



McGill International Portfolio Challenge

2022 Edition

Australia's SuperEasy:

Designing a Comprehensive and Effective Net Zero Strategy

Disclosure

The case for the 2022 edition of the McGill International Portfolio Challenge was written by the students of FINE 464/664 – Pension Funds and Retirement Systems (Winter 2022), under the direction of Professor Sebastien Betermier at McGill University’s Desautels Faculty of Management. Authors of the case include Anthony Bello (lead), Moussa Fneich, Valérie Lacroix, Harsh Tulsiani, John Xu, Hosseyn Al-Moussawi-Wasserman, Igor Grigorenko, Xinyi Zhu, Paola Michelle Martinez Zamora, Cassandra Tutelea, Ecaterina Kalcenko, Sinziana Nastase, Gabriel Salonichios, and Alexandre Trad.

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Case Overview

Preface

The 6th edition of the McGill International Portfolio Challenge focuses on SuperEasy, a fictional Australian superannuation (pension) fund that actively manages the retirement savings of its 1.3 million members. Originally starting as a not-for-profit fund for employees in the retail industry, SuperEasy has grown to become one of Australia's largest super funds with A\$150 billion in assets under management (AUM). SuperEasy's success over the past 20 years has lied in its strict policy of being transparent, user-centric, and simplistic, along with offering only one investment product to its members at a competitive price.

Over the past decade, rising greenhouse gas emissions and worrying climate projections have prompted institutional investors to make significant commitments to reduce their impact on the environment. Several large pension funds have pledged to make their investment portfolios net zero by a targeted date, recognizing their responsibility to help mitigate climate change given their size and long-term orientation. Funds that have fallen behind in terms of sustainability and climate action are facing mounting pressure from various stakeholders and tangible costs because of their inaction. SuperEasy is one of these funds that has not yet made any climate commitments.

The purpose of this case is to advise Amelia S. Thompson, the Chief Investment Officer (CIO) of SuperEasy, on a transparent, attainable, and well-defined net zero pledge that will satisfy its members and have a positive impact on the environment. The new investment strategy that will accompany this pledge must align with SuperEasy's existing mandate to maximize risk-adjusted returns at low management costs. However, the CIO is open to slight modifications of this mandate to include sustainability given the fund's inherent long-term nature. Although SuperEasy is fictional, real data from Australia is used to frame the discussion surrounding current political, economic, and social conditions.

Superannuation: An Integral Part of Australia's Retirement System and Economy

The population of Australia is just under 26 million people.¹ Australia is the 13th largest economy in the world, with a nominal GDP of US\$1.54 trillion.² Once an agriculture and manufacturing-based economy, the service industry now dominates Australia's economy, accounting for 80% of GDP and 90% of total employment.³

Australia has a well-developed 3-pillared retirement system, with superannuation playing the most important role, effectively creating a DC pension for all workers.⁴ Given that superannuation contributions, called the super guarantee, are mandatory for all Australian employees, several super funds have been created to manage and invest these pension contributions. A\$3.4 trillion in assets are held by 145 superannuation fund providers in Australia, which amounts to nearly 1.5x GDP. As such, the superannuation industry has a significant effect on the Australian economy.⁵ Super funds already own nearly half of all publicly listed shares in Australia, and this number is expected to further increase to nearly 60% by 2040.⁶ With large amounts of capital at their disposal, super funds will be influential stakeholders in Australia's future economic development and transition away from fossil fuels.

SuperEasy

SuperEasy had its beginning in the early 1990s, with a mission to safeguard and grow the retirement savings of workers in the retail industry by providing low fees and superior investment returns. SuperEasy's fundamental purpose remains the same, except it now serves a much broader set of members given that any Australian worker may join the fund.

As there are many funds competing for members in Australia's highly saturated superannuation industry, SuperEasy differentiates itself by offering only one investment option: Easy Balanced. The simplicity associated with one product allows for SuperEasy to cut down on management costs and provide its members with what it believes to be the optimal exposure to risky and safe assets. Although this point can be ignored for the purpose of this case, SuperEasy automatically rebalances individual portfolios towards safer assets using a glide path to account for changing risk tolerances as members age.

The Move to Net Zero

In late 2019, Australia experienced one of the worst bush fire seasons in recorded history.⁷ Catastrophic scenes of drought, mega-blazes, permanent damage to property, and widespread ecological destruction invigorated public discussion on the need to mitigate human-induced climate change. Australians are now more concerned than ever when it comes to ensuring their investments are sustainable and have minimal negative impact on the environment.⁸

As a response, several major superannuation funds have recently announced net zero commitments, with 75% of Australia's twenty largest funds pledging to be net zero by 2050. This figure is a marked increase from just two years ago in mid-2020, when only 20% had set net zero targets for their investment portfolio.⁹ Following the Australian government's recent commitment to net-zero emissions by 2050 in October of 2021, there is even more pressure on institutional investors to take action on climate change.¹⁰

SuperEasy's senior management team is keen on not only joining the net zero movement, but becoming a leader in effective and profitable net zero portfolio design. Sustainability initiatives at the fund are currently very fragmented and limited in scope, and senior management believes a net zero pledge is the best solution to kickstart a fund-wide approach to sustainability. Given its commitment to transparency, the chosen net zero pledge needs to clearly outline the details surrounding how SuperEasy will achieve net zero by the promised date.

While the team has agreed that SuperEasy must make a net zero pledge as soon as possible, they have been unable to decide on the finer details of the pledge. When will the fund commit to net zero by? What scope will be used to measure emissions, and will this differ across asset classes? How will the fund measure its progress on achieving its net zero goal? What will the decarbonization path of the portfolio look like? How can the fund reach net zero without sacrificing returns for its members?

Going net zero is much more than a simple commitment. It will require extensive strategic planning and an in-depth analysis of key trade-offs that have a material impact on the fund, its members, and society. Before moving forward with their net zero aspirations, SuperEasy's senior leadership team wants to ensure that they have all the necessary information required to make the best decision for their fund's future. In hopes of finalizing their strategy as soon as possible, they have come to you and your team of consultants to provide a detailed recommendation and external point of view.

Objective of the Case

Amelia S. Thompson, the CIO of SuperEasy, has contacted your team to help with the design of the fund's net zero pledge. She is looking for a net zero commitment that will not only be attainable for the fund, but will also have a positive impact on both the environment and the portfolio's investment returns. In addition to the pledge, a detailed decarbonization strategy that clearly outlines how the fund can reach its net zero goal will be crucial. A successful proposal from your team will address the challenges and trade-offs associated with a net zero pledge, and will answer two key questions:

- What should the net zero pledge for SuperEasy look like?
- How can SuperEasy build a long-term decarbonization strategy that honours the pledge while still maintaining the value proposition of the fund?

