

CLIMATE INVESTING

Charting a realistic path toward net zero

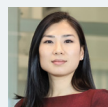
“ No one-size-fits-all solution exists, and the net-zero transition will be marked by volatility

WHITEPAPER OCTOBER 2023

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Introduction

A two-word ambition that will take decades and tens of trillions of dollars: Net Zero. The mammoth task of navigating towards a decarbonized world abounds with investment opportunities, yet is also fraught with sinkholes that can easily derail the transition. The inherently complex interplay of environmental and technological factors as well as geopolitics, should not be underestimated.

Any informed decision on the topic has to come from a first-principles attitude about the physics and economics of existing and future climate technologies.

The imperative to act on the negative consequences of climate change triggered a wave of net zero pledges, at regional, country and corporate level. But those lofty climate targets are now being challenged by practical realities, and suddenly feeling gravity pulling them back to earth. Severe physical bottlenecks from a post-Covid hangover in combination with geopolitical storms and the subsequent energy crunch in 2022, were reminders that a rapid energy transition faces fundamental challenges. In other words, balancing the trilemma of transitioning to net zero in a sustainable and affordable way without disrupting the security of energy supply, is more difficult than many assert.

The societal and political zeitgeist is definitely favoring a cleaner and more environmentally conscious world. However, the last few years laid bare several weaknesses of the climate investment boom. Buying into the transition to net zero requires a level-headed evaluation of the status quo and the business case for specific solutions. Being green does not mean due diligence can be ignored. Cyclical returns often trump secular, even hitting returns on established climate solution categories hard. Ultimately, climate realism is where the energy transition and sustainable returns meet.

With our Net Zero 2050 Climate Equities strategy we have opted for an ambitious, yet realistic and pragmatic, approach to net zero. One in which we acknowledge the constraints of physics and supply chains that often seem to be ignored as they prove to be less emotionally rewarding in the climate debate. This is an approach where we realize trade-offs exist between

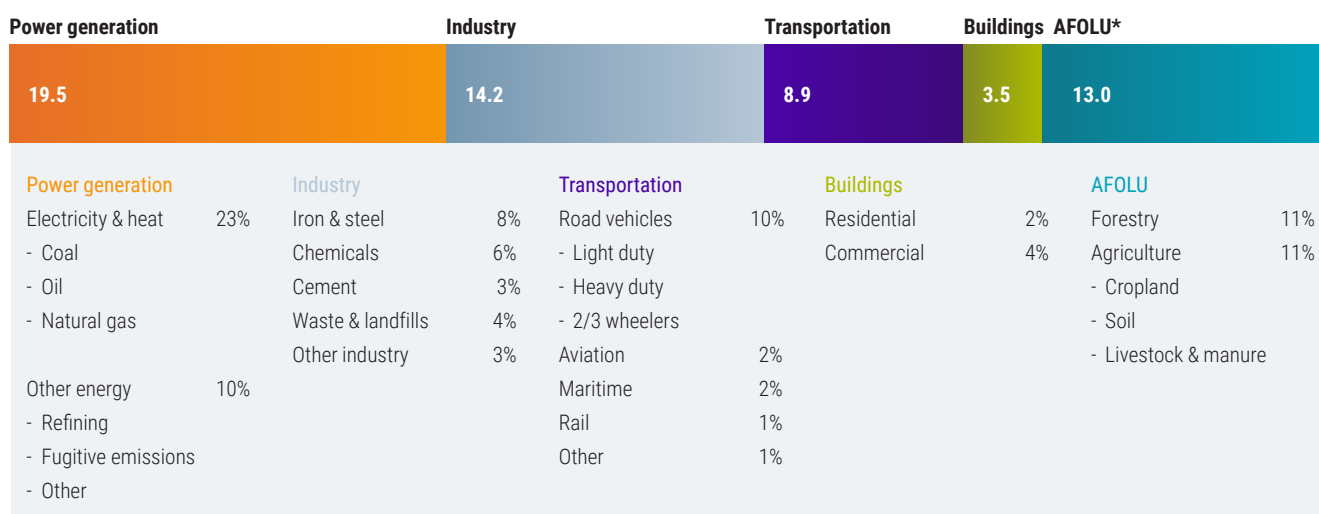
technological feasibility, political acceptance and economic reality. We, therefore, also strongly believe a comprehensive, diversified portfolio of investments across a multitude of climate solutions makes most sense in getting to net zero.

Ploughing through a wide range of high-profile reports over the years provides many different roadmaps and speeds in getting to net zero. What is clear is that the significant change required also requires a lot of investment, multiples of what the world spends today, creating opportunities across many domains. The extent to where those investments will flow to exactly depends on a mix of finance mechanisms, regulation and technological innovations.

Our investment strategy is, first of all, aimed at finding the right balance between viable short- and long-term solutions. We call it the mix of brains and muscles needed to get to net zero. To that end, this paper provides a practical guide on how we go about this, and how we are positioned across a wide array of climate solutions. Secondly, we also explore a novel and exciting way to assess to what extent our portfolio addresses real world climate abatement potential.

In the first section, we'll start dissecting the problem to identify where the roughly 59 Gigatons of annual greenhouse gas (GHG) emissions actually come from. Subsequently, we try to categorize those in an orderly fashion as a way to connect them to specific climate solutions and the investment spend needed. From there we bring in our portfolio exposure to provide a breakdown on our positioning. Finally, we use all these preceding steps as the foundation for our proxy analysis of how much our portfolio actually has tangible effects in terms of carbon abatement. Or, in other words, how much do we actually practice what we preach.

Figure 1: Global GHG emissions breakdown (59 Gigaton CO2 equivalent)



Source: Robeco, adapted from IPCC (2022). *AFOLU = Agriculture, Forestry and Other Land-Use.

