



**OREGON
STATE
TREASURY**

Oregon Investment Council

February 6, 2024

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Agenda

February 6, 2024
9:00 AM

<u>Time</u>	<u>Tab</u>		<u>Presenter</u>
9:00 – 9:30	1	Treasurer Read Net Zero Plan	Treasurer Tobias Read <i>Oregon State Treasury</i>
9:30 – 10:00	2	Data & Process	Shally Venugopal <i>Partner & Vivid Economics NA Leader McKinsey & Company</i> Ryan Barrett <i>Engagement Manager - Sustainability McKinsey & Company</i> Treasurer Tobias Read <i>Oregon State Treasury</i>
10:00	3	Open Discussion	OIC, Staff, Consultants
10:00	4	Public Comments (Please keep comments limited to 3 minutes.)	

Cara Samples
Chair

Lorraine Arvin
Vice-Chair

Pia Wilson-Body
Member

Alline Akintore Kabbatende
Member

Tobias Read
State Treasurer

Kevin Olineck
PERS Director



OREGON
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TAB 1
TREASURER READ
NET ZERO PLAN



OREGON
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A Pathway To Net Zero:

Positioning The Oregon Public Employees
Retirement Fund For A Net Zero Carbon Future

February 2024

PREPARED BY THE OFFICE OF STATE TREASURER TOBIAS READ

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Introduction From Treasurer Tobias Read

Oregon State Treasury's investment commitment is narrow in scope but large in responsibility: it's our job to achieve strong, consistent, and sustainable risk-adjusted returns to support secure retirements for Oregon's public employees – whether they have already retired, are years into their service, or have just started their careers.

We know that in the future, that job will get harder as the effects of climate change become greater and more unpredictable. The impacts of a changing climate pose risks to supply chains, threaten property and transportation infrastructure, force insurance companies to pull out of entire geographic areas, and disrupt commodity markets.

Here in Oregon, the impacts aren't hypothetical—we've seen these challenges firsthand. More intense forest fires threaten rural communities and disrupt some of Oregon's most iconic summer festivals and outdoor recreational opportunities. Smoke from these fires threatens our workforce and school children. Severe droughts constrain our important agricultural and nursery industries and imperil our salmon runs. And businesses have been forced to spend millions to mitigate the most pressing effects rather than investing in future innovation and opportunities.

So, it's not a question of if climate change will affect our investments, but when, and how. That's why, just over a year ago, I announced my intention to develop a plan to move the Oregon Public Employees Retirement Fund (OPERF) toward a net zero carbon emission portfolio. I'm presenting it to the Oregon Investment Council so that together we can chart a course to reduce the amount of emissions associated with our investments, track our progress over time, and strengthen our investment returns.

While I'm the first to admit there are still many unknowns in the strategies presented in this report, I have the confidence to move the plan forward for two reasons. One, it's our job. Treasury stewards around \$100 billion in OPERF; we have to think and act for the long run on behalf of hundreds of thousands of beneficiaries, putting their financial interests first. With the effects of climate change already showing up in our economy, the decisions we make now will have deep meaning and importance decades down the line for beneficiaries and Oregonians alike.

The other reason for my optimism is the talent at Treasury. This is a team that is keenly focused on their responsibilities to Oregonians. We've added to and diversified that talent while I've been Treasurer, with professionals who never lose sight of their responsibility to manage other people's money in the most productive way possible, as is required by law. The fact that this team is so dedicated and so skilled is critical to implementing this plan—it won't be easy work, but I'm confident they are the team who can do it.

Those two factors were key to taking on this ambitious and difficult project to reduce this risk from climate change by significantly and strategically reducing greenhouse gas emissions in our investment portfolio. Moving forward on what's included in this plan will require a lot, and there will be tradeoffs for sure. But the cost of doing nothing is even higher. And while we've already taken some meaningful steps within our portfolio, such as more than doubling the amount we have invested in renewable energy while I've been Treasurer, we must increase the pace and urgency of reducing our exposure to fossil fuels.



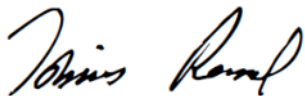
As you read this report, there are a few things to remember at the outset:

- We're fiduciaries first. This means that we're required to make decisions in the best financial interests and for the sole benefit of all current and future retirees. This plan is structured to allow us to maintain and protect our ability to generate strong and sustainable investment returns.
- Financial decisions must drive our decision-making. I believe climate change will have an economic impact on the fund, and, in some cases, I believe we're overexposed to investment risks from climate change. The changes I propose here reflect that.
- With risk comes opportunity. Treasury's team works hard to understand the facets of potential investments and uses that information to make decisions about opportunities and generate sustainable returns.
- Progress will not happen overnight. Timing is everything in investing. It does us no good to be so far ahead of the market that our performance lags. Our plan is ambitious, but progress may not be linear.
- A comprehensive transition to a lower-emissions economy needs action at the state, federal, and international level. True decarbonization will happen through policy, and government action at all levels is essential to avoid the worst impacts of climate change, including those on frontline communities and workers.
- We've been working for years to better understand risk to our investments from climate change. This is just the latest step to help us make decisions that support long-term sustainability of the fund and its ability to deliver returns to beneficiaries.

As I present these recommendations to the Oregon Investment Council (OIC), I believe it's my responsibility to move this effort forward, use this next year productively, and provide a solid blueprint for my successor. The next treasurer and future council members will no doubt adjust this approach as they learn new information, and as policies evolve and new technologies come to market. That's how it should be. By the end of 2024, I'll have been in the job for eight years – which seems like a long time until you remember that at Treasury, our timelines are much longer, and our responsibilities to beneficiaries are forever.

That's why I'll look to the Council for guidance and oversight, but where we can act now, we will – starting with getting to a 60% reduction in emissions by 2035. It's aspirational, it's daunting, and it's the right direction given the stakes.

Thank you for reading,



Tobias Read
Oregon State Treasurer

Section 1: A Call For Decarbonization & Plan Development

Treasurer Read's Call For Decarbonizing OPERF

Climate change is already affecting Oregonians' lives and communities. But the impacts of warming trends and climate disruption extend well beyond our state borders, posing significant risks to people, environments, economies, and governments around the world.

At Oregon State Treasury, we are well aware of how a changing climate presents risks and opportunities to Oregon's globally diversified investment portfolios, especially the Oregon Public Employees Retirement Fund (OPERF). The physical effects, the required energy transitions from fossil fuels to clean energy and renewables, and the necessary mitigation and adaptation strategies associated with or influenced by climate change will affect our investments in a variety of ways, in both the immediate future and in the long term.

To mitigate the risks of climate change on Treasury-managed investments, on November 16, 2022, Treasurer Tobias Read pledged to present the Oregon Investment Council with a plan to move OPERF toward net zero greenhouse gas emissions by 2050.

The Net Zero Plan, outlined in the following pages, recommends various actions and levers to achieve the 2050 goal along with strategies for reaching an interim emissions intensity reduction goal of 60% by 2035.

You will read in this report more than once that government action at all levels is essential to avoid the worst impacts of climate change, including negative effects on frontline communities and workers. According to the latest science-based assessment from the International Panel on Climate Change (IPCC), globally we need to keep the average temperature increase to 1.5 degrees Celsius above pre-industrial levels, and to achieve that, we need to reach net zero carbon emissions by 2050. According to the United Nations Framework Convention on Climate Change, current climate action is inadequate to meet the temperature and adaptation goals of the Paris Agreement. While global average temperatures already exceed 1.1°C above pre-industrial levels, current plans reflected in participating nations' pledges are putting us on a path toward a temperature rise of 2.4°C–2.6°C by the end of the century. Clearly a lot more must be done, from policymaking at the international, national, and local levels, to the introduction, development, and adoption of new technologies.

Oregon has been a leading state in responding to climate change. It adopted one of the nation's first greenhouse gas reduction goals in 2007, seeking to reduce GHG emissions by 75% from a 1990 baseline by 2050. State government has also adopted measures to require 100% non-fossil fuel emitting electricity by 2040, electrify the transportation sector by setting ambitious goals for electric vehicle adoption and carbon content fuel reduction, and reduce onsite energy usage in new buildings. Recently, Oregon's Department of Environmental Quality has been pursuing a program to require natural gas suppliers to reduce their GHG emissions.

For Oregon State Treasury, these measures, in addition to actions taken at the federal level and in the private sector, are a necessary component of the kinds of information we seek to understand as we make decisions about how OPERF can continue performing for public sector beneficiaries both now and well into the future. Our fiduciary duty requires us to make investment decisions in the sole and best financial interest of beneficiaries of the Oregon Public Employees Retirement Fund. It is therefore imperative that we understand the implications of climate change for our investments and for the broader economy, and how governments, businesses, and communities are responding.

In order for any government, business, or investment fund to reach net zero goals, we will need dramatic changes to policy, improved technologies, and expanded incentives to support the transition. No one entity will get there on its own. Optimistically, as this report and plan are being finalized, more than 190 governments are meeting at COP28, a United Nations conference on climate change.

In December 2023, representatives from these governments approved an agreement to transition “away from fossil fuels in energy systems in a just, orderly and equitable manner.” The timeline for doing so as outlined in the agreement: net zero greenhouse gas emissions by 2050.

At Treasury, our goal is to make changes that put us on the path so that we’re better prepared for these changes in technology and policy, and responsive to changing economic and industrial drivers, so that we can continue generating outperformance for the beneficiaries we serve. We recognize the performance potential these changes may represent and will seek out excess returns based on understanding and assessing these risks and opportunities.