The following sections of this case provide further context on the net zero movement and its associated challenges. As one of the world's largest greenhouse gas emitters, transitioning Australia's economy to net zero will be no easy feat, requiring significant resources from governments and institutional investors alike. Moreover, super and other pension funds around the world face an additional layer of complex trade-offs in the net zero transition given their requirement to generate investment returns. Given these challenges, many pension funds have been vague in their climate commitments, creating backlash from pension contributors who now view net zero pledges made by their pension funds to be ineffective and even disingenuous.¹¹ Growing pressure from contributors and the urgency of the climate crisis make it even more important for pension funds such as SuperEasy to develop an effective net zero pledge and accompanying decarbonization strategy.

Australia’s Retirement System, Carbon Emissions & Net Zero Transition

Australia’s Three-Pillared Retirement System

Australia’s retirement income system is formed on three main pillars that rely on contributions from the government, employers, and workers. The age pension is the first pillar of the system. It is financed through general tax revenues and is designed to act as a safety net for low-income retirees.¹² Since it is means-tested, only 62% of those 65 or older in Australia receive this pension in part or in full.¹³ The second pillar, compulsory superannuation savings, forms the backbone of Australia’s retirement system. Employers are required to contribute what’s called the super guarantee – 10.5% of an employee’s salary rising to 12% by 2025 – to their employee’s superannuation fund of choice. The third and final pillar is voluntary private savings, where individuals can choose to increase super contributions or use alternative investment vehicles for retirement planning.¹⁴

There are five main types of super funds, listed in order of AUM: industry, self-managed, retail, public sector, and corporate. Approximately one-third of superannuation assets are held in industry funds, which are now open to all Australians, and one-fifth in retail funds.¹⁵ Some funds are run by members themselves (industry funds for example), and some are run by separate companies, such as banks or insurance corporations (retail funds for example).¹⁶ Australians are also able to establish a self-managed super fund where they can choose how to invest their super savings, an option that has become increasingly popular over the past few years.¹⁷ All of these funds combined have a considerable impact on Australia’s economy and even on the country’s fossil fuel emissions given their large AUM.

Direct Carbon Consumption in Australia

Climate change has already had striking effects on the lives of millions of people around the world and on the environment. Countries such as Australia are extremely vulnerable to rising temperatures because of their large arid areas, warm climate, rainfall variability, and limited water supply.¹⁸ Yet Australia is the world’s 14th largest greenhouse gas emitter, accounting for approximately 1% of global emissions.¹⁹ Most of these emissions are attributed to the energy sector, with over 50% of Australia’s total carbon emissions resulting from burning fossil fuels for electricity and other energy generation purposes. Transport is the next leading source of emissions (~19%), followed by agriculture (~16%) and industrial processes (~7%).²⁰ While Australia’s economy has now become more service-based, coal mining has historically been important in driving economic growth. Coal deposits occur in all states and territories, with 25% of the world’s recoverable brown coal found in Australia. Given its abundance, coal remains the primary fuel used to generate electricity in Australia, producing about 80% of the nation’s energy requirements.²¹ As a result, Australia has the highest per capita emissions from coal power in the world, at just over 4 tonnes as shown in Figure 1.²²

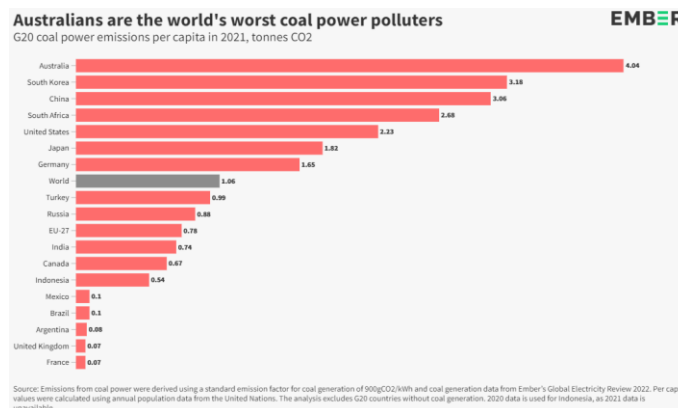
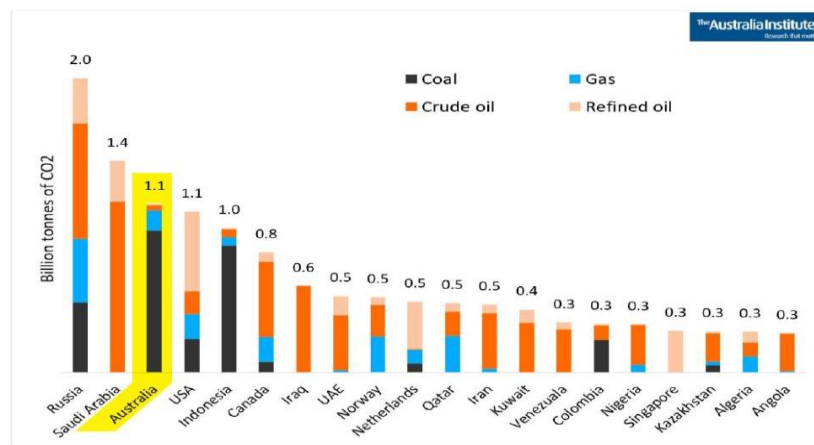


Figure 1

Australia’s Fossil Fuel Exports

Australia was the third biggest fossil fuel exporter in terms of emissions, exporting over 1 billion tonnes of CO₂ annually as shown in Figure 2.²³ As significant quantities of fossil fuels are exported out of the country and used elsewhere, Australia’s scope 2 and 3 emissions are much greater than its scope 1 emissions, and exported fossil fuel CO₂ (potential) emissions are more than double domestic emissions.²⁴ Coal comprises the bulk of these emissions; Australia is the world’s second largest coal exporter, accounting for just over 27% of traded coal globally in 2019 with domestic and exported coal contributing approximately 3.5% to global emissions from fossil fuels.²⁵ ²⁶ Australia is also the largest liquified natural gas exporter in the world, with trading volumes reaching over 80 million tonnes in 2021.²⁷ Although Australia is not directly responsible for these emissions, they are still important to consider as the economy transitions to net zero and adds to the complexity of climate change mitigation in Australia.