Sizing the problem

Before we start thinking about climate solutions, a problem analysis has to take place first. The number most important to keep in mind is 59 Gigatons¹. That’s the amount of estimated anthropogenic GHG emissions² the world emits on an annual basis. For context, one Gigaton of GHG emissions would fill roughly 400,000 Olympic-sized swimming pools³. So to get to the total emissions the world adds to the atmosphere, we have to multiply that number by 59. Annually.

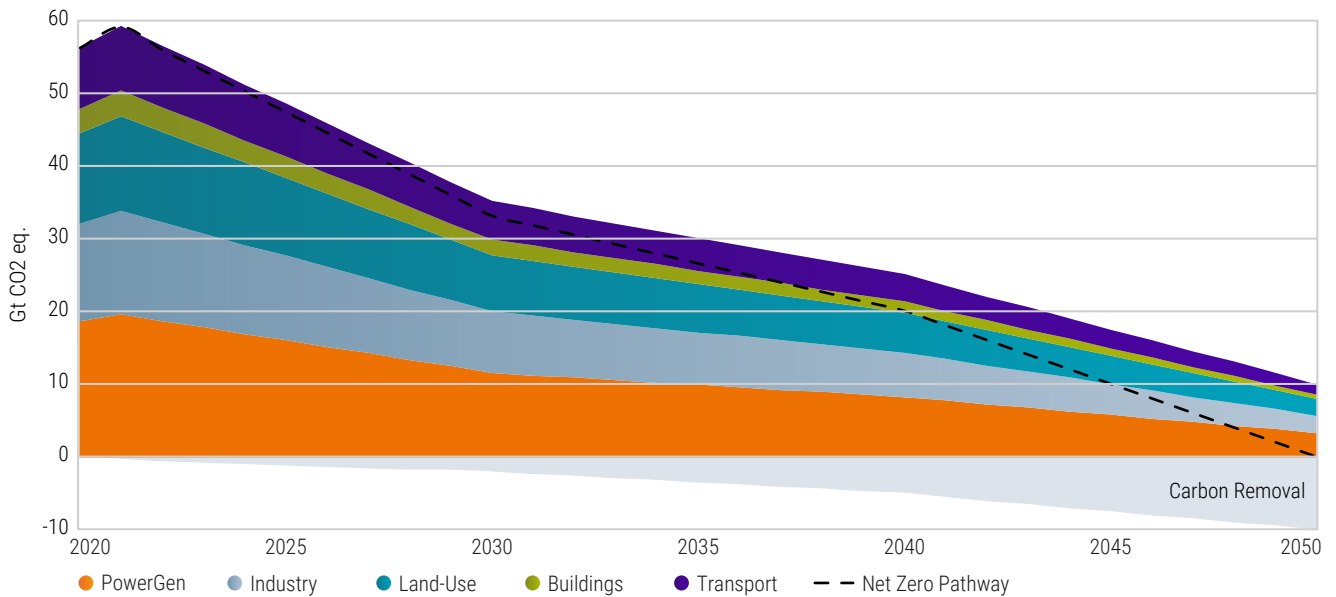
Breaking down this huge emission problem in further detail, the main sectors and their associated footprints are illustrated in Figure 1. Being the entry point to many other areas, the power generation sector is the largest emission contributor with 19.5 Gigatons, within which electricity and heat generation powered by fossil fuels is clearly the main culprit, contributing around 23% to global emissions annually. Also noticeable is the relatively large contribution coming from the sector covering agriculture, forestry and other land-use (AFOLU), where traditional farming practices, deforestation and land cover changes are a significant cause of emissions.

Of course, there is often an overlap between these sources of emissions, making it hard to pinpoint exactly which emissions can be attributed to which type of activity or system. For example, some argue that buildings are responsible for much more than the ~6% emissions suggested by Figure 1. However, the actual emissions associated with buildings originate mainly from other sources such as the power generation sector (to power the building) and hard-to-abate sectors such as steel and cement (relevant in the construction phase). In other words, an office building is simply a harmless piece of brick until it gets used. Hence, climate solutions to decarbonize buildings sector sometimes lie outside the building itself.

Figure 2 illustrates the decarbonization pathways for each of these emission sources towards net zero. While there are numerous reports available showing various net zero pathways, we took what we believe to be the most realistic base case scenario. For example, a realistic scenario is one in which the world will not be on pace to cut emissions in half by 2030, simply because such pathways assume a decline in emissions even exceeding that experienced during the Covid pandemic, which seems unlikely. In fact, global emissions rebounded more or less back to pre-pandemic levels since then⁴.

1. Source: IPCC 2023 Synthesis Report, based on 2019 data. Note that estimates of actual annual GHG emissions are subject to high uncertainty and not always include non-CO2 emissions (e.g., methane, nitrous oxide, amongst others), which we do take into account. In the metric system, Giga denotes one billion. However, 1 Gigaton of CO2 eq. equals 1,000 x 1 billion.
 2. Anthropogenic refers to emissions associated with human activities, hence not due to natural variability. By gas type, GHG emissions consist for about 74.4% of CO2, followed by 17.3% methane, 6.2% nitrous oxide and 2.1% F-gases and other. Source: Our World in Data.
 3. Source: [10 things: All about ice – NASA Sea Level Change Portal](#).
 4. In 2020, as a consequence of unprecedented lockdowns global GHG emissions declined roughly 5%, a reduction unlikely to repeat itself on an ongoing annual basis. Source: [Global CO2 emissions rebound in 2021 after temporary reduction during COVID19 lockdown \(europa.eu\)](#)

Figure 2: Pathways to net zero



Source: IPCC, IIGCC, IEA, McKinsey, 2022

We also believe it's unlikely the world can reach net zero by 2050 without significant carbon removal due to, inter alia, practical constraints. To illustrate the latter point, the IEA's net zero pathway requires a 15-fold increase in the scale of today's solar and wind infrastructure – nearly triple the rate of the expansion of all global energy infrastructure that took place over the past 60 years. Replacing all existing hydrocarbons with carbon-free clean energy alternatives would require the deployment of about 1,000 medium-sized 3MW wind turbines every single day⁵. Apart from the regulatory and economic challenges, the construction bottlenecks would be unprecedented too.