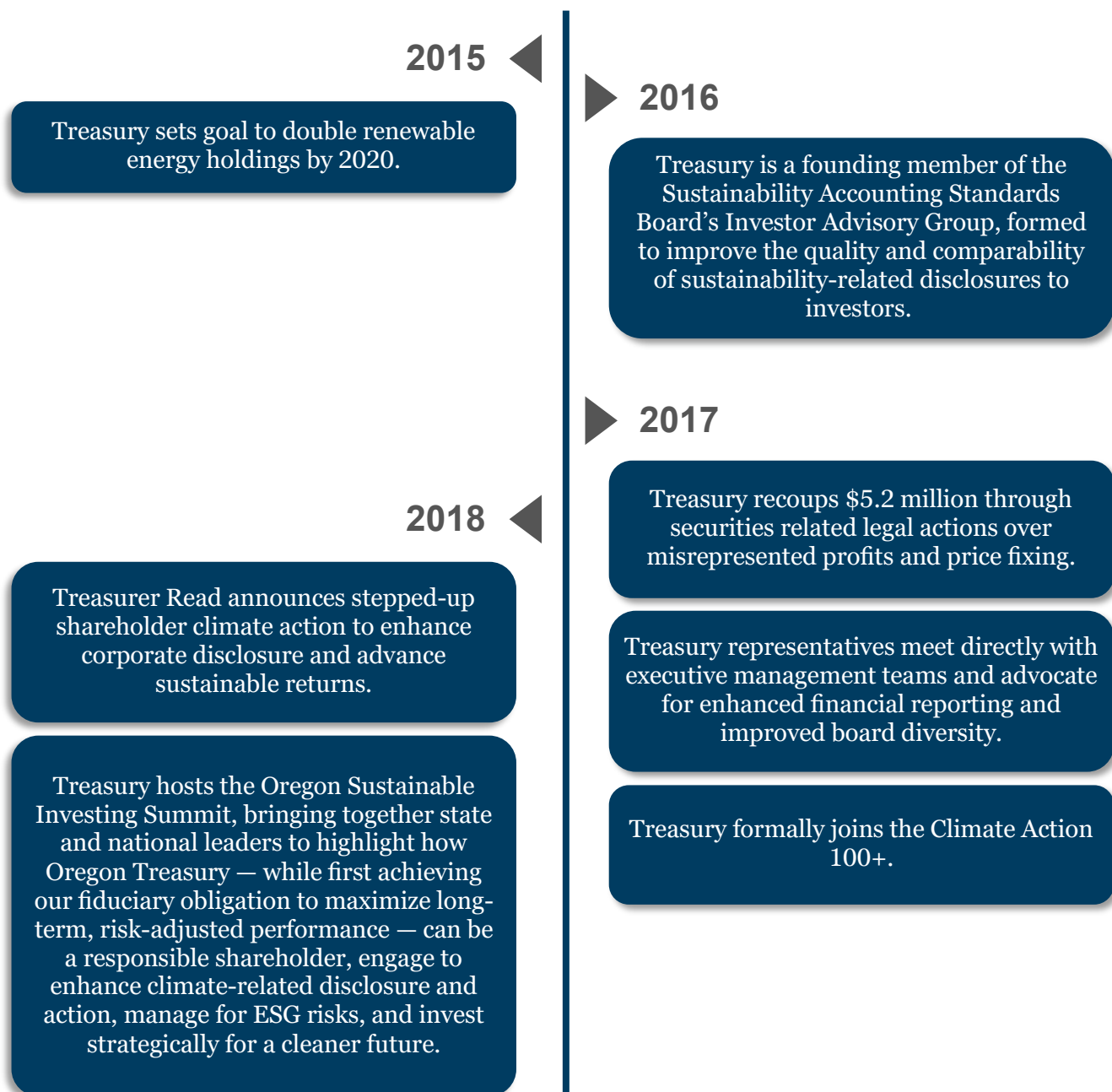
The recommendations in this plan are prudent and purposeful. They include:

- Interim and long-term goals for meeting our portfolio performance while adopting a framework that allows us to address climate risk and achieve net zero in OPERF by 2050
- Plans for enhanced engagement with investment partners, companies, and fund managers while avoiding simply shifting the responsibility to others
- A timeline to review the transition readiness of carbon intensive investments, prioritizing such industries as tar sands and thermal coal
- Enhanced due diligence and data collection while conducting investment manager selection, with an eye toward reducing exposure to the risks of climate change
- Increased Treasury capacity so we can implement the plan
- Extensive communication with beneficiaries on implementation and progress
- A commitment to review and develop investment policies necessary to implement the Net Zero Plan
- Enhanced reporting and accountability on our path to net zero

Above all, our priority is to support the long-term financial retirement obligations of the state to the beneficiaries of OPERF.

Summary Of Work-To-Date At Treasury

Treasury has been on a path to better understand climate risk and opportunity for a while, both through the public-facing efforts summarized below, and in the behind-the-scenes work our staff engages in daily while managing our investment portfolio. Developing a net zero plan is the next step on a continuum that includes better integrating environmental, social, and governance (ESG) factors into our investment manager due diligence process, and an explicit acknowledgement of ESG-related risks and opportunities in the Oregon Investment Council's investment beliefs. This evolution now culminates with the Net Zero Plan, first announced by Treasurer Read in 2022 and available in Appendix A, and now delivered here.



2018

Treasury's 2015 goal of doubling renewable energy holdings achieved 2 years early.

Treasury hires our first ESG investment officer responsible for assembling and analyzing ESG material data.

Treasury supports investor-led effort to improve transparency and standardize private equity reporting.

Treasury begins a comprehensive analysis of real-world climate threats to OPERF's real estate asset class.

2020

OIC formalizes role of ESG to Treasury's investment decisions by revising 'Investment Beliefs' policy.

Staff begins implementing plan to better integrate ESG factors into our investment decision-making processes. Across our investment asset classes, new ESG champions work collaboratively with each other, overseen by Treasury's Director of Private Markets, to discuss emerging strategies and investment opportunities.

Treasury completes evaluation of real estate holdings and the potential effects of climate change, including rising sea levels, fires, and disruptions to operations.

2019

OIC revises foundational 'Investment Beliefs' policy committing to advancing diversity among staff, managers, and contractors.

2021

Working with outside consultants, Treasury undergoes comprehensive study of portfolio using propriety models for climate analysis. The information gathered helps staff better understand climate risks and inform future investment decisions.

Treasury and coalition of shareholders, votes to change the board of directors at Exxon, bringing new members with climate expertise to the boardroom.

Treasury becomes an investor member of GRESB, which aims to provide a global standard for portfolio-level ESG reporting in the real estate sector.

Treasury holds a series of seminars on climate threats; staff from across Treasury participate, including investments, policy, and debt management teams.

Treasurer Read submits formal comments to the Securities and Exchange Commission on climate change disclosures.

2022

Treasurer Read announces intent to decarbonize OPERF by 2050.

Treasury staff begins conversations with ESG data vendors, eventually hiring two vendors to generate holdings-based portfolio reporting and various climate change metrics.

Treasurer Read pens op-ed in the *New York Times* opposing efforts in other states to limit the consideration of ESG factors in investment decisions.

2021

Report to OIC on how ESG champions on our private equity team have deepened their evaluation of potential managers based on their understanding and support of board diversity, workplace equity, environmental impacts, and other governance issues.

Treasury's climate consultants complete initial portfolio analysis.

Individual holdings in public equity and fixed income portfolios made available on Treasury website, boosting transparency around how pension fund dollars are invested.

2023

Treasurer Read convenes internal Treasury team, with outside consultants and regular check-ins with beneficiary groups, to form a pathway for reducing emissions associated with investments in OPERF.

Treasury unveils new proxy voting transparency website in partnership with Glass Lewis, Treasury's proxy voting agent.

The Pathway To The Net Zero Plan

This plan was also influenced by work initiated by Treasury in 2021 and into 2022 to better understand the risks a changing climate presents to OPERF, which, as of January 2024, was more than \$93.8 billion.

In 2019, Treasury's investment team contracted with outside consultants on a physical property risk assessment to better understand how a changing climate would affect specific real estate holdings. The real estate asset class represents about 14% of the total fund, so improving our understanding of physical risks was an appropriate step to take on behalf of beneficiaries.

In 2021 and 2022, the Treasury team worked with external climate consultants on a high-level look at how portfolios constructed like ours would fare in the future if global temperatures continue to rise. The report – relying on proxy data, versus specific data from OPERF holdings – provided insights on how various energy transition scenarios might affect future fund performance. The report identified portfolio impacts under an orderly transition, a disorderly transition, and what would happen if there were simply business as usual. There were negative consequences to the fund under each of these scenarios, with lower returns from all asset classes, unless risks were carefully managed.

We examined the risk levels – both physical and transitional – at a sector and country level for public and private equities and other asset classes. Physical risks represent the weather-related risks caused by climate change, while transition risks represent the risks inherent in moving from a fossil fuel-based economy to one based on renewable energy.

Unsurprisingly, the highest risks that we found were for investments in fossil fuels (coal, oil, and gas and fossil-based utilities). But the analysis also found that climate change posed risks across sectors like IT, health, financials, and consumer discretionary. Geographically, the U.S faces significant climate risk; approximately 66% of OPERF is invested in the U.S. The report concluded that under any scenario, for any country, any asset class, and any sector, doing nothing would likely result in losses for the pension fund.

Because of its size and diversification, OPERF is invested in thousands of different holdings and hundreds of different funds. Companies in the energy and utilities industries, which are generally the most exposed to transition risk, represent a small percentage of our portfolio, though a higher one than many benchmarks. Our expectation is the level of our exposure would fall over time, even without the steps advocated for in this plan, as the global economy continues to decarbonize. Further, our exposure to renewable energy is growing rapidly, and we would expect this trend to continue, even without acting on this plan's recommendations, albeit more slowly. But as our research has shown, timing matters.

Analyzing the exposure of a portfolio of this size and complexity to direct and indirect greenhouse gas (GHG) emissions is essential to assess our exposure to physical and transition risks. Still, calculating the portfolio's climate exposure is complex work, as is assessing the potential returns from our investments in climate exposed stocks. Before taking on this net zero project, for a number of years, Treasury estimated our exposure to fossil fuels and renewable energy using simple calculations of the value of the investments and the percentage of our total portfolio. Sample ranges are provided on the following page.

OPERF'S ESTIMATED EXPOSURE TO RENEWABLES

<u>AS OF</u>	<u>DOLLAR AMOUNT</u>	<u>% OF PORTFOLIO</u>
DEC. 31, 2019	\$369,512,984	0.45%
DEC. 31, 2020	\$448,235,937	0.52%
SEPT. 31, 2021	\$717,416,891	0.74%

OPERF'S ESTIMATED EXPOSURE TO FOSSIL FUELS

<u>AS OF</u>	<u>DOLLAR AMOUNT</u>	<u>% OF PORTFOLIO</u>
DEC. 31, 2019	\$3,646,158,610	4.44%
DEC. 31, 2020	\$3,232,841,908	3.79%
SEPT. 31, 2021	\$3,556,710,027	3.66%

In more specific analysis of our public equity holdings conducted in recent years, we have seen that our level of exposure to fossil fuels is higher than the MSCI ACWI investable market index – a product of our investment processes and selected risk factors. For example, we have a low volatility strategy in our public equity portfolio, which tends to have a higher level of allocation to the utilities sector than a comparable index might have. This higher exposure to utilities leads to a higher level of exposure to carbon emissions.

As will be laid out in Section 2, for this project, we moved away from calculating our baseline as a simple portfolio percentage – which is highly variable depending on market conditions, short-term performance, and size of the fund – to an emissions intensity calculation, which allows us to make more meaningful comparisons and track reductions over time.

The U.S. Energy Information Administration estimates that the share of fossil fuels will diminish in the overall U.S. energy mix, a share that will be taken up by the projected increase in renewable energy. The pace of this is dependent on U.S. and global policies, and even with new pledges agreed to at COP28, fossil fuel consumption will not disappear overnight from our economy nor, as this plan shows, from the OPERF portfolio. Indeed, the International Energy Assessment forecasts that global oil demand will continue to increase for at least the next several decades; the U.S. Energy Information Administration also shows steady usage through 2050.