Figure: World’s biggest fossil fuel exporters, CO₂ Gt potential of exports



Source: IEA (2018) *World Energy Balances*; IPCC (2006) *IPCC Guidelines*, as described in text; Commonwealth of Australia (2019) *Quarterly Update of Australia’s National Greenhouse Gas Inventory for September 2018*

Figure 2

Looking to the Future: Australia’s Net Zero Plan

To respond to growing climate change concerns, the Australian government pledged net-zero emissions by 2050 in October of 2021. It introduced a long-term decarbonization plan which showcases how the country will achieve 85% of the emissions reduction necessary to reach net zero, recognizing the role future technological breakthroughs will play in closing the remaining 15% abatement gap.²⁸ The slogan “technology not taxes” sums up the plan nicely.²⁹ By choosing to not limit fossil fuel production in the foreseeable future and instead concentrating on technology, the government believes it can cut its emissions while continuing to support existing industries and the Australian people.

Technology to Guide Australia’s Transition

As a part of its technology-driven net zero plan, the Australian government intends to primarily focus on reducing costs and increasing adoption of six key low emissions technologies: clean hydrogen, ultra-low-cost solar, energy storage for firming, low emissions steel and aluminium, carbon capture and storage, and soil carbon.³⁰ Development and implementation of these technologies will result in roughly half of the abatement needed for Australia to reach net-zero emissions by 2050, according to the government’s projections shown in Figure 3.³¹ The other half of emissions reductions are poised to materialize through carbon offsets as well as further “technological trends and breakthroughs” over the next three decades.

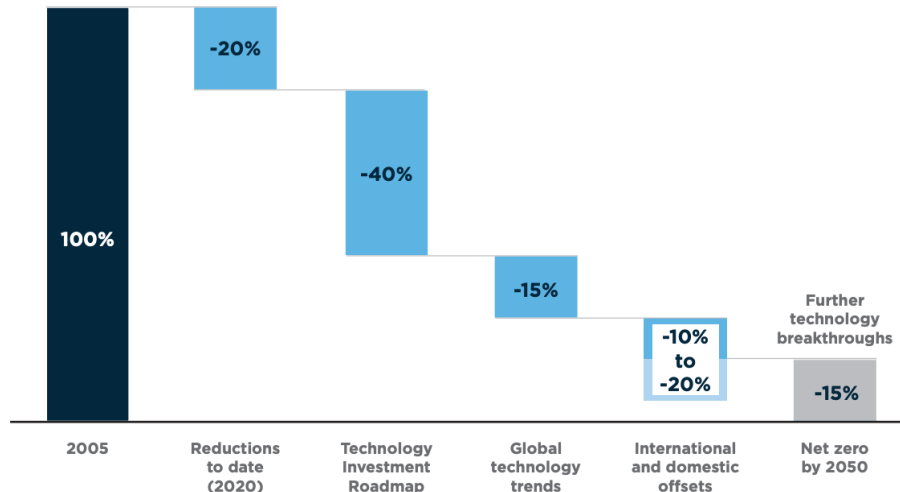


Figure 3

The government intends to invest A\$20 billion into these six key low emissions technologies by 2030, with an additional A\$60 billion expected from the private sector.³² Most of these funds will flow into research and development initiatives, given that these technologies are still in their infancy in terms of scalability and usefulness. It is important to note that two of the six technologies focus solely on capturing and storing carbon. The government finds carbon capture particularly important as it can allow for the continuation of traditional fossil-fuel industries.³³ Furthermore, while the government is also investing in some breakthrough technologies such as low emissions cement and livestock feed supplements, it is not their primary focus as there is considerable uncertainty associated with these emerging technologies.³⁴

The Debate Surrounding Australia’s Net Zero Plan

Since the release of the net zero plan in late 2021, there has been considerable debate regarding how Australia should decarbonize its economy. Some stakeholders are hesitant about the plan’s heavy reliance on future technological change, especially since nearly all the technologies that the government has targeted are still in an early development phase and have not proven to be able to meaningfully reduce emissions. Slower-than-expected innovation, weak global uptake, or unaffordability of greener technologies, which are all out of the government’s direct control, can threaten Australia’s ability to adequately decrease its emissions and result in a failure to become net zero by 2050.³⁵ The lack of a detailed, year-by-year decarbonization strategy in the plan has also sparked concerns as Australia may be forced to drastically cut emissions in the future to reach its 2050 net zero target, which can have significant effects on Australian society and the economy. Furthermore, some stakeholders believe that the government should change its stance against putting a price on pollution through carbon taxes, as it will be challenging to reach net zero if there are little-to-no financial incentives for businesses to reduce their emissions.³⁶

In addition, there are five other key trade-offs that have fueled the broader climate debate in Australia:

Reducing Emissions While Preserving the “Australian Way of Life” in Regional Communities.

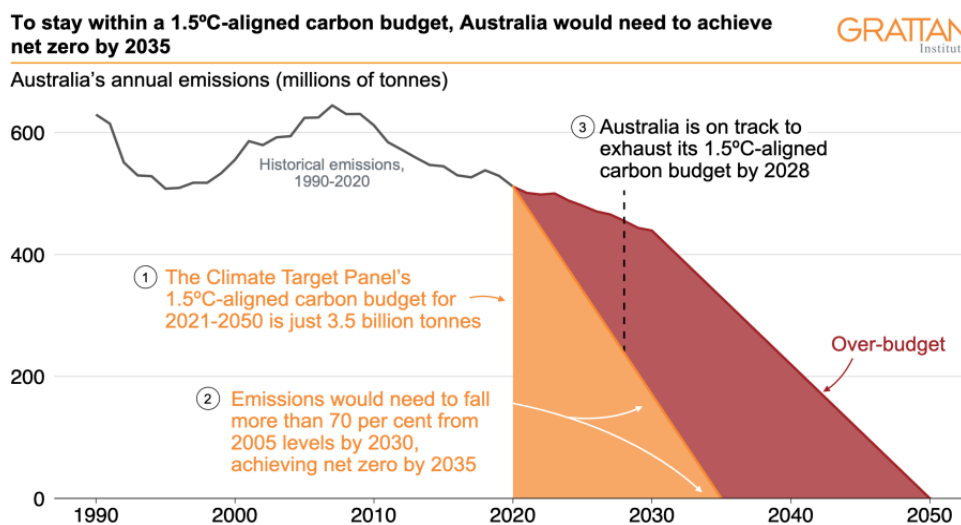
Approximately 28% of Australians live outside large metropolitan areas in what is considered as regional Australia.³⁷ Two thirds of Australia’s export earnings, which include carbon-intensive products such as coal and ore, come directly from these areas, demonstrating the importance of the fossil fuel industry in sustaining some of these regional communities.³⁸ Former Prime Minister Scott Morrison has responded by committing to support regional Australia by increasing investments in fossil fuel projects and ensuring that the “burden of taking action on climate change” does not fall unfairly on regional Australians.^{39 40}

Reducing Emissions While Maintaining Economic Growth. A key challenge Australia faces lies in ensuring the transition towards net zero does not stutter the country’s economic growth. As the second largest exporter of coal in the world and approximately 10% of its GDP derived from mining, fossil fuels play a key role in Australia’s economy.^{41 42} While Australia’s economy has become increasingly diversified, suddenly limiting fossil fuel production would have a significant impact on the country’s well-being.