All in all, it is clear that the scale of the task to bring the 59 Gigatons down to zero is a pretty daunting one, to put it mildly.

Investment needs

Most reports looking at the economics of net zero arrive at a global investment need of roughly USD 5 trillion per year⁶, about three times today's annual spend, or around 4.5% of annual global GDP. But even though many point to the need for a rapid investment scale-up across all systems, we see real-world limitations to this. Also, a fixation on the short-term might lead to a misallocation of capital over the long-term, potentially jeopardizing the transition itself. We acknowledge that a lot of

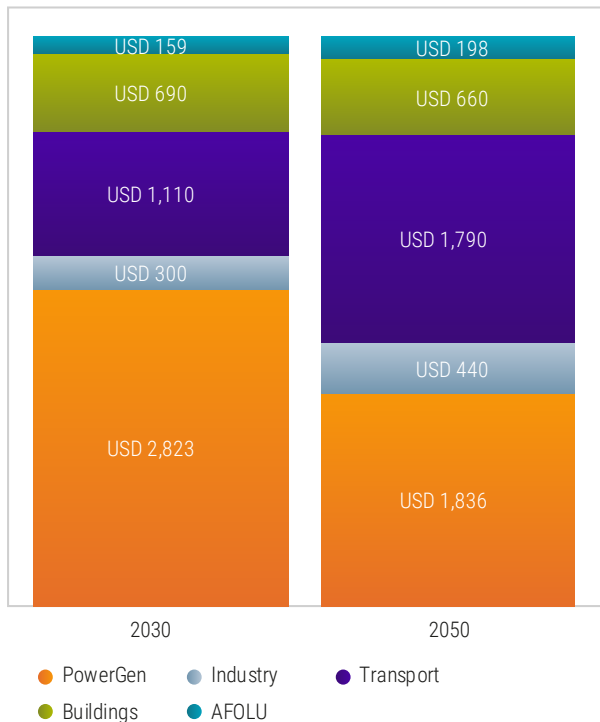
heavy lifting needs to take place in the 2020s time frame, but also realize the net zero journey ultimately takes decades. Triangulating capital expenditure projections from several leading research reports, allows us to assess the investment needs by climate solution category (Figure 3). Most investment needs to be geared towards the power generation sector (43% of total), mainly as this forms the foundation, or gateway, to many other sectors. For example, without clean power, there will be no green buildings. The Transportation space is clearly another big investment driver (32%), followed by Buildings (13%), Industry (8%) and Agriculture, Forestry and Other Land-Use (AFOLU; 4%).

At a granular level, when we discuss the individual climate solutions, timelines and price tags can differ quite a bit. For example, well established technologies such as solar PV have seen costs drop significantly over time, whereas green hydrogen is still at a very nascent stage, and hence in need of lofty subsidies to make it work economically. And of course, options related to behavioral changes (e.g., dietary patterns) or simply planting trees come at very low cost whilst being quite effective.

5. Source: CLSA Research (2023); EIA; DOE; Larson et al. Princeton (2020).

6. IIGCC (2022), IEA (2023). McKinsey (2022) even arrives at USD 9.2 trillion per year of spend needed, though this also includes, for example, continued spending on high-emission assets of USD 2.7 trillion within that figure.