“Acting as a fiduciary, Treasury monitors and manages risks as a prudent global investor, engages as a responsible shareholder, and advocates for investor-friendly practice and regulations, such as improved identification and disclosure of Environmental, Social, and Governance risks.”

- Treasurer Read

Institutional investors like Treasury will need to navigate the necessary role that fossil fuel investment plays in our portfolio by managing our exposure, finding investment opportunities that reduce or mitigate our exposure, and ensuring we are appropriately compensated for the unavoidable exposure to climate risk.

Many factors go into investment decision-making in this evolving environment. Some analysts believe that the marketplace is appropriately pricing climate risk into the valuation of businesses and other assets. On the other hand, the market does not have a lot of long-term data on how climate risk has affected markets; further, our understanding — and perhaps understatement — of the future long-term effects of climate change is evolving and limited.

Investing in sustainable investments has grown substantially, in many cases leading to higher valuations of these funds, meaning they are more expensive to own. Greater demand for renewables, more efficient clean energy generation, and new green technologies can lead to further increases in market valuations. Energy companies are in the crosshairs of the transition. Some have attracted a higher valuation by showing they can evolve and will capture a higher upside from that transition. Downward pressure on market valuations can occur due to stranded assets — coal and oil that it is too expensive or too little in demand to justify extraction. In addition, stranded production processes, such as decommissioning machinery, and policy such as carbon pricing may lead to reduced valuations unless managed under an effective transition.

Like all investors, Treasury staff aim to take advantage of ‘mispricings’ in the market, such as stock prices that are affected by extreme, short-term conditions. An example is the price volatility of fossil fuels, which can change rapidly due to geopolitical events or the transition of economies from fossil-fuel-based energy to renewable energy. In addition, as new climate-related public policies are implemented, opportunities in renewable energy and the transition economy will appear. Additionally, severe ‘market dislocations’ in specific industries such as electric utilities and renewable energy are likely, and this could create profitable opportunities for beneficiaries of the fund.

Market dislocations are circumstances in which financial markets, operating under stress, fail to price assets accurately either individually or relative to the rest of the market

Through 2023, working under our core Investment Beliefs¹, our strategy has been to monitor and measure our exposure to climate-related financial risks and incorporate climate considerations in the underwriting of new investments. We have implemented several initiatives to identify and assess climate-related risks at the same time we identify and assess other risks during our due diligence processes. Section 2 provides an introduction to how this work will evolve as we move toward net zero.

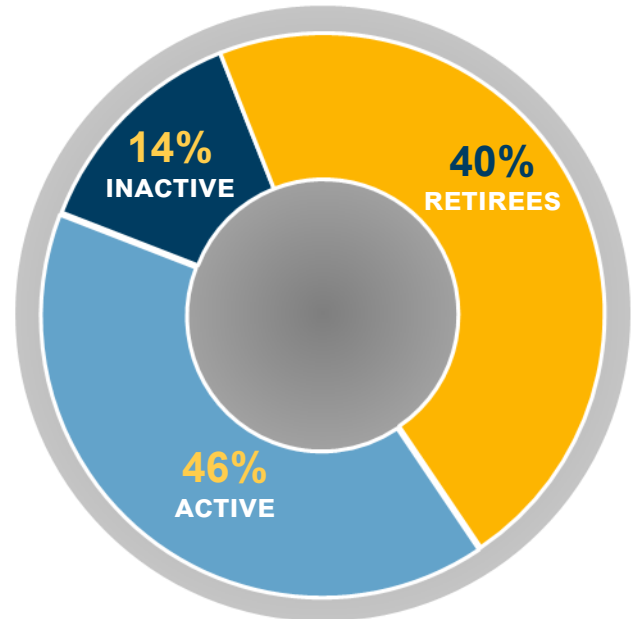
The Oregon Public Employees Retirement Fund

As of January 2024, OPERF is approximately \$93.8 billion. The fund belongs to the more than 405,000 current and former public employees who receive or will receive retirement benefits through Oregon’s Public Employee Retirement System (PERS), with an average annual benefit of \$34,204.

OPERF dollars come from two sources. The first is contributions from employers and the approximately 188,736 public employees who currently pay into the fund. The second is earnings from the investment of these contributions, managed at Treasury under the oversight of the Oregon Investment Council. Just under 75% of all benefits paid out to retirees are made possible by Treasury-managed investment earnings.

PERS MEMBERSHIP SNAPSHOT*

MEMBERSHIP TYPE	TOTAL
Active	188,736
Inactive	53,100
Retired	163,537



*Data Provided By 2023 PERS by the Numbers

WHERE PERS PAYMENTS COME FROM*



Treasury’s investment team manages OPERF with an eye toward maximizing long-term, sustainable returns necessary to meet future liabilities of the fund, as well as generating income that is distributed as monthly retirement benefits for current retirees. In addition, Treasury works with PERS to calculate future liabilities based on a number of informed assumptions:

- Active employee wage growth
- Cost of living
- Mortality
- Growth of principal
- Interest rates
- Expected growth of the number of retired employees

Overseeing this work is the Oregon Investment Council, which sets investment policies for Treasury staff. These policies reflect the fact that Treasury’s work is more complex than investing for just one measure of success: the overall growth of the portfolio. Because we are responsible for generating monthly payments for existing retirees, we need investments that do well in a variety of market conditions. OPERF’s current construction has evolved considerably over the decade following the Great Financial Crisis. Today, it is designed to perform well in good markets, but outperform on a relative basis in down markets. Since we don’t get to take a break from meeting our ongoing beneficiary payment responsibilities, this has given us more resiliency and helped us minimize losses, for example, during the pandemic or in today’s high inflation period. We invest for consistency across a multitude of market environments, and to keep our excess returns high, we layer on investment diversity.

That diversification is reflected in the evolution of assets shown in the chart below. To earn the rate of return required for meeting the state’s retirement obligations, OPERF has become more complex and diverse over the past decade. Through privately placed investments, internal portfolios where we make buy and sell decisions, passive and active investments where we delegate the authority to buy and sell to our partners, and internally managed indexes that replicate the market and allow us to invest with lower costs, OPERF has changed and matured in a variety of ways.

TREASURY MAINTAINS A COMPLEX PORTFOLIO BASED ON CORE INVESTMENT FUNDAMENTALS:

- ⇒ *Invest in diverse assets to perform in various market conditions*
- ⇒ *Manage risks and returns on a global scale*
- ⇒ *Operate in an efficient and cost-effective manner*

RISKS MONITORED ON A GLOBAL SCALE:

- ⇒ *Credit*
- ⇒ *Market and recessionary factors*
- ⇒ *Currency*
- ⇒ *Liquidity*
- ⇒ *Inflation*
- ⇒ *Political and geopolitical forces*
- ⇒ *Interest rates*
- ⇒ *Environmental, social, and governance*

EVOLUTION OF DIVERSIFIED ASSET HOLDINGS

1997

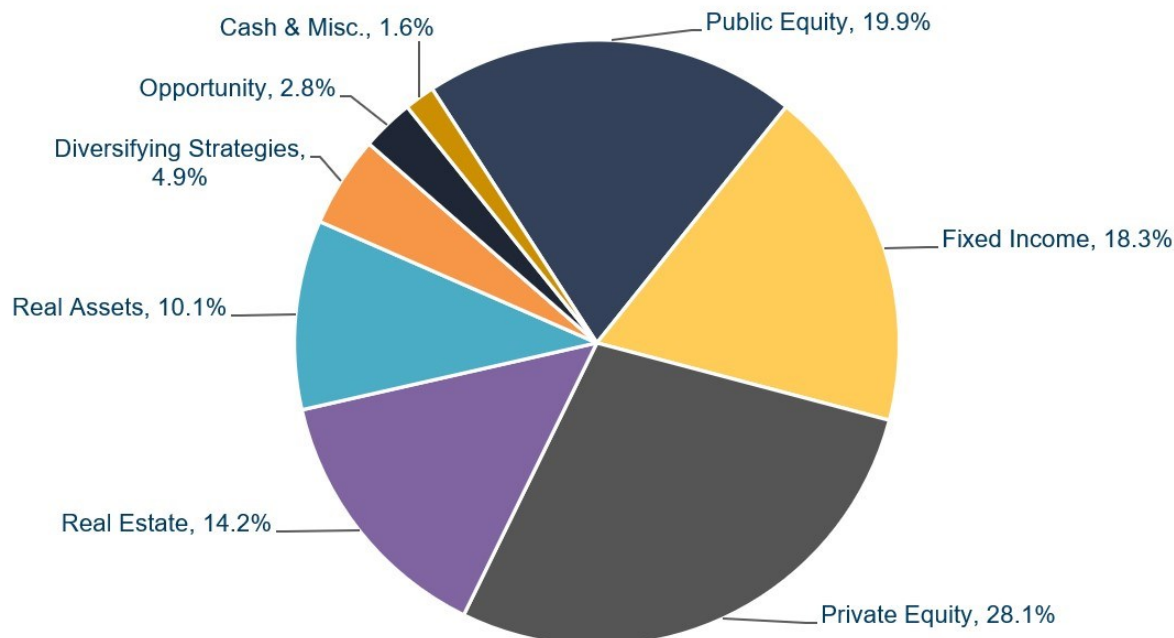
*Public equity
Private equity
Fixed income
Real estate
Cash*



2022

*Public equity
Private equity
Fixed income
Real estate
Cash
Diversifying strategies
Risk parity
Real assets
Opportunity*

OPERF ASSET ALLOCATIONS As of 12/30/2023



Public Equity

This asset class reflects shares of publicly traded companies in the United States and abroad. Investments are managed both internally and externally. We invest in a broad selection of managers who provide expertise in segments of the public equity market. Some managers focus on systematic strategies that harvest risk premiums from stocks that are trading cheap (value stocks), smaller companies (small caps), companies with high rates of return on capital (quality), and other “style factors.” Other managers provide a more traditional, bottoms-up investment process that focuses on analyzing company fundamentals to find companies that are trading at cheap valuations. Our main focus in public equity is passively holding onto a broad set of companies globally in order to receive returns above bonds. Public equity also serves as one of our primary areas for liquidity, allowing us to meet our pension payment obligations.

Private Equity

Our investment in private equity funds, often just referred to as PE, covers our investments in partnerships as limited partners. These funds typically buy, manage, and sell individual private companies. There are far more private companies at an investable size than those that are publicly traded. In other words, the opportunities to find investment opportunities in private markets is large. Our investment in PE funds is higher than most of our peers and is one of the reasons OPERF has outperformed its peers over the past 20 years. Private equity investments provide important portfolio benefits—the potential for higher returns than traditional asset classes like public equity and fixed income, longer investment horizons that allow for patient capital appreciation, active management and value addition, mitigation of market volatility, access to innovations not accessible in public markets, and inflation hedges.