Balancing Growing Global Demand for Fossil Fuels with Short-Term Emissions Reductions. Global demand for fossil fuels such as oil and natural gas is strong and is expected to grow in the coming years, with some estimating that oil demand will peak in 2029 and natural gas demand in 2035.^{43 44 45} Made even more clear by recent events and the resulting surge in oil demand, an important question arises: who will provide the supply to match global fossil fuel demand if Australia reduces its production of these resources? If efforts are not undertaken to reduce global demand for fossil fuels, it becomes challenging for Australia to shut down these carbon-intensive industries and reach net zero.

Reducing Australia’s Heavy Reliance on Fossil Fuels for Electricity. While renewable energy sources have grown quite rapidly over the past decade in Australia, the country is still very much dependent on fossil fuels, including coal and oil, for its electricity needs.⁴⁶ It will be extremely difficult to become net zero by 2050 if Australia’s energy grid is not sufficiently transformed to include more renewable sources. Doing so is possible, given the potential Australia has for renewable power (abundant sunshine, wind, etc.),⁴⁷ but will require significant investment and will result in considerably less production of fossil fuels in Australia, which may not be in the government’s interest due to the reasons mentioned above.

Net Zero’s Misalignment with Other Climate Goals. World leaders have stressed the importance of limiting global temperature increases to 1.5°C to avoid catastrophic effects on our ecosystems and communities.⁴⁸ However, it is possible for Australia to achieve net zero by 2050 while still substantially exceeding its 1.5°C-aligned carbon budget, as shown in Figure 4.⁴⁹ Focusing solely on a long-term net zero goal could result in a failure to stay within other, arguably more important climate targets, such as the concept of carbon budgets.



Source: Grattan analysis of Australia's emissions projections 2021 (DISER, 2021) and Australia's Paris Agreement pathways (Climate Target Panel, 2021).

Figure 4

Net Zero Pledges Around the World

Australia's commitment to become net zero by 2050 is not uncommon. Many other governments, corporations, and institutional investors from around the world have announced similar net zero pledges to combat the increasingly urgent threat of climate change. While these pledges are often similar in nature on the surface, there are significant differences in the path that these governments and organizations are planning to take to achieve their net zero commitments.

Governments Moving to Net Zero

As of mid-2022, 137 countries have developed some form of net zero goal, whether that be through a proposal, a pledge, a policy document, or law. These countries are currently responsible for approximately 83% of global greenhouse gas emissions and make up just over 90% of global GDP.⁵⁰ The majority of these pledges specify net zero target dates ranging from 2040 to 2060, with most countries committing to net zero by 2050 like Australia has.⁵¹ China and India have set net zero targets for 2060 and 2070 respectively, demonstrating the challenges associated with the net zero transition especially for large, fossil fuel-reliant countries.⁵² With most countries already pledging to net zero, the focus is now on the integrity of these commitments, especially since 99 of these 137 pledges are not officially enshrined in law or a formal policy document.⁵³

How these governments plan to reach net zero varies quite dramatically across geographies. Whereas Australia has outlined a technology-driven strategy with little focus on taxation to achieve its 2050 net zero goal, other countries such as Canada intend to use increasing carbon taxes to cut emissions and work towards net zero.⁵⁴ There is also considerable variability in what GHG emissions are covered under these commitments. Unlike Australia, which has pledged to reach net zero for all greenhouse gases, other countries such as China only specify CO₂ in their pledges.⁵⁵ Although carbon dioxide is the most prominent of greenhouse gas emissions, other GHGs also play an important role in climate change. For example, methane emissions from human activities have accounted for approximately 30% of global warming since the industrial revolution.⁵⁶ These key differences across country-level pledges worldwide could have significant implications in the success of these commitments in mitigating climate change.

Net Zero Pledges in the Pension Fund Space

Like governments, many major pension funds have recently announced net zero commitments. In Australia, 3 in 4 of the twenty largest superannuation funds have made a net zero pledge, with many of these funds committing to net zero within the past two years.⁵⁷ In a late 2020 survey of over 500 pension funds from around the world, approximately 40% of funds in Asia and Europe and 17% in North America had committed to net-zero emissions by 2050.⁵⁸ Most net zero commitments made by pension funds are long term in nature, with an explicit goal to achieve net-zero portfolio emissions by a future date. According to the recently created Net Zero Investment Framework, which was developed by 70 global investors holding over US\$16 trillion in assets, an appropriate net zero strategy should focus on two key objectives: 1) decarbonize the investment portfolio by 2050, and 2) increase investments in climate solutions.⁵⁹ These two overarching goals form the foundation of most pension funds' net zero pledges. However, since these objectives can be interpreted broadly and are long-term oriented, net zero commitments amongst pension funds are increasingly viewed as being too vague, with many pension members concerned that their investments are not truly working to prevent the worst of climate change.⁶⁰

Heterogeneity in Net Zero Pension Fund Pledges

At a broad level, there are several commonalities across net zero pledges made by pension funds. Almost all commitments involve setting a target date for achieving net-zero emissions, with a proposal of climate solutions to accompany the main pledge. However, when looking more closely at the details of these pledges, it becomes clear that there is no such thing as a 'common' net zero pledge in the pension fund space.

First, the net zero target date varies significantly across different funds. While 2050 appears to be the status quo, several major pension funds such as the New York State Retirement Fund (US\$272.1B AUM) and Sweden's AP4 (US\$58.3B AUM) have committed to achieving net-zero emissions much earlier, setting a target date of 2040.^{61 62} Some funds are even more ambitious. BTPS (£57B AUM), UK's largest company pension scheme, has set a 2035 target date for its portfolio to become net zero.⁶³ A 10- or 15-year closer target date makes a substantial difference when it comes to the net zero strategy's impact on the fund's operations as well as the environment. In addition to differences in target dates, net zero pledges also vary in terms of the investment portfolios that are included in the commitment. Most funds make net zero pledges that cover the entire investment portfolio, but some choose to only include certain types of asset classes in the pledge, for example equities but not fixed income. Moreover, the metric used to calculate net zero is not the same across funds; most funds commit to net zero for only scope 1 and 2 emissions, while some pledge to be net zero across all scopes (1, 2, and 3). Since scope 3 emissions are usually much greater than scope 1 and 2 emissions given that they include emissions from a company's entire value chain, the chosen net zero metric can have significantly different implications on both the fund and the environment.⁶⁴

Even within the same geographies, differences amongst pension funds' specific net zero strategies can be drastic. For example, while CPP Investments, Canada's largest pension fund manager, has chosen to pursue an active investment approach and avoid blanket divestment from fossil fuels to reach net zero, CDPQ, Canada's second largest fund manager, has made a commitment to divest from all oil investments by the end of 2022 as a part of its decarbonization strategy. Although both these funds have made similar commitments (net-zero portfolio GHG emissions by 2050), the way in which they plan to achieve this goal relies on the use of essentially opposite decarbonization levers.

