to achieve this—including a significant number who perceive particular challenges in transitioning fixed income and credit allocations. In this paper, we describe work we have done with the Brunel Pension Partnership (“Brunel”), one of the U.K.’s leading institutional sustainable investors, to set its multi-asset credit portfolio onto a feasible glidepath to net-zero emissions by 2050, with a target of at least 50% of the reduction coming by 2030. What we have learned can provide insights for other investors facing the challenge of net-zero credit investing.

¹ This is the definition adopted by the Net-Zero Asset Managers Initiative, a group of more than 200 industry signatories committed to supporting to goal of net-zero greenhouse gas emissions by 2050, and the Net-Zero Asset Owners Alliance, a network of more than 40 institutional investors pledging a similar commitment. See the Net-Zero Asset Owners Alliance’s *Inaugural 2025 Target Setting Protocol*, published in October 2020, as well as the Net Zero Investment Framework set out by Europe’s Institutional Investors Group on Climate Change (IIGCC). Neuberger Berman became a signatory to the Net Zero Asset Managers Initiative in November 2021.

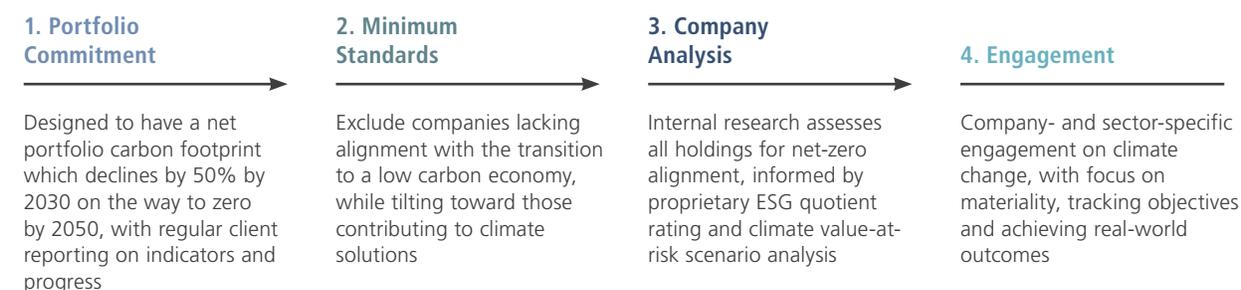
Setting the Parameters: Ultimate and Interim Targets

We believe one of the most important aspects of net-zero investing is having a clear plan.² Part of that plan should involve recognizing and integrating the four key levers that investors can pull to help achieve a net-zero portfolio:

- 1. Portfolio Assessment:** Evaluating the carbon footprint, as well as the forward-looking climate risks and opportunities, of the portfolio
- 2. Divestment:** Identifying and avoiding companies whose carbon intensity makes them unlikely to sustain long-term financial returns, and divesting from companies that do not respond to engagement
- 3. Climate Solutions:** Identifying investments that actively help to reduce global carbon emissions
- 4. Engagement:** Communicating expectations to company management, working with them to achieve those expectations, and escalating issues via proxy voting or public statements

Figure 1 shows how those four levers were integrated into the Brunel portfolio.

FIGURE 1. THE FOUR KEY LEVERS FOR ACHIEVING A NET-ZERO PORTFOLIO



Source: Neuberger Berman. For illustrative purposes only.