Real Estate

Real estate investments provide stable income generation, add diversification, provide additional inflation hedges, and generally lower portfolio volatility. We engage with managers about potential climate impacts such as transition and physical risks, and changes to heating and cooling systems. We also use an external firm to augment our analysis of specific physical risks in our real estate portfolio.

Fixed Income

This segment is largely made up of government-backed fixed income securities such as U.S. Treasury bills, notes, and bonds, along with mortgages. We also hold investments in high quality corporate bonds and structure products. Most of this portfolio is U.S.-based, although we have some non-U.S. exposure. Liquidity and safety are core characteristics of this portfolio.

Real Assets

Our highest exposure in this asset class is infrastructure, such as airports and bridges, which comprises roughly 70% of this asset class. Some 30% is invested in natural resources, such as commodities, timber, energy, and agriculture. Within this portion, we have also selected funds that invest in natural resources or are involved with transporting them, such as gas pipelines. Real assets often demonstrate resilience during market downturns and are often less impacted by short-term market fluctuations. These investments are frequently physical and tangible in nature, which can provide security and stability during heightened market volatility but also be more susceptible to physical risk from climate change. Real assets frequently provide steady and predictable revenue through rents, tolls, royalties, and dividends.

Diversifying Strategies

The diversifying strategies segment of our portfolio is largely comprised of investments in hedge funds. We try to be “market-neutral,” taking both short and long positions in investments such as commodities and stock.

*A **short position** is created when an investor sells a security with the intention of repurchasing it later at a lower price because they believe that it is likely to decrease in value in the near future*

*A **long position** describes the purchase by an investor when they buy an investment expecting that it will increase in value*

Opportunity

Tactical or episodic investments designed to enhance returns and improve overall diversification.

Cash

Cash from employer contributions and investment distributions, dividends, and other short-term income held to pay benefits or reinvest.

OPERF Performance

The early estimate for 2023 year-end performance is +6%², although a final number will not be available until March 2024 due to reporting lags. An analysis of 2022 portfolio data, conducted by Wilshire Trust Universe Comparison Services²², found that OPERF outperformed its peers and wider benchmarks, ranking second out of its peer group of the largest 50 public pension funds in the United States. During a volatile year – 2022 – OPERF lost 1.1%, while peers lost an average of 10%. In 2022, OPERF returns outperformed policy benchmarks by nearly 7 percentage points and the standard market portfolio by over 15%. Over the long term, OPERF ranked even better. Over the last 20 years, the fund’s performance ranked first out of 42 peers, with an annualized return of 9.4%. Treasury’s outperformance generates over \$1 billion in additional funds for OPERF every year.

Another analysis looked at five-year performance compared to a group of 41 public pension funds and a smaller group of the largest 17 funds that are similar in size to OPERF. Our 5-year net total return was 7.7%, well above both the U.S. public median of 5.9% and the peer median of 6.5%. Our 5-year policy return of 5.7% was above both the U.S. public median of 4.7% and the peer median of 5.1%. Our 5-year net value added was 2.0%, compared to a median of 1.4% for our peers and 1.1% for the U.S. public pension fund universe.

Net Total Fund Return is the profit we have made on our investments as a percentage of the total portfolio value

Our Policy Return is the return we could have earned passively by indexing our investments according to our policy mix

Net Value Added is the portion of our total return that is attributable to our active management

Net Total Fund Return - Policy Return = Net Value Added

The information in the previous section is provided to help give context to Treasurer Read's November 2022 announcement, included in Appendix A, to develop a plan for decarbonizing the OPERF by 2050 and the strategies for doing just that contained in the next section of this report.

The drivers of this ambition were many, including the effects that a changing climate is having on Oregon and beyond, and how those impacts may affect Treasury investments. The Treasurer was also motivated by what he's learned from the Treasury investment team during his tenure.

History, research, the ongoing work by Treasury and the Oregon Investment Council on issues such as shareholder influence, environmental, social, and governance factors, and energy transition – all influenced the development of Treasurer Read's 2022 framework and this plan. It was clear to the Treasurer that the climate crisis overall and its potential impact on Treasury investments are not problems to be dealt with in the distant future but instead require more immediate attention and action. The combined effects of a changing climate will make Treasury's job to provide secure retirements for public employees more difficult. This plan came together because the Treasurer believes we must consider all the risks and opportunities facing Oregon, and plan and act now to address the investment risks and opportunities of the climate crisis. Doing so is critical in making sure the pension fund will produce strong returns for generations to come.

How We Put This Report Together

This report came together over 2023 thanks to the tireless and sincere engagement of people inside and out of Treasury, including consultants with experience working with institutional investors exploring net zero portfolios. We took three critical steps to support a broader feasibility study of strategies to move the portfolio to net zero: developing founding principles, completing a thorough emissions baselining project, and conducting extensive beneficiary outreach. The first two are covered in depth in Section 2 of this report.

For the beneficiary outreach, it is helpful to note that Treasurer Read, members of the Oregon Investment Council, and Treasury investment staff are tasked by federal and state law to act in the best financial interests of beneficiaries of the funds we manage. Because of this fiduciary duty, an essential component of developing this plan was reaching out to the people with the most to gain and/or lose from our portfolio-related decisions: current and future retirees.

In the summer of 2023, Treasury developed a brief survey to get feedback from beneficiaries of the Oregon Public Employees Retirement System about their understanding of, and preferences for, how their retirement funds are invested.

We coordinated with PERS to share the survey with more than 60,000 active and retired beneficiaries from state and local governments across Oregon. Treasury's engagement efforts yielded thousands of responses from beneficiaries, providing insights into their preferences and their understanding of our state's pension system.

In addition to the survey, Treasury developed educational materials regarding the agency's approach to managing beneficiary retirement funds and provided links to additional pension system resources from PERS. These items were shared with beneficiaries to help respondents gain a better understanding of the State of Oregon's pension system and Treasury's role in managing pension fund investments.

The survey also provided beneficiaries with the opportunity to share their interest in learning more about how Treasury manages their retirement funds. This will allow us to update public employees about this plan and next steps on the Treasurer's net zero pledge.

SURVEY OUTREACH AND RESPONSE DATA

Survey shared with over 60,000 active and retired members of the Oregon Public Employees Retirement System (PERS)

RECEIVED 5,823 RESPONSES

61% of responses from active members
39% of responses from retirees

KEY TAKEAWAY

89% of respondents preferred that Treasury manage their retirement funds to ‘generate the highest return on investments’ or ‘manage short- and long-term risks to deliver sustainable returns’ – versus only a small percentage who were in favor of Treasury ‘making investment decisions based on beneficiaries’ personal beliefs even if it negatively impacted returns.’

ADDITIONAL RESPONSE DATA:

- ⇒ 85% of respondents wished to learn more about how Treasury manages their retirement funds
- ⇒ 67% of respondents wanted Treasury to encourage the companies we invest in to consider the effects of climate change
- ⇒ 79% of respondents were either ‘extremely confident in,’ ‘slightly confident in,’ or ‘neutral’ on Treasury’s ability to manage their retirement funds

In addition to the survey, Treasury also met regularly with beneficiary groups and other interested parties throughout 2023 to discuss the challenges and opportunities of reducing carbon exposure in OPERF. The Treasurer and/or his staff participated in dozens of meetings in 2023, with meetings slated to continue throughout 2024. The feedback received was essential to putting together the full plan outlined in Section 2 of this report.

Section 2: Treasury's Net Zero Plan

Treasury's Net Zero Commitment

Oregon State Treasury commits to net zero emissions by no later than 2050, consistent with our fiduciary duty, including an interim 60% reduction by 2035. Here's how we will get there:

Ambition Achieve **net zero portfolio emissions by no later than 2050** across OPERF.

Interim Targets Target a **60% reduction in portfolio emissions intensity by 2035**, relative to 2022 baseline.*

Major Actions

- Triple investments in Real Assets and Private Equity over our existing ~\$2 billion of climate-positive holdings and ensure 10% of active and 30% of passive Public Equities investments are climate- or transition-aligned and will contribute to a clean energy transition by 2035.
- Exclude new investments in private market funds that have a stated intention to invest primarily in fossil fuels.
- Conduct a review of carbon-intensive fossil fuel investments in public markets by February 2025 to ensure they meet Treasury's minimum standards for clean energy transition readiness.³
- Use our leverage as limited partners to push for credible transition plans from private market investments that derive >20% revenue from carbon-intensive fossil fuel activities.
- Increase Share Of Portfolio Emissions Covered By Credible Net Zero Transition Plans By 2035, Including 90% of Real Estate Emissions, And 65% Of Emissions Across Both Real Assets And Private Equity.

Additional Actions

- Monitor manager selection to ensure alignment of investment strategy with broader net zero progress.
- Expand engagement activities, including partnerships with other pension funds, to support company transitions, clean energy investments, and incorporation of just transition principles.
- Increase data and reporting capacity to track more thoroughly GHG emissions associated with our investments.
- Establish Net Zero Beneficiary Advisory Committee.



**OREGON
STATE
TREASURY**

*Excludes cash, diversifying strategies, risk parity, overlay, asset-backed securities, short-positions, and sovereigns

On November 16, 2022, Treasurer Read announced his intention for OPERF to achieve net zero total portfolio-level GHG emissions by no later than 2050. In his pledge, included in Appendix A, the Treasurer emphasized the risk climate changes poses to the long-term sustainability of our investments, and how addressing that clear financial risk is consistent with Oregon State Treasury's and Oregon Investment Council's fiduciary duties. His pledge also outlined four primary steps that he and the Treasury team would take in advance of a February 2024 presentation to the Oregon Investment Council:

- Develop strategies to achieve net zero carbon emissions by 2050 or earlier
- Measure baseline greenhouse gas (GHG) emissions and set interim targets for managing climate risks and identifying opportunities for expanded investments in low-carbon solutions
- Create methodologies and frameworks to measure progress on meeting interim targets and timelines for review of investments in carbon intensive activities like thermal coal, tar sands, and fracked natural gas
- Provide recommendations for appropriate transparency and reporting mechanisms to demonstrate progress