Figure 3: Investment allocation by category

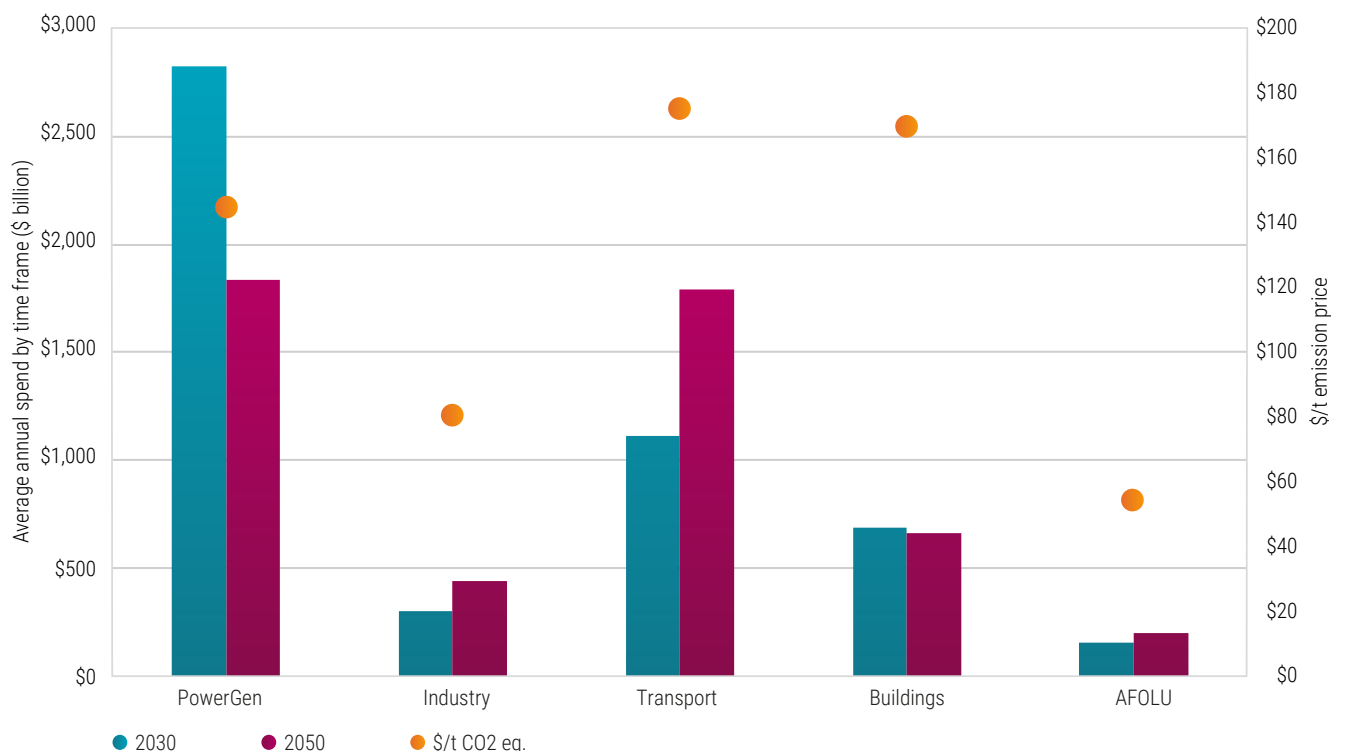


Source: Robeco (2023), IIGCC (2022), McKinsey (2022)

Another angle to consider is the effective carbon abatement costs per climate solution on a per ton basis (USD/t). For example, on average, about USD 2.8 trillion annual spend is needed to decarbonize the power sector⁷, which is responsible for about 19.5 Gigatons of annual emissions, as we saw in Figure 1. Hence, the cost of climate solutions in the power sector are estimated to be around USD 145/t, on average (Figure 4). On a weighted basis, looking at the USD/t cost estimates across all solution categories, we arrive at an average explicit price on GHG emission of about USD 105/t.

A more simplistic approach to this is to divide the aggregate USD 5 trillion over the total annual emissions of 59 Gigatons to get to USD 85 per ton of CO₂, quite close to today's EU carbon price⁸. Our estimate is above this level as we consider actual implementation costs in the real economy to be higher and are less convinced that cost curves of both mature and still unproven technologies can come down as quickly as many assume. Moreover, in contrast to the period in which many research reports were written, we are now facing with significantly higher interest rates, most likely causing financing issues for many renewables-related infrastructure projects, for example.

Figure 4: Average annual spend by category over different time frames



Source: IPCC, IIGCC, IEA, McKinsey, 2022

7. At least until 2030, after which investments are projected to come down to about USD 1.9 billion p.a. until 2050. Source: IIGCC (2022)
 8. [Carbon Price Tracker | Ember \(ember-climate.org\)](#) (October 2023).

Finding solutions

The above-mentioned blueprint of the decarbonization pathways helps us in our search for feasible climate solutions. Again, acknowledging the inherent challenges in the implementation of many of such climate measures, this white paper does not take a position what the best pathway is, ultimately, nor whether it is sufficient to limit the global temperature rise to either 1.5°C or 2°C degrees. Rather, we simply seek ways to most optimally allocate our investments across a variety of climate solution categories that science deems critical for decarbonization, while also offering the most attractive investment opportunities.

Realizing that capital deployment will not be homogeneous across regions and industries, the approach taken should still be as universal as possible. This means essentially that all sectors have to actively contribute to the transition. For example, the aviation industry can only decarbonize if refiners supply them with advanced biofuels, which in turn are dependent on food companies that provide the necessary feedstock. The same applies to steel makers relying on producers of green hydrogen, graphite electrode manufacturers and carbon capture technology providers.

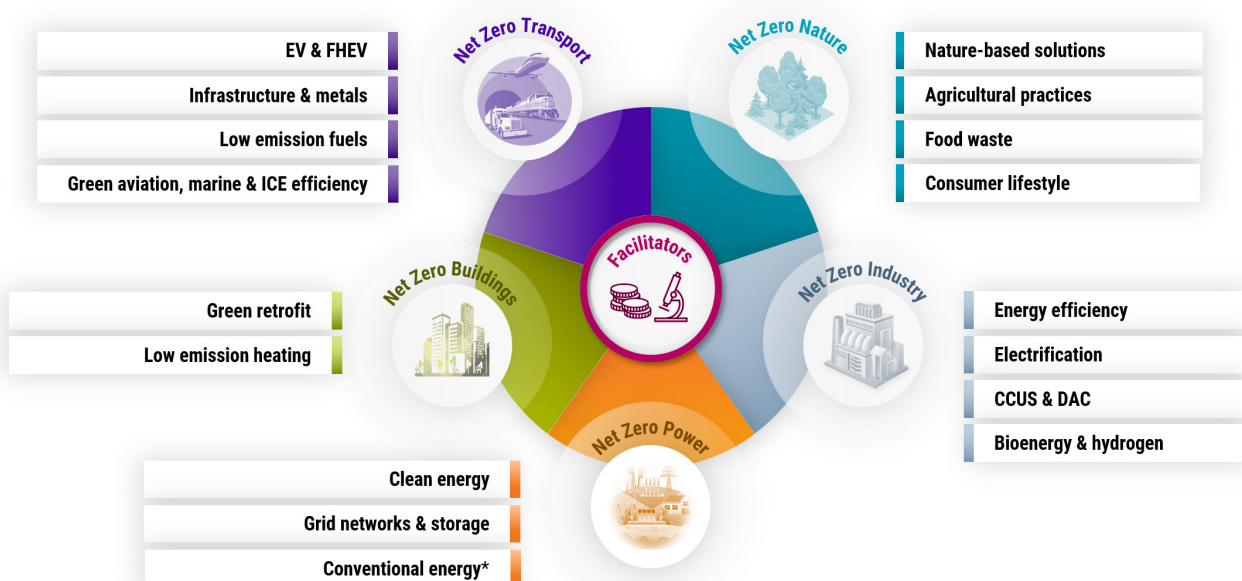
In this paper, we've sought to synthesize the host of climate solutions and associated investment streams discussed across multiple credible studies. The result is illustrated in Figure 5.

The graphic illustrates that the wide spectrum of climate solutions clearly goes beyond the beaten track of wind turbines and more efficient light bulbs. It also encompasses, for example, land-use and food systems, forest management, carbon capture and storage technology, geothermal and nuclear power, but also consumer lifestyle changes targeting alternative diets and reducing food waste.