Furthermore, while all funds with a net zero strategy make a long-term pledge, some funds include shorter-term milestones in their commitments. For example, not only did the Australian State Super fund recently announce a 2050 net zero GHG pledge, but it also committed to a 45% reduction in CO₂e emissions by 2030.⁶⁵ Since they are more difficult to achieve, short-term goals vary significantly across funds and are not always included in a fund's net zero strategy.

Although some funds have been able to curb their portfolio emissions over the past few years (for example, Australian Super achieved a 44% reduction in carbon intensity from 2013 to 2019), others have struggled to bring down emissions, especially amongst funds engaged in the active ownership of fossil fuels as a part of their net zero strategy.⁶⁶ In a recent survey of 50 large pension funds around the world, 60% of executives believed that their own net zero goals will not be met under current conditions.⁶⁷ This doubt amongst pension fund managers only adds to the uncertainty surrounding the net zero movement and demonstrates the need for a more transparent and comprehensive climate solution.

Trade-Offs in the Net Zero Transition at the Fund Level

SuperEasy must design a net zero pledge in the very near future, but given the many complex trade-offs associated with such a commitment, it will be difficult to determine what strategy is right for the fund. The five main elements of a net zero pledge, 1) the metric to gauge net-zero emissions, 2) the scope of emissions, 3) the time frame of the commitment, 4) the climate mitigation strategies, and 5) the treatment of GHG emissions, can all be approached from several different angles depending on the specific pressures and considerations that will affect SuperEasy in the coming years. Below are some of the key questions and trade-offs that are pertinent to consider when building a net zero strategy for SuperEasy.

Should the fund sacrifice diversification for decarbonization?

In the transition towards a low-carbon economy, pension funds will drastically increase investments in sectors leading the movement towards net-zero emissions. Climate-resilient sectors with low carbon intensity such as the financial, healthcare, and information technology sectors will likely see an influx of capital as institutional investors target these sectors to meet their pledges.⁶⁸ Further, many pension funds will prioritize investments in green assets, such as clean energy technologies, over conventional carbon intensive industries such as oil and gas. Tilting the investment portfolio to favour low-emission industries may prove beneficial from a climate perspective, as SuperEasy is able to reduce portfolio emissions relatively easily. However, by significantly increasing low-emission sectoral exposures, the fund loses important diversification benefits. A trade-off therefore emerges between diversification and climate action.

Should the fund give up future expected returns to meet its climate change goals?

Due to the massive amounts of capital recently invested in these sectors and companies, it is possible that climate-related investments are becoming highly valued. Lofty valuations of ESG funds as shown in Figure 5 are in turn creating worries that these equities will yield lower returns in the future.⁶⁹ Investing in these arguably overvalued assets could mean that SuperEasy sacrifices future risk-adjusted returns in favour of meeting its net zero goals through ESG investing.

ESG Indexes' Live-Track Price-to-Earnings Ratio Vs. Benchmark

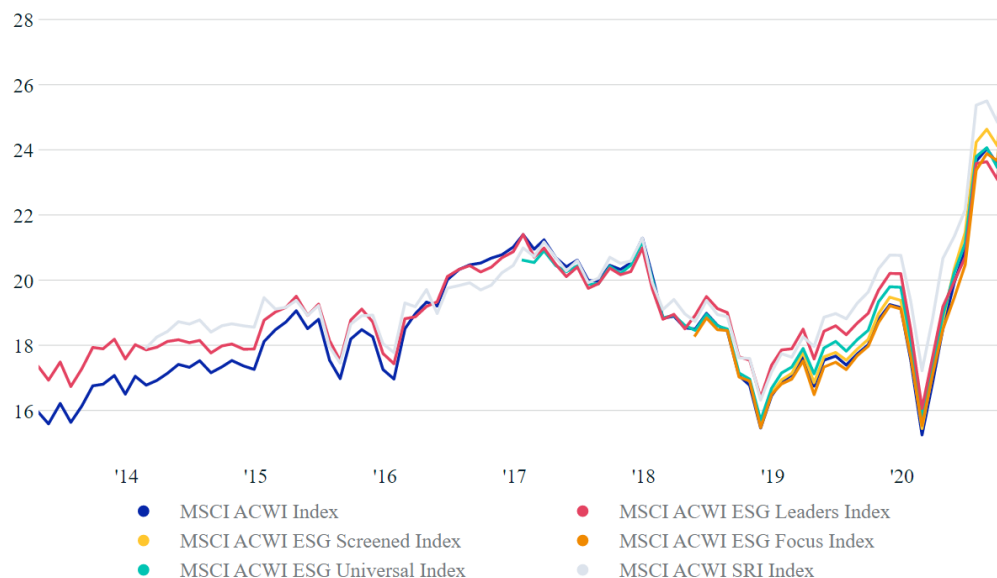


Figure 5 ⁷⁰

Should the fund divest from fossil fuels when Australia and the world is still heavily reliant on them?

The world is still very much dependent on fossil fuels for everything from energy generation to industrial processes to transportation, and this dependence is expected to continue for several years.⁷¹ Fossil fuels play an even more important role in Australia, where they are used to produce most of the country's electricity and help support the economy in various ways.⁷² Given that there is still growing demand for fossil fuels both in Australia and around the world, what will happen if pension funds and other institutional investors divest from these sectors en masse? One consequence is that ownership of these carbon-intensive companies will simply shift into the hands of less diligent investors, doing little to push these firms to reduce emissions and limit climate change.⁷³ Funds in Australia like SuperEasy are faced with an even more difficult situation to navigate since the government has chosen to increase investments in fossil fuel industries, making it increasingly challenging to go against the grain and avoid these sectors.⁷⁴

Should the fund overinvest in foreign stocks to achieve net zero?

The Australian government's commitment to net-zero emissions by 2050 will aid super funds in transitioning their own portfolios to net zero. However, if in the coming years Australia lags in taking meaningful action to reduce emissions or fails to achieve its net zero goals, pension funds may need to decrease their holdings in the local market and search internationally for more ESG-friendly investments. This shift away from the Australian market would mean that much of the money contributed to SuperEasy by Australians is not invested in the Australian economy, potentially leading to conflict between stakeholders and resulting in slower domestic economic growth.

How should the fund navigate asymmetries in data availability between different asset classes?