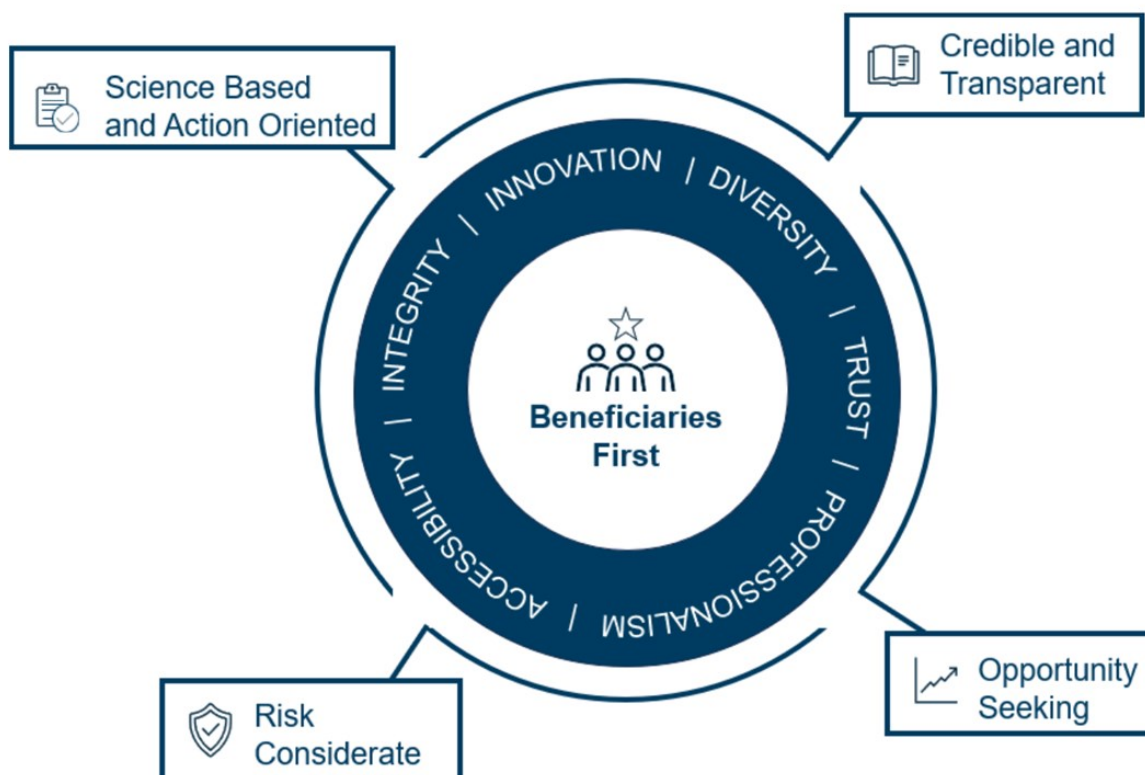
The summary on the previous page provides the major actions to meet the 2035 interim target and the 2050 net zero ambition. This part of the report goes into greater detail on the specific asset class-based approaches underlying these actions as well as information about our emissions baselining work.

Treasury Net Zero Plan: Principles

To understand fully how to achieve progress on our net zero commitment over the next two decades, Treasury worked with consultants to calculate baseline emissions associated with holdings in OPERF's portfolio, researched how others in the investment space approached net zero planning, reviewed and evaluated various strategies to decarbonize investments, and weighed the impacts of various scenarios on the portfolio and its beneficiaries.

Before those steps, as Treasury began putting this plan together, the project team recognized that establishing principles to guide our work was essential. The principles below reflect conversations between the Treasurer and staff that focused on both the essential – especially our fiduciary duty to beneficiaries – and the aspirational.

The founding principles were also developed to reflect a key point we recognized while putting this plan together: the importance of investment decisions that also lead to real-world emissions reductions. By prioritizing strategies that support transition and decarbonization, we avoid simply shifting the emissions burden to other investors or trying to make our numbers look better on paper while not doing anything to mitigate climate change in a meaningful way. Accordingly, this plan outlines engagement and investment strategies designed to prioritize returns and influence companies to make and/or plan for the energy transition.



Beneficiaries First

Aligns Treasury’s fiduciary duties to its beneficiaries—both today and in the future.

FIDUCIARY DUTY AS DEFINED BY OREGON STATE LAW

OREGON REVISED STATUTE 293.726: STANDARD OF JUDGEMENT AND CARE IN INVESTMENTS²³

The Oregon Investment Council, State Treasurer, and Treasury investment staff have a fiduciary duty to act in the best interest of operf and as a prudent investor in making decisions about how that money is invested. They are also required to exercise reasonable care, skill and caution in the context of each investment fund’s investment portfolio and as a part of an overall investment strategy, which should incorporate reasonable risk and return objectives. In making and implementing investment decisions, the Oregon Investment Council and the investment officer have a duty to diversify the investments of the investment funds unless, under the circumstances, it is not prudent to do so. They must also conform to the fundamental fiduciary duties of loyalty and impartiality; act with prudence in deciding whether and how to delegate authority and in the selection and supervision of agents; and incur only costs that are reasonable in amount and appropriate to the investment responsibilities imposed by law.

Opportunity Seeking

Captures decarbonization opportunities that generate ‘climate alpha’ — while also benefitting the planet. In the same way as ‘alpha’ is the excess return of an investment relative to the return of a benchmark, ‘climate alpha’ is defined as the excess return generated from investments well positioned to benefit from emerging climate policy or activities compared to business as usual.

Climate Positive

Climate-positive investment and activities are those that go beyond “low carbon” or achieving net zero carbon emissions to create an environmental benefit by removing additional carbon dioxide from the atmosphere over and above GHGs currently being emitted. Direct air capture (DAC) is one example of climate-positive investments.

‘Real World’ Emissions Reductions

We are mindful that shifting an investment in a high emitting company into a low emitting company might lower the absolute GHG emissions of our portfolio, but it doesn’t necessarily translate into ‘real world’ GHG emissions, as it merely shifts the emissions ‘reductions’ into someone else’s emissions increase. ‘Real world’ emissions reductions would only occur if an asset made absolute reductions in its emissions – for example if a utility shifted from generating electricity using natural gas to solar generation.

Science-Based Targets Initiative

The Science-Based Targets initiative⁴ (SBTi) discusses the relationship between absolute emissions and carbon intensity in the context of science-based targets. For example, it says, intensity targets for scope 1 and scope 2 emissions are science-based only when they lead to absolute emission reduction targets that are in line with the Paris Agreement that requires keeping global warming to well-below 2oC. Absolute emission reduction targets must also be Paris compliant if they are science-based.

SCOPE 1 AND 2 EMISSIONS

Scope 1 emissions are defined as direct emissions from company-owned or controlled operations, including, among other things, emissions from transportation, including, for example, movement of materials. Scope 2 emissions include indirect emissions generated through the purchase of electricity and other energy consumption.

Key Actions And Strategies By Asset Class

Page 21 lists out the major and supporting actions this plan proposes. Laying out the plan’s actions and strategies by asset class, as shown below, demonstrates how different parts of the portfolio will put OPERF on a path to reduce emissions intensity by 60% by 2035 and reach net zero by 2050. Strategies were selected that would meet Treasury’s design principles: actions that are consistent with fiduciary duties by taking into account financial risks and opportunity, are focused on “real world” emissions reductions, and are derived from best practices in measuring and managing portfolio emissions.

All Asset Classes Contribute Toward Achieving OPERF’s 2035 Interim Target

OPERF INTERIM TARGET	PUBLIC EQUITIES & FIXED INCOME	PRIVATE EQUITY & REAL ASSETS	REAL ESTATE
<p>60% reduction in portfolio emissions intensity by 2035, relative to OST’s 2022 Baseline*</p>	<p>10% of active and 30% of passive investments to be climate- or transition-aligned</p> <p>Review investments that derive >20% of revenues from thermal coal, oil sands and shale O&G by February, 2025</p>	<p>Triple climate-positive investments</p> <p>65% of investments to be covered by credible net zero transition plans</p> <p>Restrict new investments in funds primarily focused on fossil fuels</p> <p>Require credible transition plans from companies or assets that derive >20% revenues from thermal coal, oil sands, and shale oil and gas activities</p>	<p>90% of emissions from directly owned** properties covered by credible net zero transition plans</p>

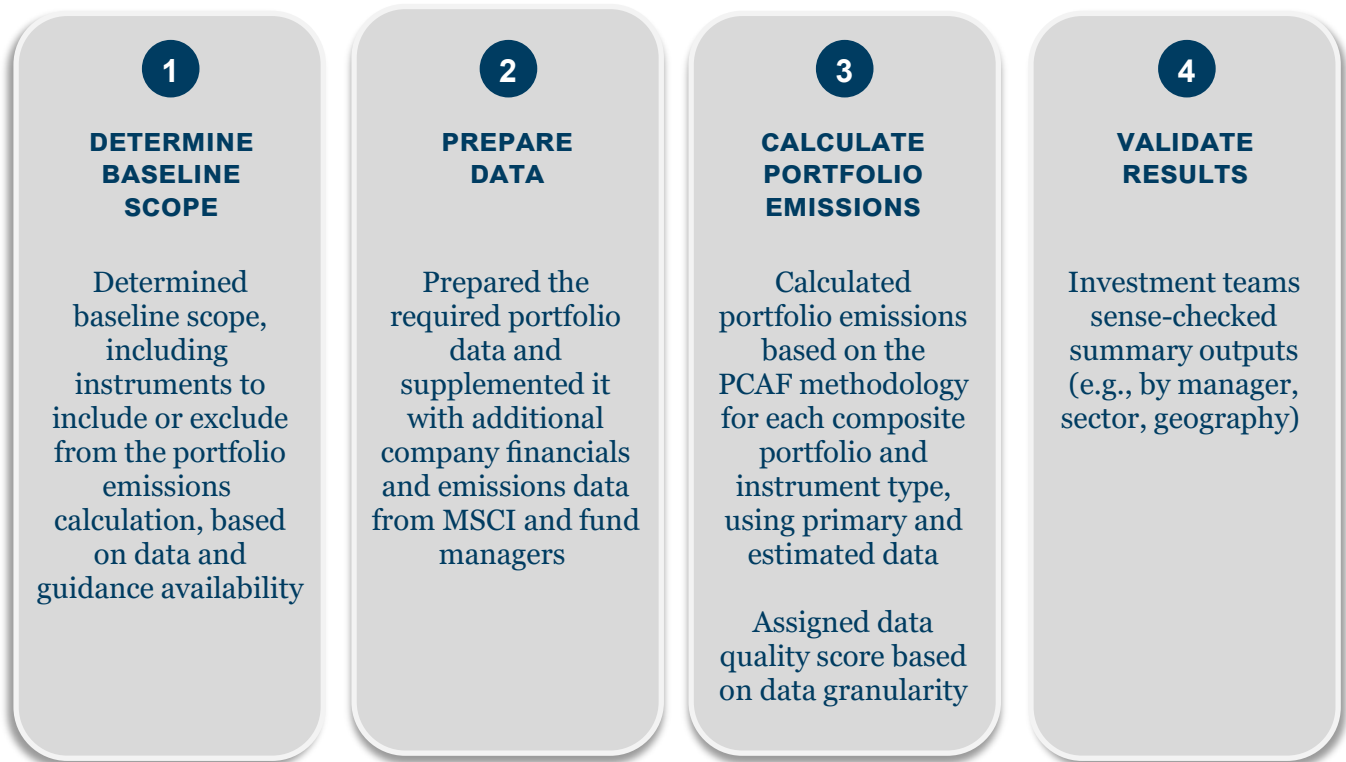
*Cash, diversifying strategies, risk parity, overlay, asset-backed securities, and short positions excluded from baseline
 **Held in separate accounts

Investments that are climate-aligned are those that are moving the economy to net zero and climate resilience. Investments that are transition-aligned are those aligned with the goals of the Paris agreement.