Cognizant that the mash-up of all such climate solutions can get confusing, we've categorized them in six straightforward buckets, of which the first five include climate solutions that have direct emission abatement potential:

1. Net Zero Power: 'Clean energy' accounts for the bulk of investment spend (55% of category), followed by 'Grid networks & storage' (37%). Many net zero scenarios also incorporate investment spending related to conventional energy infrastructure, which is understandable but falls outside our investment universe. Within clean energy we identify the usual suspects of solar PV, wind, hydro, bioenergy and hydrogen. Also, technologies such as geothermal, tidal wave, and biomass are increasingly considered. Though perhaps controversial, purely from a net zero perspective, nuclear energy is also making a comeback due to its reliability as a baseload source of power. In terms of supporting the expansion of renewables and electrification, investments in grid networks and large-scale battery storage are critical.

Figure 5: Climate solution toolbox



Source: Robeco (2023), IIGCC (2022), McKinsey (2022), IEA (2023)

*Though part of Net Zero spending pathways, this category is excluded from our investment strategy.

2. Net Zero Industry: Many heavy industrial processes require a mix of decarbonization solutions, some of which are still immature or in prototype stage. So-called hard-to-abate sectors such as steel and cement face particular challenges to decarbonize. High temperature requirements, large process emissions and lack of alternative material inputs for production purposes complicate matters. Investments into 'energy efficiency' (32% of category spend), 'electrification' (8%), bioenergy (10%), hydrogen (23%) and rather novel technologies including 'carbon capture and underground storage' (CCUS; 20%) and 'Direct-Air-Capture' (DAC; 7%) will be the main solution areas to focus on. By default, solutions needed to decarbonize industrial processes largely overlap with advancements made in clean power generation, as earlier discussed with "Net Zero Power".

3. Net Zero Transport: Even though passenger vehicles such as EVs and fuel-cell powered cars grab most attention (40% of category spend), the real challenge lies with decarbonizing longer-distance, heavy duty trucking, aviation and marine transport. Advanced biofuels in combination with infrastructure and battery improvements over the longer-term allow for larger-scale electrification of the trucking fleet (9%). Emissions from aviation and marine transport, however, are harder to abate and decarbonizing those for the most part rely on a combination of combustion engine improvements and the further development of clean fuels such as advanced bio jet kerosene, hydrogen and ammonia (22%). Clearly, we also need the metals, battery storage and charging infrastructure in place to cater for all this (29%).

4. Net Zero Buildings: The main decarbonization levers for the building space include 'green retrofits and insulation' (55% of category spend) by replacing and renovation of the existing building stock with the most energy efficient options available for appliances, lighting, window and roofing applications. The rest of the building investment envelope would include low-emission heating and cooling through a mix of renewables- and hydrogen-based applications as well as heat pumps (45%). Again, as with industrial processes, buildings can only truly decarbonize if connected to clean energy power grids. This solution toolbox enables buildings and the wider urban hubs to once again become fonts of innovation and positive impact.

5. Net Zero Nature: Decarbonization related to agriculture, forestry and other land-use types (AFOLU) should largely be driven by so-called nature-based solutions such as the restoration of forests, peatlands, mangroves and altogether better forest management (30% of category spend). Other solutions within the nature toolbox would include innovative farming practices (25%), reducing food waste (23%) and changing consumer lifestyles such as shifting dietary

patterns and alternative proteins (22%). Altogether it's really about investing in practices and behavioral changes that can alter food systems in such a way that it enables carbon sequestration, improve soil health, food security and reduce excess consumption.

In addition, we are also of the opinion that many climate solution areas can only be effective if facilitated by 'supporting' infrastructure, be it financial, scientific or through software engineering. And although such infrastructure does not have a direct climate-abatement impact in itself, it does fulfil an essential facilitating role in enabling the more tangible climate solution providers. Hence, this sixth bucket, called **Transition Facilitators**, would include companies such as financial capital providers, software engineers, environmental consultancy firms and science hubs.

Of course, all the mentioned climate solutions have their own pace of implementation, economics and carbon-abatement impact. Clearly, we also leave the door open for more controversial climate measures, simply because we don't have the luxury to rule them out. All in all, it is our firm belief that by following such a comprehensive approach with every sector participating, balancing short- and longer-term solutions, we have the best shot at getting to net zero.

Portfolio impact

Having identified investment pathways to reach net zero in more detail, an interesting next step is to gauge the carbon abatement we address at portfolio level. Essentially, by mirroring our portfolio holdings against the net zero pathways and investment spend needed to get there, it allows us to make a proxy assessment. In this way we can get a sense of the real-world carbon-abatement potential addressed by the portfolio on a go-forward basis.