Moving towards net zero will require SuperEasy to redesign its portfolio and strategically adjust asset allocations towards more sustainable investments. However, it is still very difficult to accurately source ESG information. Reporting frameworks are inconsistent across data providers and emissions data provided by companies is sparse and sometimes inaccurate.⁷⁵ ⁷⁶ Moreover, there is a clear imbalance between ESG and climate information availability between different asset classes. For example, whereas public equities have the most widely available ESG information, emissions from fixed income securities such as foreign bonds are much more challenging to correctly measure.⁷⁷ This section will go into more detail regarding the challenges of accessing climate data for different types of securities.

Stocks: ESG information is relatively accessible for public equities; over 71% of S&P 500 companies report GHG emissions, and just over half disclose climate risks in their annual reports.⁷⁸ Additionally, 88% of public companies by market cap report on Scope 1 and 2 emissions.⁷⁹ These numbers are only expected to grow as public companies face increasing pressure from investors and regulators alike to provide detailed ESG and climate data on a timely basis.⁸⁰ As a result, SuperEasy can take relative comfort in knowing that it is able to manage the carbon intensity of its public equity investments and make appropriate adjustments. It also implies that, due to their detailed emissions information, public equities may become a preferred asset class to invest in by pension funds that try to reach net zero. However, similar to the reasons mentioned above, the resulting overinvestment in stocks may lead to more risk for the fund and harm returns.

Corporate bonds: Although corporate bonds aren't exactly traded the same way as stocks, they are still bound by similar regulatory requirements if they are publicly offered.⁸¹ This combined with the fact that the majority of corporate bonds issuers are also publicly traded companies means that ESG data for these securities is more-or-less comparable to that of stocks.⁸² One point to consider, however, is that high carbon-intensive firms such as energy companies tend to dominate the corporate bond space since

they put up significant collateral and have intensive capital needs.⁸³ As a result, pension funds that use bond indices for performance evaluation may face the issue that carbon-intensive firms weigh heavily in these indices, making reducing the fund's emissions all the more challenging for portfolio managers.

Private equity: Unlike public equity, the private equity space is much more challenging to navigate from a climate perspective. Less than 1% of private companies by global private market capitalization report environmental data, compared to 64% of public companies by market cap.⁸⁴ Although 49% of private companies report Scope 1 and 2 emissions, there is still a clear discrepancy in the availability of climate data between public and private equity investments. Australia does require all companies, public or private, to report emissions data, but only if they exceed a certain threshold of GHG emissions (50 kt) or energy usage (200 TJ).⁸⁵ Since private companies are generally smaller in size compared to public companies and produce less emissions, many private firms are not required to report climate data under regulatory requirements. This lack of data makes aligning private equity portfolios with net zero commitments significantly challenging for pension funds such as SuperEasy and can ultimately lead to an underinvestment in this asset class, even if that means foregoing lucrative risk-adjusted returns.

Sovereign debt: Calculating a government's emissions is considerably more challenging than calculating a company's emissions. A number of questions arise: should emissions from the private sector and households be included, or only the public sector? Should scope 3 emissions that are produced internationally be counted? How can sovereign emissions be normalized so they can be compared across countries? These complications amongst others make it difficult to accurately source emissions data for public debt.⁸⁶ Moreover, depending on what definition is used, some sovereign wealth bonds may rank poorly in the environmental dimension if the country is reliant on carbon-intensive industries. For example, the Australian government's decision to support the fossil fuel industry through continued investment ultimately means that bonds issued by the federal government will have high associated emissions.

Asset Allocation of SuperEasy

All these questions and considerations are extremely relevant for SuperEasy since the fund prides itself in being a global investor that deploys capital into all of the asset classes mentioned above. Its largest holdings are public equities, accounting for roughly half of the investment portfolio, with a primary focus on International DM equities. Given the advanced internal capabilities that SuperEasy has developed over the past three decades, just under one-third of its portfolio is allocated to alternative investments.

A high-level asset allocation breakdown is as follows:

- Public Equities: 48%
 - International DM Equities: 22%
 - Australian Equities: 15%
 - International EM Equities: 11%
- Alternative Investments: 32%
 - Private Equity: 17%
 - Real Estate: 7%
 - Infrastructure: 8%
- Fixed Income: 17%
 - Australian Sovereign Bonds: 10%
 - International Sovereign Bonds: 7%
- Cash: 3%

Measuring a Net Zero Pledge

Defining the Scope

Before deciding the metric to use to determine portfolio emissions, an institutional investor must first define the scope of emissions. Scope 1 emissions, which are direct GHG emissions from a company’s operations, are always included in emissions calculations. However, there is more ambiguity when it comes to indirect emissions (scopes 2 and 3). Since scope 3 emissions include emissions from all upstream and downstream activities in the company’s value chain, it is prone to double counting. As a result, there is heterogeneity in what scopes are considered relevant by institutional investors. That being said, many asset managers consider scope 1 and 2 emissions as they provide a good picture of a company’s attributable emissions.^{87 88}

Choosing the Right Metric

It is not always easy to accurately measure greenhouse gas emissions at the fund level, especially for a portfolio comprised of several asset classes and positions. Because of this complexity, there are many different metrics institutional investors can choose from in order to quantify the environmental impact of their portfolio. Two common carbon accounting metrics that are used to determine portfolio emissions are total financed emissions and carbon footprint, both of which focus on the investor’s ‘ownership’ of emissions.

Total financed emissions: This metric is used to measure the total emissions that can be attributed to a portfolio. It is additive and can be easily decomposed for sub-portfolio analyses. However, it cannot be compared across different portfolios or funds at face value since it is an absolute metric. Total financed emissions also fluctuate depending on the enterprise value of individual companies invested in the portfolio and are vulnerable to double counting. Despite these drawbacks, this metric can help funds set emissions baselines and track overall portfolio emissions through the years. It is measured in tonnes of carbon dioxide equivalent (CO₂e), which combines the impact of all greenhouse gases in one metric.⁸⁹

$$\text{Total financed emissions (tonnes CO}_2\text{e)} = \sum_{a=1}^N \left[\text{Emissions}_a \times \frac{\text{Investment}_a}{\text{EVIC}_a} \right]$$

where:

Emissions_a are the in-scope greenhouse gas emissions of company *a* in tonnes CO₂e