The term ‘separate account’ is used to describe an arrangement where a single investor provides virtually all the necessary equity capital for accomplishing a specified investment objective.

Measuring Baseline Emissions

FOUR STEPS TREASURY USED TO CALCULATE OUR PORTFOLIO EMISSIONS BASELINE:



Treasury worked with consultants to develop baseline data for about four-fifths of the, at the time, \$91.9 billion fund. We used data from 2022, and based our calculations on the investments that comprised the portfolio at that time.

Treasury used the [Partnership for Carbon Accounting Financials \(PCAF\) methodology](#) to estimate our baseline portfolio emissions. PCAF is a nonprofit institution that has created an open-source accounting method to measure and disclose the GHG emissions associated with the lending and investment activities of financial institutions. It is used globally by banks and investment firms to align their activities with the Paris Agreement.

*The **Paris Agreement**, also known as the Paris Accords, is a legally binding international treaty on climate change. It was adopted by 196 parties at the United Nations Climate Change Conference (COP21) in Paris in December 2015 and entered into force in November 2016.*

Its goal is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.” since the original agreement, the UN’s intergovernmental panel on climate change has said that exceeding the 1.5°C threshold will lead to unacceptable climate disasters.

The Paris Agreement requires a “five-year cycle of increasingly ambitious” climate action. Since 2020, countries have been submitting nationally determined contribution (NDCs) plans that outline their climate actions. Current NDCs will not achieve the goal of the Paris Agreement.

By using the PCAF methodology to develop our 2022 baseline of portfolio emissions, Treasury has a starting point against which progress on our net zero plan can be measured. While the data and the overall process was extensive, we should note that the baseline may be updated in the future if new methodologies or data are available that materially affect the baseline.

The work was done with a third-party consultancy that advised on methodologies and approaches and brought experience and proprietary calculation tools to estimate both emissions and data quality.

PCAF is a nonprofit institution founded in Holland in 2015 as a result of a Dutch Carbon Pledge made at the Paris Climate Summit that year. It expanded to the U.S. in 2018 and went global in 2019. Its mission is to create harmonized and transparent GHG accounting by measuring and disclosing the GHG emissions associated with the lending and investment activities of financial institutions, and to enable financial institutions to align their portfolio with the Paris Climate Agreement.

PCAF partners with over 440 financial institutions.

PCAF collaborates with a large number of climate finance and disclosure organizations, including CDP, the Net zero Asset Owner Alliance, SBTi and the Green Climate Fund.

While emissions accounting practices are evolving rapidly, PCAF methodology covers a broad range of asset classes, including:

- *Public equity and corporate bonds*
- *Sovereign bonds*
- *Business loans and private equity*
- *Project finance*
- *Commercial real estate*
- *Mortgages*
- *Auto loans*

PCAF is an open source and transparent initiative that enables financial institutions to assess and disclose the GHG emissions of loans and investments using an approach built on the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. PCAF guidance is more limited when accounting for emissions related to investments in sovereign bonds, hedge funds, and short positions.

Treasury staff pulled data from a variety of sources using industry-accepted practices established under the PCAF framework. Unlike most other pension funds embarking on their own net zero paths, we made a concerted effort to include our private market investments in establishing our 2022 baseline. When data was not available for a private market investment, proxy data was used. In the end, the baseline captured the emissions data associated with roughly 80% of assets under management (AUM). This is among the most comprehensive baseline measurements calculated by an institutional investor committed to net zero.

We took four steps to calculate our portfolio emissions baseline. First, we determined the scope of the baseline – what to include and what to exclude based on data availability. Next, we prepared the portfolio data and supplemented it with data from company financials as well as from our index provider – MSCI – and our fund managers and investment partners. Then we calculated the emissions associated with our investments using the PCAF methodology for each asset class. We also assigned a data quality score to each calculation. Finally, our investment team ‘sense-checked’ the outputs, taking into account fund management, sector, and region.

CARBON INTENSITY VS ABSOLUTE EMISSIONS⁵

The IPCC defines carbon intensity as the amount of carbon dioxide emissions (CO₂) released per unit of another economic output variable – such as gross domestic product (GDP) at the national level, or revenue or number of employees at the company level. Using a carbon or emissions intensity measure allows companies to set emissions reduction targets that can account for economic growth. Most institutional investors embarking on this kind of work opt for this type of metric.





Absolute emissions, on the other hand, measure the total amount of GHG emissions as an absolute number, not a ratio. An example of an absolute emissions target would be a company that sets an emissions target aiming to reduce its emissions by 20% by 2025 regardless of potential growth factors.

PEER PENSION PLAN TARGETS

PEER	AUM (\$B)	NET ZERO DATE	FINANCED EMISSION TARGETS			PORTFOLIO COVERAGE TARGETS
			INVESTMENT INTENSITY	ABSOLUTE EMISSIONS	PHYSICAL INTENSITY	% WITH NET ZERO PLANS
 CalPERS	\$456	2050			Reduction targets set for 10 sectors for 2025 and 2050	
 CALSTRS	\$315	2050		50% by 2030		
 My NYCERS	\$79	2040	32% by 2025, 59% by 2030 (from 2019)			
	\$246	2040				50% portfolio aligned to 1.5°C scenario by 2050
 STRS	\$132	2040	32% by 2025, 59% by 2030 (from 2019)			
 HOOPP Healthcare of Ontario Pension Plan	\$134	2050	32% by 2030 (from 2021)			
 CPP Investments	\$539	2050				
 CDPQ	\$420	2050	60% reduction by 2030			
 ONTARIO TEACHERS' PENSION PLAN	\$242	2050	45% by 2025, 67% by 2030 (from 2019)			67% emissions by 2025, 90% by 2030, covered by net zero plans
 PSP Investments	\$230	2050				50% of emissions to have commitments to implement transition plans by 2026

Criteria Used To Determine Baseline Inclusion

We used the following criteria to determine what to include in our baseline:

 <p>CLIMATE RELEVANCE & INFLUENCE</p> <p>The Net Zero Asset Owners Alliance’s (NZAOA) commitment emphasizes GHG reductions in the real economy – with a strong focus on company engagement</p>	 <p>AVAILABILITY OF MEASURING METHODS</p> <p>PCAF is currently the global standard for measuring financed emissions - with >400 global financial institutions as signatories</p>	 <p>ASSET CONTEXT</p> <p>Some asset classes are more complex, increasing the difficulty of measuring emissions consistently and accurately over time; standards are still evolving for these asset classes/financial instruments</p>	 <p>PENSION FUND PRACTICES</p> <p>Given constraints (e.g., availability of methods, data, and asset context) financial institutions are not yet baselining 100% of portfolios’ emissions</p>
<p>GUIDING CRITERIA</p> <p>Climate relevance: Financed activities are significant to total anticipated financed emissions (PCAF does not cite a specific threshold)</p> <p>Climate influence: Potential influence over the activity being financed</p>	<p>GUIDING CRITERIA</p> <p>PCAF methodologies* currently exist for:</p> <ul style="list-style-type: none"> • Listed equity & corporate bonds • Sovereign bonds • Business loans and unlisted equity • Project finance • Commercial real estate • Mortgages • Auto loans 	<p>GUIDING CRITERIA</p> <p>PCAF guidance does not currently cover the following:</p> <ul style="list-style-type: none"> • Assets held for short durations and designated for sale (e.g., trading positions) • Short positions • Where information on individual holdings / underlying is unavailable 	<p>GUIDING CRITERIA</p> <p>NZAOA suggests there may be a “sequence” in which specific portfolio segments are addressed – guided by prioritization of the most material sectors GHG emissions wise</p> <p>Pension funds commonly delineate inclusion and exclusion of asset classes in their portfolio emissions baseline</p>

**PCAF is a recent initiative and not yet comprehensive; some industry groups (ICI, UNPRI) have recently complemented PCAF with guidance on private equity assets*

We also recognized that some asset classes are more complex, increasing the difficulty of measuring emissions consistently and accurately over time. Further, PCAF guidance does not cover the following investment types:

- Assets held for short durations and designated for sale (e.g., trading positions)
- Short positions: This is created when an investor sells a security with the intention of repurchasing it later at a lower price because they believe it is likely to decrease in value in the near future
- Securities lending, sovereign bonds, and derivatives
- Where information on individual holdings/underlying is unavailable

It is not possible – because of the lack of data – for financial institutions to baseline 100% of their portfolio. NZAOA recommends prioritizing the most GHG intensive sectors/assets first. Additional guidance indicates that institutions should be transparent about what is or is not included.

What Was Baselined

Our portfolio emissions baseline covers roughly 80% of total assets under management (AUM), which, in 2023, was the highest percentage of AUM reported among North American pension funds that have published portfolio emissions. For reference:

- California Public Employees Retirement System baselined approximately 70% of its portfolio
- California State Teachers Retirement System baselined approximately 60% of its portfolio

It is also worth noting that neither of the above published portfolio emissions calculations include private market holdings, which Treasury opted to include.