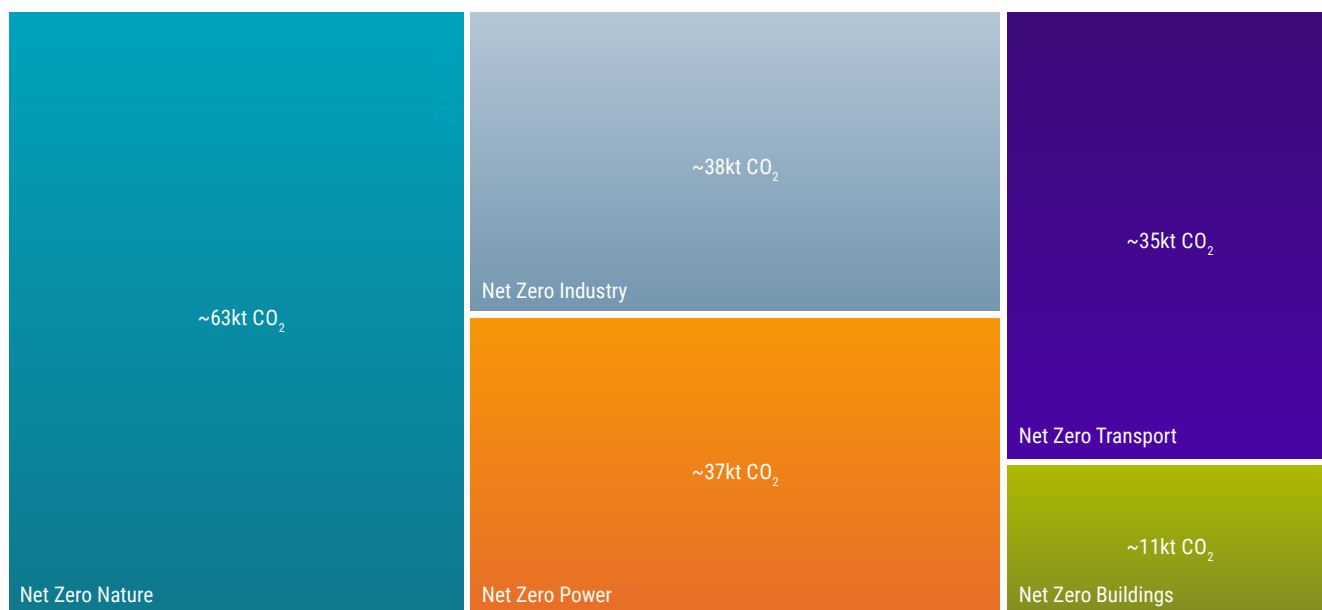
In order to do so, we followed these steps:

1. Proxy the economic exposure of each portfolio holding vis-à-vis particular climate solutions.
2. Multiply (1) by our ownership stake in the company (as a % of Enterprise Value).
3. Sum (2) to assess the overall portfolio exposure to a climate solution category.
4. Divide (3) by the USD/t emission cost estimate to assess abatement potential.

Example:

1. According to our fundamental company analysis, Hydro One has approximately 89% exposure to various climate solutions within the 'Clean energy' bucket such as hydro power, nuclear power and renewables. Some other exposures of the

Figure 6: Carbon abatement potential addressed by the portfolio



Source: Robeco, 2023

company (11%) either fall in the “Transition Facilitator” bucket or are simply less relevant from a climate solution perspective, but either way do not directly address carbon abatement as such.

- Our ownership stake in Hydro One is ~0.02% based on an Enterprise Value of Hydro One of USD 27 billion, our portfolio NAV of around USD 135 million and Hydro One having a 4.3% weight in portfolio. Translating this into how much our investment in Hydro One effectively touches on the various climate solutions part of “Net Zero Power”, we arrive at about USD 1.1 million.
- For the portfolio in aggregate about USD 5.4 million is invested in “Net Zero Power”.
- Given the average cost of about USD 145/t CO₂ for solutions related to the “Net Zero Power” toolbox, our investments in this category about 37k tons of CO₂ abatement potential (5.4 million / 145).

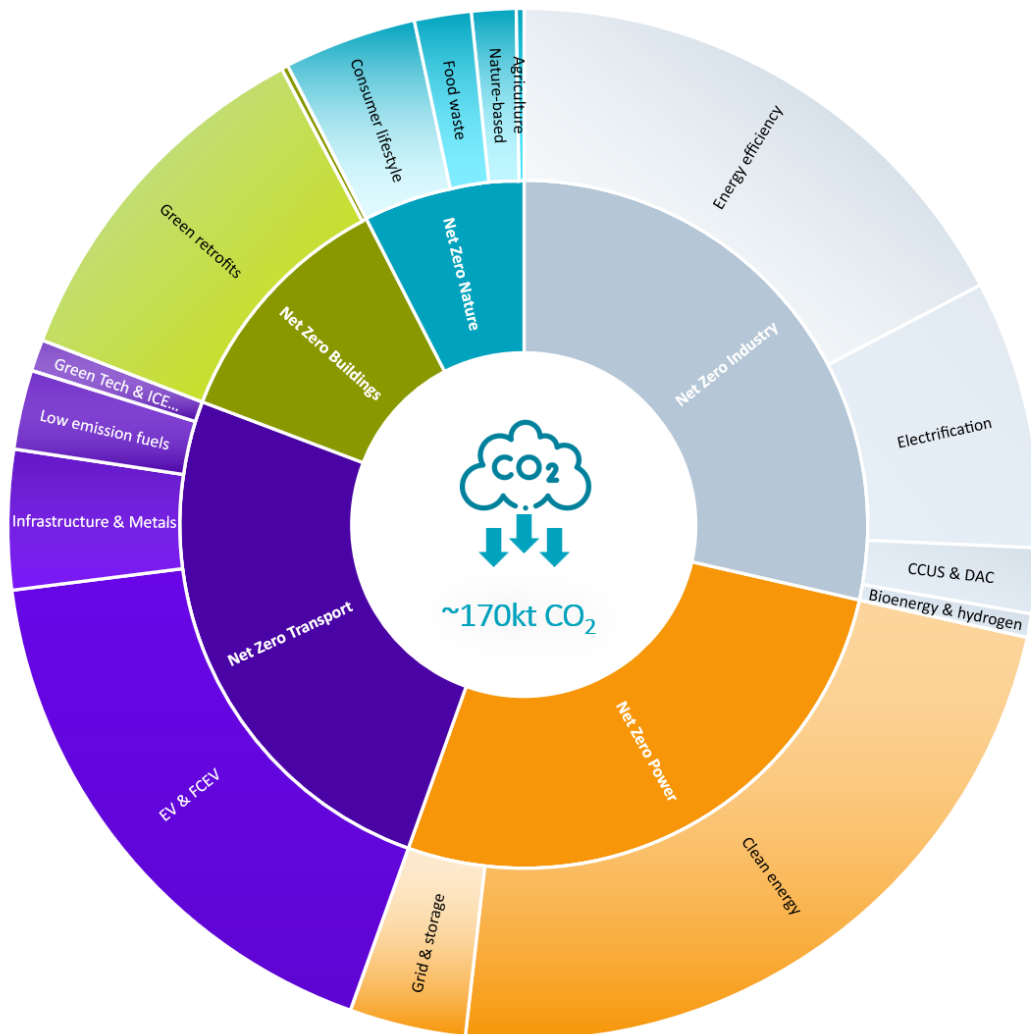
Though all of our portfolio have a link to the climate thematic, not all their economic activities should be counted as such. In total, our analysis indicates that the portfolio is currently around 37% directly invested in climate solutions with carbon abatement potential, allocated as depicted in Figure 6. In addition, close to 7% is invested in the “Transition Facilitators”, which again are relevant, but to which we do not attribute any direct savings potential.