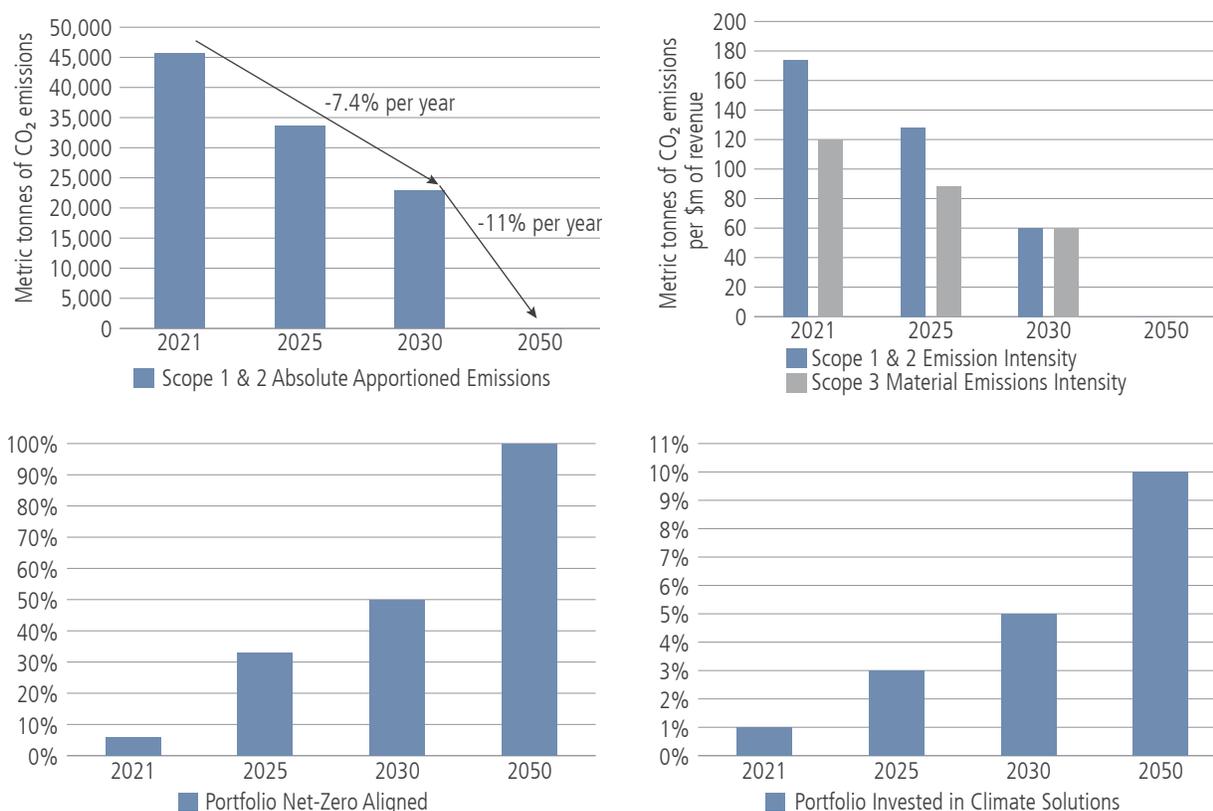
“Portfolio Commitment” involved defining clear, specific and measurable investment and emissions-reduction parameters that aligned with the client’s risk-return requirements and climate policies.

The investment performance mandate is to seek to outperform the GBP cash rate (represented by the SONIA index) while keeping the interest rate sensitivity of the portfolio low, with average duration of one to three years. The client’s outperformance objective was set at an average of 4 – 5% per annum over a cycle, commensurate with the sub-investment grade focus, investing predominantly in high yield bonds, bank loans, emerging market debt and collateralized loan obligations (CLOs), alongside other market segments.

On emissions reduction, the aim was to identify an accelerated path to net-zero Scope 1 and 2 emissions by 2050, achieving 50% of the reduction by 2030. Figure 2 shows this and the four other metrics that we will be targeting with Brunel, with interim targets for 2025 and 2030 laid out, together with the annual rate of emissions reduction that the targets imply.

² For investors starting out on their journey to net-zero, we have developed a seven-phase action plan, drawing on the Net Zero Investment Framework set out by the IIGCC, which covers everything from organizational steps and target-setting, to strategic asset allocation and engagement. See IIGCC, *Consultation: Net Zero Investment Framework* (August 2020); and “The Transition to Net-Zero Investing” (April 2021) at <https://www.nb.com/transfer?URL=insights/white-paper-transitioning-to-net-zero-investing>.

FIGURE 2. MAPPING THE PATH TO NET-ZERO: FIVE METRICS AND FOUR INTERIM TARGETS



Source: Neuberger Berman, Trucost. Direct + First Tier Included. Carbon emission is apportioned to the portfolio based on total assets for the banking sector and enterprise value for all other sectors. Carbon intensities are calculated for the corporate holdings only of the portfolio. Bank Loans, CLOs and sovereign debts are not included. 70% of the corporate holdings are covered by Trucost. For illustrative purposes only. This material is intended as a broad overview of the Portfolio Managers' style, philosophy and process and is subject to change without notice. Investing entails risks, including possible loss of principal. *Any remaining emissions addressed with verifiable carbon allowances.