ASSET CLASS	REPORTED BALANCE (\$ BILLIONS)	BALANCE ASSESSED (\$ BILLIONS)	EXCLUDED FROM BASELINE CALCULATION
PUBLIC EQUITY	\$20.9	\$19.6	Short-positions REITs
FIXED INCOME	\$15.9	\$10.4	Asset backed securities
PRIVATE EQUITY	\$26.1	\$21.9	Investments classified as “other”
REAL ASSETS	\$8.9	\$8.9	Investments classified as “other”
REAL ESTATE	\$13.7	\$12.3	Investments classified as “other”
TOTAL	\$91.9	\$73.2 (80%)	

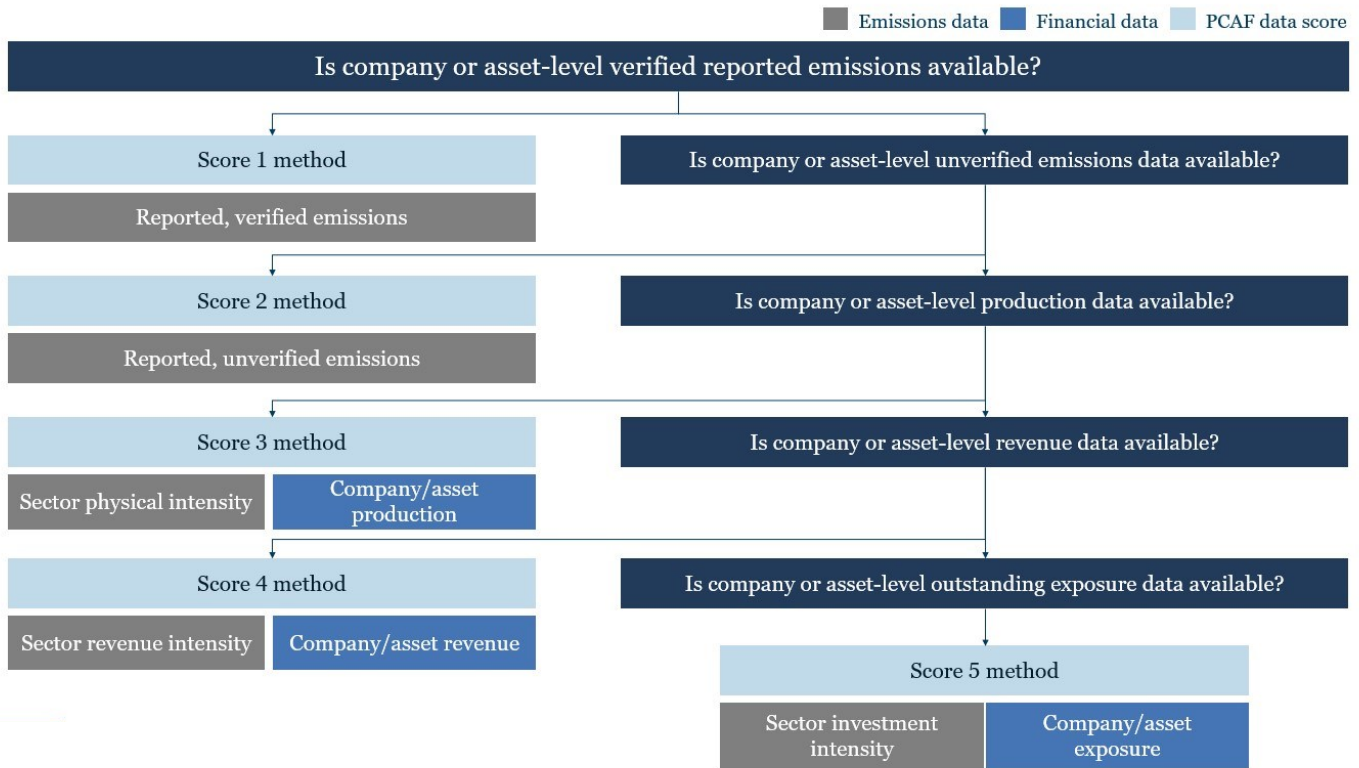
Source: Emissions calculations based on OPERF portfolio data (as of December 31, 2022) and emissions data from MSCI and ISS

Some investments were excluded due to a lack of data or relevance, a lack of standards or methodology, or to the short-term exposure to the asset. Baseline calculations excluded investments in sovereign funds – sovereign wealth funds are foreign nation-owned investment funds – because OPERF has limited influence over the activities of sovereign nations. Additionally, Treasury excluded short positions and REITs [Real Estate Investment Trusts] because of the lack of influence over emissions. Some specific asset classes in the portfolio were also excluded:

- Cash, which is generally not exposed to climate risk unless through climate-caused inflation
- Risk Parity, a portfolio allocation strategy that uses risk to determine allocations across various asset classes of an investment portfolio
 - ◊ As of December 2022, Oregon Investment Council eliminated this asset class
- Risk Overlay, a strategy designed to manage risk exposure that can involve derivatives to hedge against exposure
- Diversifying Strategies, excluded because of the short-term nature of this part of the portfolio

TREASURY’S PORTFOLIO EMISSIONS BASELINE COVERS 80% OF TOTAL ASSETS UNDER MANAGEMENT (AUM), AT THE TIME OF THIS REPORT’S PUBLISHING, THAT RANKS AS THE HIGHEST SHARE OF AUM REPORTED AMONG NORTH AMERICAN PENSION FUNDS THAT HAVE PUBLISHED PORTFOLIO EMISSIONS

PCAF's data framework provides guidance on maximizing baseline accuracy. Below is a guide to PCAF's scoring approach for listed equities:



And a guide to degree of accuracy:

High accuracy	PCAF Score	Most granular data needed for each score	Share of scope 1+2 emissions (as of 12/31/22)		
			Public markets	Private Equity & Real Assets	Real estate
<div style="width: 100%; height: 100%; transform: rotate(90deg); transform-origin: left top;"></div>	PCAF 1/2	Verified/unverified emissions	84%	0%	0%
	PCAF 3	Production (companies) Energy use (real estate)	1%	0%	0%
	PCAF 4	Revenue & sector (companies) Floor area (real estate)	10%	0%	100%
	PCAF 5	Exposure & sector (companies) Building type (real estate)	5%	100%	0%
	Low accuracy		>80% of emissions	More granular portfolio company data could be collected from fund managers (i.e., emissions, revenues, EVIC)	

Emissions Data Quality By Asset Class

Again, emissions accounting methodology is a rapidly evolving field, and the standards available can vary significantly by asset class, as can data itself and/or data quality. Current baseline calculations show a higher degree of accuracy for emissions in public markets, for example, but a lower level of accuracy for private markets. Over time, we will collect more detailed data from fund managers to improve accuracy. Where data was incomplete or missing, assumptions were made to fill in gaps, based on factors such as the average emissions for the sector or building type for real estate. For public and private equities, fixed income, and real assets, emissions were estimated if not reported, using company financials. Moving forward, Treasury will undertake more detailed enquiries and review data providers to determine when and where we can replace estimates with disclosed data or better estimates.

DEEP DIVE FOLLOWS

FINANCED PORTFOLIO EMISSIONS	EMISSIONS FACTOR	ATTRIBUTION FACTOR
Public Equities Private Equity Fixed Income (Corporates) Real Assets	Company Emissions Either reported, or estimated using company financials	Treasury's Financial Interest Investment amount / EVIC*
Real Estate	Building Emissions Estimated based on floor area and CO _{2e} per square ft for each type of building	Treasury's Financial Interest Investment amount / current property value

Where data was incomplete or missing, assumptions were made to fill in gaps based on the average emissions for the sector or building type (for real estate)

*Where EVIC is not available only the investment amount is used in the calculation with an emissions factor that represents the CO_{2e} / \$ of assets

Results From Emissions Baseline

The result from the emissions baselining exercise led to an emissions intensity number for each asset class. The chart below shows the shares of emissions attributable to each asset class and the result for carbon emissions emitted per million dollars of Assets Under Management. This number is the baseline against which future emissions accounting exercises will be compared.

To determine our emissions intensity numbers, the formula uses absolute emissions calculated through the baselining process. Absolute emissions can be highly correlated to the size of the portfolio. Emissions intensity, on the other hand, is a more consistent metric that gives our investment team a practical goal to work toward rather than just reducing portfolio size. It also allows for more meaningful comparisons of OPERF to itself over time regardless of the size of the portfolio and to other pension funds of different sizes.

BASELINE EMISSIONS DATA *

ASSET CLASS	SHARE OF OPERF EMISSIONS (%)	EMISSIONS INTENSITY	ABSOLUTE EMISSIONS (TCO ₂)
PUBLIC EQUITY			
TOTAL	47%	93	1,819,638
ACTIVE	36%	119	
PASSIVE	11%	56	
REAL ASSETS	30%	128	1,141,429
PRIVATE EQUITY	16%	27	598,157
REAL ESTATE	5%	15	183,062
FIXED INCOME	3%	72	134,646
OPERF	100%	60	3,876,933

Public Equity and Real Assets have both the highest shares of scope 1+2 emissions and emissions intensity

Each asset class faces different challenges in reducing emissions due to the nature of investments and way in which Treasury invests

*Excludes Cash, Diversifying Strategies, Risk Parity, Overlay, Asset-Backed Securities, Short-Positions And Sovereigns

Source: Emissions calculations based on OPERF portfolio data (as of December 31, 2022) and emissions data from MSCI and ISS

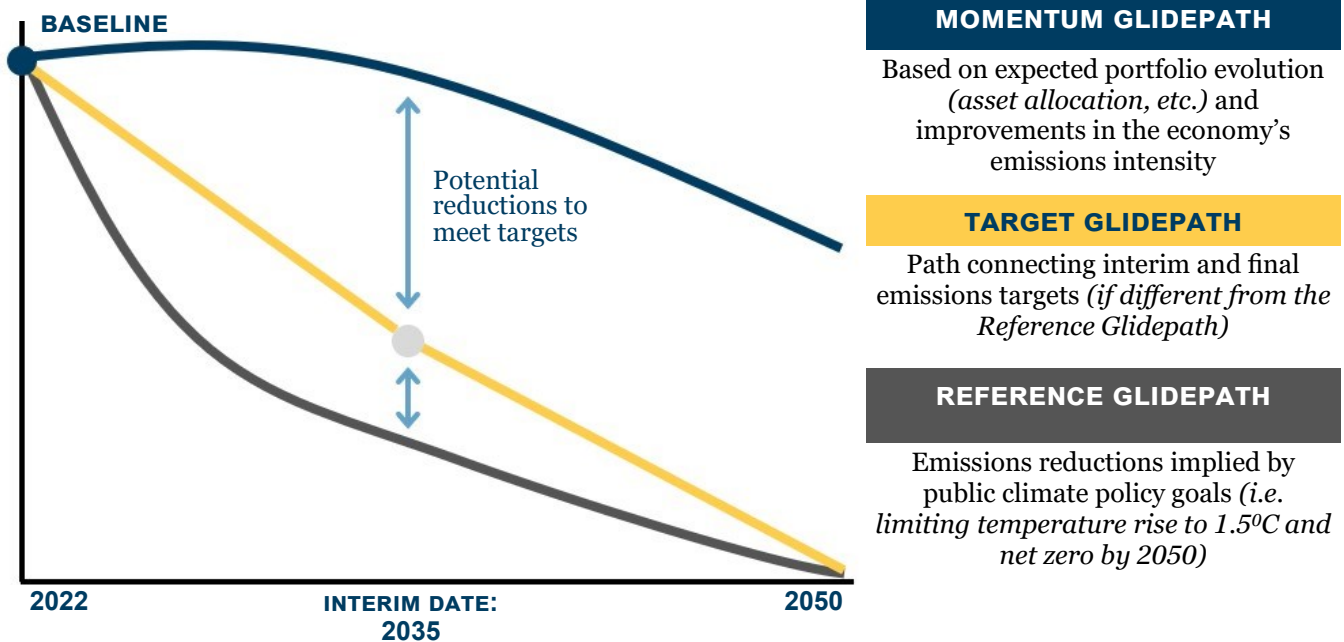
Emissions Reductions Pathways

Early conversations in the development of this plan focused on how we could get to net zero by 2050. The graph below compares different pathways available to Treasury and OPERF. The top line in the graph shows the momentum pathway which should be achieved through a typical portfolio evolution with changing asset allocations and general improvements in the emissions intensity in the wider economy. The middle line is our target pathway and shows the route through the interim and final targets, while the bottom line is the reference pathway, showing emissions reductions if broader public climate policies align with the Paris Agreement. Looking at these general lines shows that while Treasury’s plan may not follow the same trajectory as the reference pathway, the cumulative effects of actions are intended to get us to net zero by 2050, and far faster than following the momentum pathway.