As mentioned, not all companies are climate-solution pure-plays, in fact only few truly are, thus it doesn’t make sense to fully attribute all of a company’s economic exposure as such. Instead, in our exercise it is really a matter of determining which exposures are relevant from a climate perspective and then to be transparent about the real abatement potential addressed by the portfolio. Consequently, our direct climate investments translate into an overall carbon-abatement potential of around 170k tons of CO₂ equivalent⁹. For context, that equals the emission output of about 430 return flights from Paris to New York¹⁰.

9. Put differently, given the current portfolio positioning, about USD 1 million invested addresses around 1.3 tons of CO₂ equivalent abatement potential.

10. Source: <https://www.tapio.eco/blog/what-represents-one-ton-co2-emissions/>

Figure 7: Climate solution exposure portfolio



Source: Robeco, 2023

Concluding remarks

The goal of this paper is to provide more insights into the background and magnitude of the adjustments entailed in a transition to net zero. Not a week goes by without a new report concluding that more clean energy and decarbonization technologies are needed and that it is all progressing too slowly, and that too little is being invested. Although we sympathize with those views, we also acknowledge that practical realities prevent us from transitioning to net zero overnight. Green soundbites are nice, but realistic implementation plans are even better.

Given the massive scale of the transition required, no single pathway will follow an orderly pattern. No magic bullets exist that miraculously solve the climate challenges we face.

Mismatches between supply and demand will continue to exist, making volatility a certainty, resulting in occasional periods of backlash. The climate transition is also not only about investing in mitigation, but also requires additional adaptation measures to manage an increasing level of physical risk.

Almost all solutions discussed have their pros and cons, do not always enjoy universal support, and might sometimes be controversial while potentially necessary. Our strategy continues to look for the right mix of practical climate solutions, the brains and muscles if you like, that ultimately have the best shot at net zero. A realistic appraisal of the steps needed to get there will undoubtedly be one of progress and setbacks, though always with an optimistic hat on.

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Additional information for investors with residence or seat in Germany

This information is solely intended for professional investors or eligible counterparties in the meaning of the German Securities Trading Act.

Additional information for investors with residence or seat in Hong Kong

The contents of this document have not been reviewed by the Securities and Futures Commission ("SFC") in Hong Kong. If there is any doubt about any of the contents of this document, independent professional advice should be obtained. This document has been distributed by Robeco Hong Kong Limited ("Robeco"). Robeco is regulated by the SFC in Hong Kong.

Additional information for investors with residence or seat in Indonesia

The Prospectus does not constitute an offer to sell nor a solicitation to buy securities in Indonesia.

Additional information for investors with residence or seat in Italy

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Additional information for investors with residence or seat in South Korea

The Management Company is not making any representation with respect to the eligibility of any recipients of the Prospectus to acquire the Shares therein under the laws of South Korea, including but not limited to the Foreign Exchange Transaction Act and Regulations thereunder. The Shares have not been registered under the Financial Investment Services and Capital Markets Act of Korea, and none of the Shares may be offered, sold or delivered, or offered or sold to any person for re-offering or resale, directly or indirectly, in South Korea or to any resident of South Korea except pursuant to applicable laws and regulations of South Korea.

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Additional information for investors with residence or seat in Malaysia

Generally, no offer or sale of the Shares is permitted in Malaysia unless where a Recognition Exemption or the Prospectus Exemption applies: NO ACTION HAS BEEN, OR WILL BE, TAKEN TO COMPLY WITH MALAYSIAN LAWS FOR MAKING AVAILABLE,

OFFERING FOR SUBSCRIPTION OR PURCHASE, OR ISSUING ANY INVITATION TO SUBSCRIBE FOR OR PURCHASE OR SALE OF THE SHARES IN MALAYSIA OR TO PERSONS IN MALAYSIA AS THE SHARES ARE NOT INTENDED BY THE ISSUER TO BE MADE AVAILABLE, OR MADE THE SUBJECT OF ANY OFFER OR INVITATION TO SUBSCRIBE OR PURCHASE, IN MALAYSIA. NEITHER THIS DOCUMENT NOR ANY DOCUMENT OR OTHER MATERIAL IN CONNECTION WITH THE SHARES SHOULD BE DISTRIBUTED, CAUSED TO BE DISTRIBUTED OR CIRCULATED IN MALAYSIA. NO PERSON SHOULD MAKE AVAILABLE OR MAKE ANY INVITATION OR OFFER OR INVITATION TO SELL OR PURCHASE THE SHARES IN MALAYSIA UNLESS SUCH PERSON TAKES THE NECESSARY ACTION TO COMPLY WITH MALAYSIAN LAWS.

Additional information for investors with residence or seat in Mexico

The funds have not been and will not be registered with the National Registry of Securities or maintained by the Mexican National Banking and Securities Commission and, as a result, may not be offered or sold publicly in Mexico. Robeco and any underwriter or purchaser may offer and sell the funds in Mexico on a private placement basis to Institutional and Accredited Investors, pursuant to Article 8 of the Mexican Securities Market Law.