Investment_a is the total amount invested in company *a*

EVIC_a is the enterprise value including cash of company *a*

To illustrate this metric through an example, take a hypothetical pension fund with an investment portfolio comprising of two companies, Company A and Company B. Company A’s primary business is coal mining and therefore has large scope 1 and 2 emissions at 25 Mt CO₂e (25,000,000 tonnes) in the current year. Company B focuses on software development and has much lower scope 1 and 2 emissions at 50,000 tonnes CO₂e. The enterprise value including cash is A\$50 billion for Company A and A\$10 billion for Company B, and the pension fund has A\$1 billion invested in Company A and A\$0.5 billion in Company B. Total financed emissions for the pension fund’s investment portfolio in the current year are:

$$\text{Total financed emissions} = \left[25,000,000 \times \frac{1,000,000,000}{50,000,000,000} \right] + \left[50,000 \times \frac{500,000,000}{10,000,000,000} \right]$$

$$\text{Total financed emissions} = 525,000 \text{ tonnes CO}_2\text{e}$$

Carbon footprint: Going one step further, the carbon footprint metric takes total financed emissions and normalizes it by the total value invested in the portfolio. The resulting metric is tonnes of carbon dioxide equivalent per million dollars invested. This allows for a comparison across different sized portfolios and funds. Carbon footprint is still affected by the impact of enterprise value and can also be decomposed and attributed to sub-portfolios and investments.⁹⁰ While enterprise value is used in the example below, some pension funds use market capitalization instead in their carbon footprint calculations.⁹¹

$$\text{Carbon footprint (tonnes CO}_2\text{e}/\$million invested) = \frac{\text{total financed emissions (tonnes CO}_2\text{e)}}{\text{current portfolio value (\$M)}}$$

Revisiting the above example, given that the pension fund holds only Company A and Company B in its portfolio, its total AUM is A\$1.5 billion. Its carbon footprint is then calculated as:

$$\text{Carbon footprint} = \frac{525,000}{1,500M}$$

$$\text{Carbon footprint} = 350 \text{ tonnes CO}_2\text{e}/\$million invested$$

Apart from these two ownership-based metrics, total financed emissions and carbon footprint, efficiency-based metrics are also used amongst asset managers to provide more detail on environmental impact. A commonly used emissions metric is carbon intensity, which focuses on how much emissions a company itself produces based on the amount of revenue generated or products sold. Carbon intensity metrics use \$millions of sales or units of production as the denominator to normalize emissions. This metric can also be decomposed, helping to determine the fund's exposure to carbon-intensive firms.⁹²

Where Pension Portfolio Emissions are at Today

Given that there are thousands of pension funds around the world all invested in a wide variety of asset classes and geographies, it is difficult to determine what the average carbon footprint is for pension funds. Yet it's clear that pension funds play a significant role in global emissions. For example, the UK pension industry was recently found to finance 330 million tonnes of carbon emissions every year, which is slightly more than the UK's entire annual CO₂ emissions.⁹³ Most funds have a carbon footprint that ranges anywhere between around 50 tCO₂e/\$m invested to 150 tCO₂e/\$m invested, with large fluctuations depending on the types of assets held in the portfolio, as shown by the examples in the footnotes.

SuperEasy's Portfolio Emissions

Given that SuperEasy has only recently begun focusing on climate initiatives, it has not yet calculated a carbon footprint metric for its entire investment portfolio. However, SuperEasy has been able to measure the carbon footprint (scopes 1 and 2) of its public equity portfolio at 136 tCO₂e/\$million invested, since data is more readily available for this type of asset class. Although carbon metrics have not yet been established for SuperEasy's other investments such as private equity, fixed income, and real assets, they are likely to be in line with other Australian and global pension funds of similar size.

Sunsuper (Australia, A\$90B AUM): 92 tCO₂e/\$m invested as of June 30, 2021 for its equity portfolio ⁹³

AustralianSuper (Australia, A\$233B AUM): 151.43 tCO₂e/\$m invested for its Australian equities portfolio, 54.61 tCO₂e/\$m invested for its International equities portfolio, 105.19 tCO₂e/\$m invested for its fixed interest portfolio as of September 30, 2020 ⁹⁴

Universities Superannuation Scheme: (United Kingdom, £82B AUM): 89.5 tCO₂e/£m invested for its entire portfolio as of December 31, 2021 ⁹⁵

Ontario Teachers' Pension Plan (Canada, C\$228B AUM): 59 tCO₂e/\$m invested for its entire portfolio as of December 31, 2020 ⁹⁶

Illustrative Decarbonization Path

With the many complex trade-offs and challenges involved in going net zero, how can SuperEasy ensure that it is able to effectively reduce its emissions while still abiding by its mandate to maximize risk-adjusted returns? The following section outlines two possible portfolio decarbonization paths that help to demonstrate some of the possible trade-offs and complexities of reaching net zero. The two illustrative paths show how different decarbonization strategies can have similar effects on the carbon intensity as well as the risk of a public equity portfolio as measured by standard deviation. For simplicity, these paths all assume a net zero target date of 2050 and focus on a fictional fund that is invested in the MSCI ACWI global equity index.

Construction of the Model

Parameters:

Metric: Weighted average carbon intensity measured in terms of tonnes of CO₂e/\$million sales (from the companies in each index) is used to measure sectoral GHG emissions. WACI is a measure of the overall carbon efficiency of each sector.

Sector emissions: The model uses emissions data from MSCI ACWI sectoral indices.⁹⁸ However, given the indices' very broad coverage, using this data can result in ignoring key subsectoral differences, especially in sectors like energy which comprise of both fossil fuel and green energy companies.

Scope: The weighted average carbon intensity figures include all scope 1, 2, and 3 emissions from companies' operations.

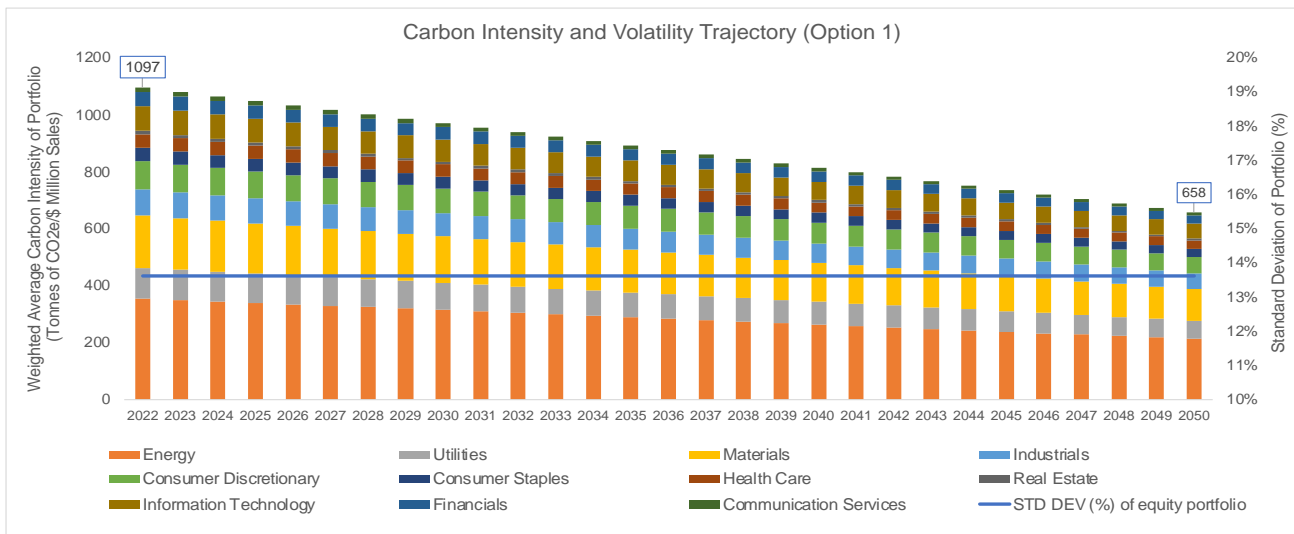
Standard deviation and covariances: Ten-year historical data taken from MSCI is used to determine sectoral standard deviations, and index return data from Bloomberg is used for sectoral covariances.