Scope 1, 2 and 3 Emissions and Emissions Intensity

Under the widely observed Greenhouse Gas Protocol developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), carbon emissions are categorized as Scope 1, 2 or 3. Scope 1 emissions are direct emissions such as those from onsite heating apparatus or vehicle fleets or, for utility or energy companies, the burning of fossil fuels. Scope 2 emissions are indirect, mostly caused by offsite power generation. Scope 3 emissions include the downstream use of a company's products, upstream supply chain emissions and financed emissions. Where Scope 3 emissions are material, they usually represent the most substantial carbon risks inherent in a business's revenues, especially in the energy and consumer discretionary sectors (which are exposed through use of sold products) and financials (which are exposed through lending). The volume of CO₂ emitted per unit of revenues is known as a company's carbon intensity.

Data coverage for carbon emissions needs improvement, and this is a priority for data providers, asset managers and regulators. In the meantime, we lean on issuer engagement and alternative data sources to fill the gaps. For example, previous work in private equity, where we used available emissions data from over 15,000 global companies to come up with sub-sector and geographic averages to use as models where there were gaps, provides us with a workable proxy for many credit issuers. It should be recognized that, as coverage and data reporting improves, a portfolio's evident carbon footprint may well increase rather than decrease, even when it is on a sound long-term pathway to net-zero emissions.

Proportion of Portfolio Net Zero-Aligned

Net Zero-Aligned assets are securities issued by companies that have made commitments, and begun taking action, to achieve net-zero emissions by 2050. A number of third-party agencies provide assessments of companies' net-zero alignment, including The Transition Pathway Initiative (TPI), an asset owner-led initiative that judges alignment based on the carbon intensity of sector-specific activities and its evaluation of climate risk governance. We also look for carbon emission reduction targets approved by the Science Based Target Initiative (SBTi).³ Not all emission reduction targets are adequate to deliver the goals of the Paris Climate agreement, and certification through this initiative ensures they are aligned with the necessary sector reduction path. As shown in figure 2, less than 10% of the portfolio has SBTi-approved targets today, and we aim to raise that proportion through changes to the portfolio and engagement.

Proportion of Portfolio Invested in Climate Solutions

This tally would include any dedicated Green and Climate Bonds, as well as securities issued by, for example, utilities generating a high proportion of renewable energy or manufacturers of electric vehicles and other emission-mitigating goods. We think of it less as a target and more as a monitor of progress. It is likely that we will draw heavily on the EU's Taxonomy of environmentally sustainable activities in our categorizations.⁴

Day One of the Investment Journey: Optimizing Emissions-Reduction and Yield

With performance and emissions targets defined and set, we can begin to pull the second and third levers: applying our "Minimum Standards" and "Company Analysis" to build the portfolio.

Setting minimum standards involves a top-down, evolving assessment of business models, putting them into four categories. "Harmful" business models are those that significantly contribute to emissions or directly detract from climate-change mitigation efforts—these are automatically excluded from the portfolio.⁵ "Neutral" business models have mixed environmental effects, but can marginally contribute to net-zero objectives. "Diffuse" business models can have indirect positive environmental effects; these would include "light green" businesses that support the transition to a lower-carbon economy, such as manufacturers of goods or services that help improve energy efficiency, for example. Finally, "Solutions" are "green" business models that make a verifiable, material, direct and positive contribution to climate-change mitigation—these would be included in our measure of "Proportion of Portfolio Invested in Climate Solutions."

All portfolio holdings, with a focus on those deemed "Neutral" or "Diffuse," are subject to a common evaluation of how their operations support the transition to a net-zero economy.

Our proprietary Net-Zero Materiality Alignment framework helps us assess net-zero transition plans on a forward-looking basis, from the top down and bottom up, taking into account company- and sector-level nuances flagged by our equity and fixed income research analysts. We look for oversight and awareness of the transition challenge, credible commitments and evidence of the capacity to execute on plans. We are working to integrate third-party data and frameworks into this analysis, such as those from the Transition Pathway Initiative (TPI), the CDP (formerly Carbon Disclosure Project), the IIGCC, the Net Zero Investment Framework and Climate Action 100+. Our proprietary NB Quotient metric, with its embedded material climate factors, offers insight into peer-relative performance, with our analysts applying their judgment and industry experience where third-party data and data science fall short.

³ <https://sciencebasedtargets.org/>.

⁴ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en.