Additional information for investors with residence or seat in Peru

The Superintendencia del Mercado de Valores (SMV) does not exercise any supervision over this Fund and therefore the management of it. The information the Fund provides to its investors and the other services it provides to them are the sole responsibility of the Administrator. This Prospectus is not for public distribution.

Additional information for investors with residence or seat in Singapore

This document has not been registered with the Monetary Authority of Singapore ("MAS"). Accordingly, this document may not be circulated or distributed directly or indirectly to persons in Singapore other than (i) to an institutional investor under Section 304 of the SFA, (ii) to a relevant person pursuant to Section 305(1), or any person pursuant to Section 305(2), and in accordance with the conditions specified in Section 305, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA. The contents of this document have not been reviewed by the MAS. Any decision to participate in the Fund should be made only after reviewing the sections regarding investment considerations, conflicts of interest, risk factors and the relevant Singapore selling restrictions (as described in the section entitled "Important information for Singapore Investors") contained in the prospectus. Investors should consult their professional adviser if you are in doubt about the stringent restrictions applicable to the use of this document, regulatory status of the Fund, applicable regulatory protection, associated risks and suitability of the Fund to your objectives. Investors should note that only the Sub-Funds listed in the appendix to the section entitled "Important information for Singapore Investors" of the prospectus ("Sub-Funds") are available to Singapore investors. The Sub-Funds are notified as restricted foreign schemes under the Securities and Futures Act, Chapter 289 of Singapore ("SFA") and invoke the exemptions from compliance with prospectus registration requirements pursuant to the exemptions under Section 304 and Section 305 of the SFA. The Sub-Funds are not authorized or recognized by the MAS and shares in the Sub-Funds are not allowed to be offered to the retail public in Singapore. The prospectus of the Fund is not a prospectus as defined in the SFA. Accordingly, statutory liability under the SFA in relation to the content of prospectuses does not apply. The Sub-Funds may only be promoted exclusively to persons who are sufficiently experienced and sophisticated to understand the risks involved in investing in such schemes, and who satisfy certain other criteria provided under Section 304, Section 305 or any other applicable provision of the SFA and the subsidiary legislation enacted thereunder. You should consider carefully whether the investment is suitable for you. Robeco Singapore Private Limited holds a capital markets services license for fund management issued by the MAS and is subject to certain clientele restrictions under such license.

Additional information for investors with residence or seat in Spain

Robeco Institutional Asset Management B.V., Sucursal en España with identification number W0032687F and having its registered office in Madrid at Calle Serrano 47-14^º, is registered with the Spanish Commercial Registry in Madrid, in volume 19.957, page 190, section 8, sheet M-351927 and with the National Securities Market Commission (CNMV) in the Official Register of branches of European investment services companies, under number 24. The investment funds or SICAV mentioned in this document are regulated by the corresponding authorities of their country of origin and are registered in the Special Registry of the CNMV of Foreign Collective Investment Institutions marketed in Spain.

Additional information for investors with residence or seat in South Africa

Robeco Institutional Asset Management B.V. is registered and regulated by the Financial Sector Conduct Authority in South Africa.

Additional information for investors with residence or seat in Switzerland

The Fund(s) are domiciled in Luxembourg. This document is exclusively distributed in Switzerland to qualified investors as defined in the Swiss Collective Investment Schemes Act (CISA). This material is distributed by Robeco Switzerland Ltd, postal address: Josefstrasse 218, 8005 Zurich. ACOLIN Fund Services AG, postal address: Leutschenbachstrasse 50, 8050 Zürich, acts as the Swiss representative of the Fund(s). UBS Switzerland AG, Bahnhofstrasse 45, 8001 Zurich, postal address: Europastrasse 2, P.O. Box, CH-8152 Opfikon, acts as the Swiss paying agent. The prospectus, the Key Information Documents (PRIIP), the articles of association, the annual and semi-annual reports of the Fund(s), as well as the list of the purchases and sales which the Fund(s) has undertaken during the financial year, may be obtained, on simple request and free of charge, at the office of the Swiss representative ACOLIN Fund Services AG. The prospectuses are also available via the website.

Additional information relating to RobecoSAM-branded funds/services

Robeco Switzerland Ltd, postal address Josefstrasse 218, 8005 Zurich, Switzerland has a license as asset manager of collective assets from the Swiss Financial Market Supervisory Authority FINMA. The RobecoSAM brand is a registered trademark of Robeco Holding B.V. The brand RobecoSAM is used to market services and products which entail Robeco's expertise on Sustainable Investing (SI). The brand RobecoSAM is not to be considered as a separate legal entity.

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Additional information for investors with residence or seat in Thailand

The Prospectus has not been approved by the Securities and Exchange Commission which takes no responsibility for its contents. No offer to the public to purchase the Shares will be made in Thailand and the Prospectus is intended to be read by the addressee only and must not be passed to, issued to, or shown to the public generally.

Additional information for investors with residence or seat in the United Arab Emirates

Some Funds referred to in this marketing material have been registered with the UAE Securities and Commodities Authority ("the Authority"). Details of all Registered Funds can be found on the Authority's website. The Authority assumes no liability for the accuracy of the information set out in this material/document, nor for the failure of any persons engaged in the investment Fund in performing their duties and responsibilities.

Additional information for investors with residence or seat in the United Kingdom

Robeco is deemed authorized and regulated by the Financial Conduct Authority.

Additional information for investors with residence or seat in Uruguay

The sale of the Fund qualifies as a private placement pursuant to section 2 of Uruguayan law 18,627. The Fund must not be offered or sold to the public in Uruguay, except under circumstances which do not constitute a public offering or distribution under Uruguayan laws and regulations. The Fund is not and will not be registered with the Financial Services Superintendency of the Central Bank of Uruguay. The Fund corresponds to investment funds that are not investment funds regulated by Uruguayan law 16,774 dated 27 September 1996, as amended.

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