Market-capitalization weighted portfolio: The fictional fund's current public equity portfolio has the same sectoral weightings as the MSCI ACWI Index.⁹⁹

The Two Decarbonization Paths

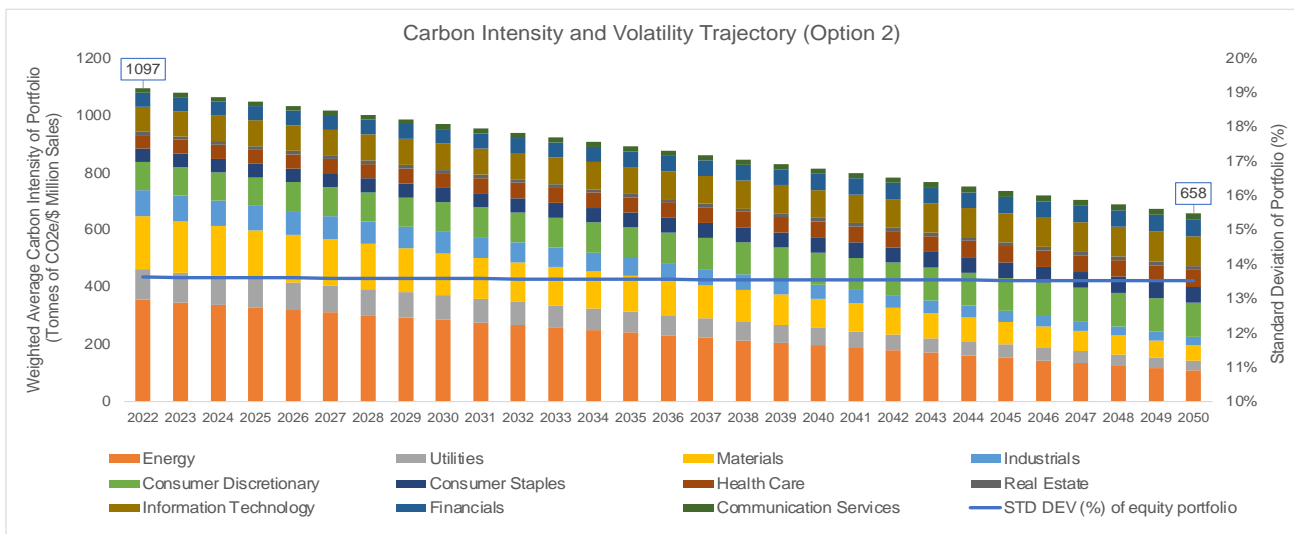
Option 1: Decarbonization by Companies Only

The first option involves no adjustment to the current, market cap-weighted sectoral allocation of the fund. Instead, it relies on individual companies held in the portfolio to decarbonize their own operations. Under this approach, the fund managers would act as active investors, choosing to invest in companies in all sectors that can adequately reduce their emissions as 2050 approaches. The fund's portfolio construction itself will not change; the same weighting will be kept over the years to 2050. Given the constraints and difficulties of this approach, a total decrease in carbon emissions of only 40% is applied across all industries. Although this strategy will not negatively impact the portfolio's volatility, as shown by the straight horizontal line, it will result in a failure to reach net zero by 2050 by a significant margin, unless companies are able to reduce their emissions more aggressively in the coming years.



Option 2: Shifting Portfolio Allocation Away from High-Polluting Sectors

The second option consists of gradually reducing exposure to the most carbon-intensive sectors (energy, utilities, materials, and industrials) by ~70% by 2050 and allocating more towards less carbon-intensive sectors. The fund managers will not take an active approach in ensuring firms reduce their emissions, but rather begin to divest from these high-polluting industries. In this way, the fund can still achieve a 40% reduction in portfolio emissions by 2050. However, as in option 1, this strategy falls short of the net zero target. Further, while this shift results in a 10 basis point reduction in risk as measured by standard deviation by 2050, the portfolio loses potential diversification benefits provided by these four sectors.



These paths depict how the use of two very different levers leads to the same reduction in emissions without materially affecting the risk of the portfolio. However, net zero is more than a 40% cut in emissions; additional tactics will need to be utilized in order for the fund to close the remaining abatement gap.

It is important to note that these paths are purely for illustrative purposes and that there are other, potentially more advantageous strategies that can be used to reduce portfolio emissions. Amelia S. Thompson is looking to receive your team’s unique set of recommendations on SuperEasy’s net zero pledge and accompanying decarbonization strategy.

Report Guidelines

For their proposals, participants should submit a 1-page executive summary and a detailed report. The report should not exceed 7 pages (excluding the executive summary, references, and appendices). There are no required fonts nor text formatting, but the report will be evaluated based on its clarity, presentation, and conciseness.

The submission should not contain any indication of the participants' university to avoid any bias from the judges. Instead, participants should create an alternative team name for their investment consultancy firm working with SuperEasy. The alternative name should also bear no link to the team's university name nor location, to ensure fairness amongst participants of the competition.

Participants are expected to propose a comprehensive net zero strategy for SuperEasy that not only defines the pledge, the scope, the portfolio affected, the metric, and the date, but also just as importantly outlines a plan for how the portfolio will reach net-zero emissions. They are free to pursue their net zero proposal in any direction, as long as it is realistic and feasible for SuperEasy to implement.

The case is designed to be open-ended. Participants should feel free to make assumptions wherever needed and use any data they see fit. All facts presented in the case merely act as guiding points, so participants are free to incorporate only the sections that they need.

We strongly recommend that participants take a look at the 1) pedagogical notes about past winning proposals available on the MIPC website, and 2) the post-mortem documents from previous MIPC editions. These documents will give participants many clues as to what judges look for in winning proposals.

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