⁵ Some of these exclusions would already be normal practice for our portfolio management teams. For example, Neuberger Berman is committed, across all of its co-mingled U.S. registered mutual funds and closed-end funds and international UCITS range, to prohibit the initiation of new investment positions in securities issued by companies that have more than 25% of revenue derived from thermal coal mining or are expanding new thermal coal power generation. See https://www.nb.com/handlers/documents.ashx?id=0c0d4a1f-a996-40cc-a62a-e676a11ba9d8&name=NB_Thermal-Coal-Involvement-Policy_1020.pdf.

We also deploy a proprietary “Climate Value-at-Risk” (CVaR) model, which aims to identify issuers’ climate and low-carbon transition risk, given a 2°C climate change scenario, and translate it into an economic value in present dollars.⁶ Together, these tools help inform decisions to invest or divest, as well as help prioritize where to engage as active bondholders.

As far as possible, an investor would wish to build a portfolio, and ultimately achieve the transition to net-zero emissions, with little deterioration in credit rating or yield. How feasible is this aim?

Figure 3 offers an indication. It shows a snapshot of the Brunel portfolio at the end of 2021. Duration is relatively short, reflecting the explicit one- to three-year target for the mandate, but yield and spread remain commensurate with the broad global high yield universe, as defined by the ICE BoA Global High Yield Index. Whereas the Index is estimated by Neuberger Berman and Trucost to emit 350 metric tonnes of CO₂ per \$m of revenue, Brunel’s portfolio, at 174 metric tonnes, emits less than half as much.

FIGURE 3. A SNAPSHOT OF THE BRUNEL PORTFOLIO, YEAR-END 2021

	Brunel Portfolio
Yield to Maturity	4.85%
Yield to Worst	4.68%
Option Adj. Spread	368 basis points
Modified Duration	2.77 years
Average Rating	B+
Scope 1 & 2 Carbon Intensity	174 metric tonnes of CO ₂ emissions per \$m of revenue (estimate)

Source: Neuberger Berman, Trucost. Data as of December 31, 2021. For illustrative purposes only. Portfolio holdings and allocations may change at any time. Carbon intensities are calculated for the corporate holdings only of the portfolio, of which 64% are covered by Trucost. Bank Loans, CLOs and sovereign debt are not included. Carbon emission is apportioned to the portfolio based on total assets for the banking sector and enterprise value for all other sectors.

It is worth noting that figure 3 does not show the impact of the initial re-allocation on the portfolio’s sector exposures. The reason is that this portfolio is managed as flexibly as possible, and benchmarked against cash rather than a standard corporate credit index, which means that sector exposures are just as likely to reflect changes in the portfolio manager’s sector- and credit-specific investment views from month to month as they are to reflect the transition to lower emissions. Business models that we judge “Harmful” are excluded from the portfolio, but every sector and industry would include companies that make the “Neutral” grade, at least, and are therefore potential candidates for investment. Divestment and exclusion are always options, but we believe an effective strategy focuses on a combination of best-in-class inclusion and active engagement to improve outcomes.

Day Two and Beyond: Progress Through Engagement

Achieving such a significant cut in portfolio emissions intensity on Day One is encouraging. Thereafter, the transition becomes much more challenging. Once the initial portfolio is in place, progress depends much more upon urging portfolio companies to make substantial emissions reductions.

⁶ CVaR aims to pick up the potential value destruction of everything from energy majors’ stranded assets to extreme heat on datacenters in Hong Kong and hospital providers in Texas, coastal flooding on Dutch companies and stronger, more frequent Caribbean hurricanes on cruise lines. This not only helps us to remove undiscounted risk from portfolios today, as progress on emission-reduction is achieved and climate models are adjusted for a lower-carbon world, it may enable us to identify risk premiums among companies that are no longer as imperiled by climate change as the market assumes. See Bailey, “Degrees of Risk” (October 2020), at <https://www.nb.com/transfer?URL=insights/cio-weekly-perspectives-oct-18-2020>.

<p>The Importance of Engagement</p>	<p>For example, over the two years to June 2021, our credit analysts engaged with...</p>
<p>1,514 Fixed income engagement meetings between July 2020 and June 2021</p>	<ul style="list-style-type: none"> • A regasification infrastructure and logistics provider that is now publishing an SDG-aligned sustainability report and committed to transitioning from natural gas to zero-emissions hydrogen by 2030
<p>61% at the CEO/CFO level</p>	<ul style="list-style-type: none"> • A power generator that has developed a detailed five-year plan to cut its coal-fired power generation in favor of natural gas • A large manufacturer of doors, focusing on a commitment to obtain wood from Forest Stewardship Council-certified sources, replace wood with sustainable materials, and support the development of innovative, energy-efficient doors • An aircraft leasing and finance company, to support it in raising its clean-technology fleet composition goal to 75% by 2024

We prioritize engagement with companies in our “Neutral” and “Non-Net Zero Aligned” categories that are among the worst emitters, as long as they are not stranded in a “Harmful” high-emission business. Our bottom-up analysis and CVaR modeling can help us identify those issuers. As it happens, they are often the ones most open to developing transition investment plans that are highly specific in their aims and reporting metrics, based on viable technologies and well-defined timelines. Good examples are in the auto industry, where the electrification trend is gathering momentum; the energy and utilities sector, where many providers are moving from thermal coal to natural gas and renewable power generation; and the financial sector, where many firms are adopting thermal coal and oil sands exclusions in their lending policies.

We believe lenders have a lot of potential influence, on this issue in particular. For many companies, the low-carbon transition implies substantial long-term capital renewal and expenditure plans, which can require years of fresh financing. Unlike equity investors, credit investors frequently participate in primary issuance, handing over much-needed new cash to businesses—and these are excellent opportunities to make our priorities known.

Ongoing monitoring of progress is just as essential as initial engagement. As time goes on, challenging asset allocation decisions may be required. Will emerging markets corporate issuers, or some of the highest-emitting industrial sectors, do enough to remain viable for the portfolio, for example? The threat of portfolio exclusion must be credible. In our case, exclusion will follow if no action is taken in response to our engagement within three years.

What We Have Learned

What have we learned from working on this project?

First, we have learned that it is possible, when ESG is genuinely integrated into fundamental credit analysis and the investment strategy is sufficiently flexible, to cut portfolio carbon intensity substantially. Even at today’s level of corporate carbon intensity, it is possible to construct a credible high yield portfolio commensurate with a realistic glidepath to net-zero by 2050.

Second, we have learned that engagement, advocacy and the search for alternative data sources will be the keys to closing the current information and reporting gap on carbon emissions.

And third, we have learned that this will be a long-term process, both for us and for our clients, which will increasingly depend upon the “hard yards” of bondholder engagement for progress.

That is why it has been so advantageous to work on this with a knowledgeable, demanding and experienced leader in ESG investing like Brunel. We look forward to applying what we have learned to help more investors on their journey to net-zero portfolios, in credit and other asset classes.

This material is provided for informational purposes only and nothing herein constitutes investment, legal, accounting or tax advice. This material is general in nature and is not directed to any category of investors and should not be regarded as individualized, a recommendation, investment advice or a suggestion to engage in or refrain from any investment-related course of action. Investment decisions and the appropriateness of this material should be made based on an investor's individual objectives and circumstances and in consultation with his or her advisors. Third-party economic or market estimates discussed herein may or may not be realized and no opinion or representation is being given regarding such estimates. Information is obtained from sources deemed reliable, but there is no representation or warranty as to its accuracy, completeness or reliability. The firm, its employees and advisory accounts may hold positions of any companies discussed. It should not be assumed that any investments in securities, companies, sectors or markets identified and described were or will be profitable. All information is current as of the date of this material and is subject to change without notice. Any views or opinions expressed may not reflect those of the firm as a whole. Certain Neuberger Berman products and services may not be available in all jurisdictions or to all client types.

This material may include estimates, outlooks, projections and other "forward-looking statements." Due to a variety of factors, actual events or market behavior may differ significantly from any views expressed. Investing entails risks, including possible loss of principal. Investments in hedge funds and private equity are speculative and involve a higher degree of risk than more traditional investments. Investments in hedge funds and private equity are intended for sophisticated investors only. Indexes are unmanaged and are not available for direct investment. **Past performance is no guarantee of future results.**

This material is being issued on a limited basis through various global subsidiaries and affiliates of Neuberger Berman Group LLC. Please visit www.nb.com/disclosure-globalcommunications for the specific entities and jurisdictional limitations and restrictions.

The "Neuberger Berman" name and logo are registered service marks of Neuberger Berman Group LLC.



Neuberger Berman
1290 Avenue of the Americas
New York, NY 10104-0001

www.nb.com