EMISSIONS GLIDEPATHS

PORTFOLIO EMISSIONS INTENSITY

Total CO₂ Emissions / \$ Of Assets Under Management



Source: based on OPERF portfolio data (as of December 31, 2022)

Our Interim Targets

Treasury used energy scenarios developed by the International Energy Agency (IEA) to assess the feasibility of potential interim targets. STEPS is the acronym for Stated Policies Scenarios. APS is the acronym for the Announced Pledges Scenario. NZE is the abbreviation for the Net Zero Emissions by 2050 Scenario, while SDS is the Sustainable Development Scenario, which is the scenario that allows the energy-related Sustainable Development Goals (SDGs) to be met. See additional details below.

STEPS

The Stated Policies Scenario⁶ (STEPS) is designed to provide a sense of the prevailing direction of energy system progression, based on a detailed review of the current policy landscape. It provides a more granular, sector-by-sector evaluation of the policies that have been put in place to reach stated goals and other energy-related objectives, taking account not only of existing policies and measures but also those that are under development. The STEPS provides a more conservative benchmark for the future than the Announced Pledges Scenario (APS), by not taking for granted that governments will reach all announced goals. Similar to the APS, it is not designed to achieve a particular outcome.

NZE

The Net Zero Emissions by 2050 Scenario⁷ (NZE Scenario) is a normative scenario that shows a pathway for the global energy sector to achieve net zero CO₂ emissions by 2050, with advanced economies reaching net zero emissions in advance of others.

APS

The Announced Pledges Scenario⁸ (APS), introduced in 2021, illustrates the extent to which announced ambitions and targets can deliver the emissions reductions needed to achieve net zero emissions by 2050. It includes all recent major national announcements as of the end of August 2023, both 2030 targets and longer-term net zero or carbon neutrality pledges, regardless of whether these announcements have been anchored in legislation or in updated Nationally Determined Contributions. In the APS, countries implement their national targets in full and on time.

SDS

The Sustainable Development Scenario⁹ (SDS) describes the broad evolution of the energy sector that would be required to reach the key energy-related goals of the United Nations, including the climate goal of the Paris Agreement (SDG 13), universal access to modern energy by 2030 (SDG 7), and a dramatic reduction in energy-related air pollution and the associated impacts on public health.

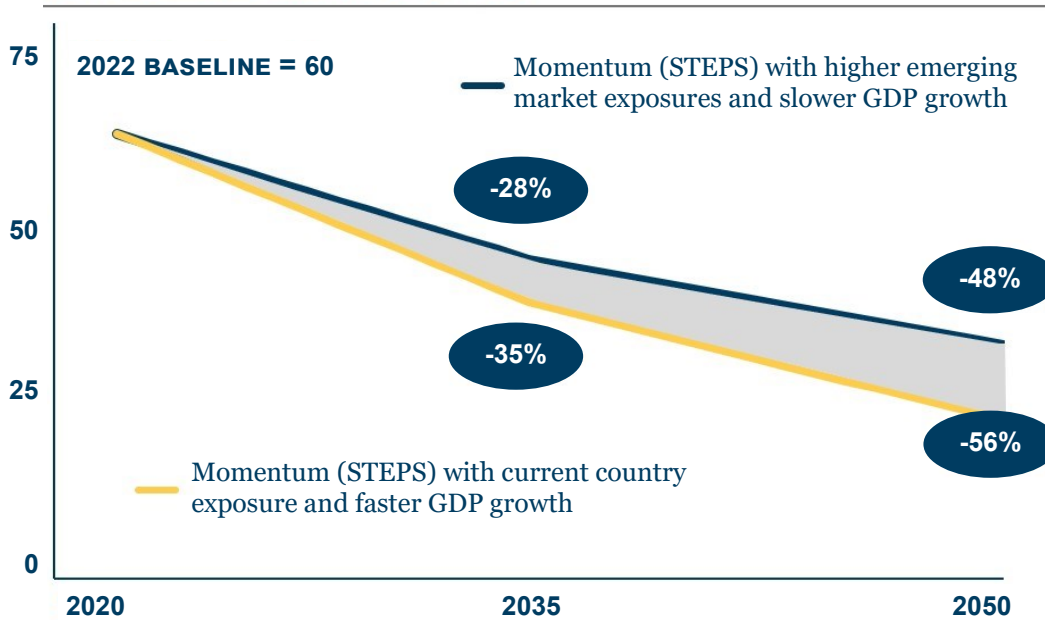
STATED POLICIES (STEPS)	NET ZERO EMISSIONS BY 2050	ANNOUNCED PLEDGES	SUSTAINABLE DEVELOPMENT SCENARIO
Public policies that are currently in place reduce emissions	Shows a global pathway to achieve net zero by 2050, consistent with the higher ambition of the Paris Agreement	Announced national emissions pledges are achieved in full and on time, whether or not they are underpinned by specific policies	Shows a global pathway to achieve Paris Agreement as well as economic development in low-income countries
Limits global temperature rise to 2.5°C	Limits global temperature rise to <1.5°C	Limits global temperature rise to 1.7°C	Limits global temperature rise to well-below 2°C
Renewables share of global electricity by 2050: ~55%	Renewables share of global electricity by 2050: ~90%	Renewables share of global electricity by 2050: ~70%	Renewables share of global electricity by 2050: ~90%

OPERF's Momentum Pathway

OPERF's momentum pathway is a combination of previous Treasury portfolio choices and broader, external forces, including policy decisions, geographic location of assets, economic growth, and economic and technological changes. By country, for example, emissions intensity is forecast to fall slower in emerging markets than in developed markets. Yet, over time, this economic growth is also likely to lead to more alternative sources of energy and lower emissions.

OPERF MOMENTUM EMISSIONS INTENSITY (BASED ON IEA STEPS)

Scope 1+2 Emissions Intensity ($tCO_2 / \$AUM$)



Source: IEA STEP emissions, Oxford Economics Real GDP Growth, OECD Long-Term Real GDP Forecast, OPERF portfolio data (as of 12/31/2022), ISS and MSCI company emissions reporting

OPERF's momentum pathway is subject to uncertainty around:

Country exposure: the emissions intensity in emerging markets is expected to fall slower than in advanced markets

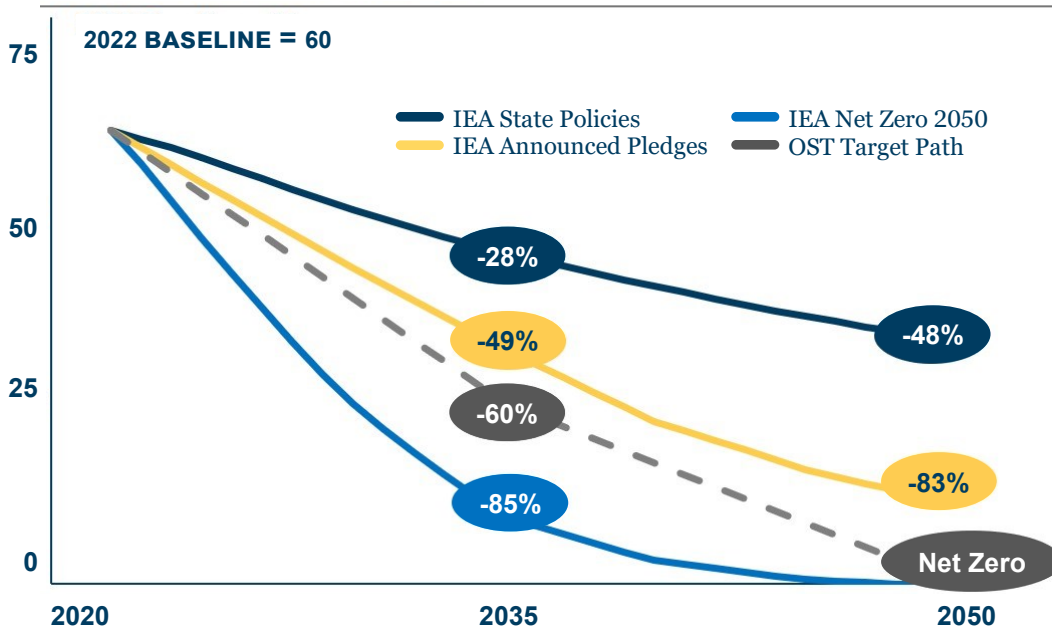
Economic growth: emissions intensity will fall more quickly if emissions reductions are achieved with higher growth

Treasury's 60% Intensity Reduction Target By 2050

Treasury's 60% intensity reduction target by 2035 falls between the IEA's APS and the NZE pathways (see page 35 for details of the differences between these targets). As can be seen from the chart below, emissions intensity reductions vary widely, falling by only 48% under STEPS and by 83% under APS. The IEA STEPS scenario assumes no change to public climate policy and therefore it can help investors assess how much extra they might have to do to meet their own interim and final targets with such an outcome.

OPERF EMISSIONS INTENSITY IN DIFFERENT IEA SCENARIOS VS TARGET PATH

Scope 1+2 Emissions Intensity ($tCO_2 / \$AUM$)



Source: IEA scenario emissions from World Energy Outlook (2022), Oxford Economics Real GDP Growth, OPERF portfolio data (as of 12/31/22), ISS and MSCI company emissions reporting

Emissions intensity reductions vary widely across scenarios given IEA assumptions around future climate public policies and technology costs

IEA STEPS assumes no additional public climate policy, and such a scenario can help investors be better prepared for a range of possible outcomes as they assess target feasibility

Understanding Treasury's Multiple Target Approach

Treasury reviewed different approaches that institutional investors, especially pension funds, have taken to measure progress in their decarbonization plans.

	PORTFOLIO EMISSIONS	PORTFOLIO COVERAGE	CLIMATE AND TRANSITION FINANCING
DESCRIPTION	Set emissions reduction targets for the portfolio	Target an increase in share of portfolio investments with net zero commitments or transition plans	Commitment to climate- and/or transition -financing
EXAMPLE METRICS	Absolute (CO ₂ e) Economic intensity (CO ₂ e/\$) Physical intensity (CO ₂ e/tonnes) Implied temperature rise score (x degrees)	% of AUM or emissions with net zero commitments or targets Graduated maturity scale (ranking and %) of above	Amount invested Green or transition asset ratio

- *Absolute emissions measure the total amount of GHG emissions as an absolute number, not a ratio*
- *Economic intensity measures kilograms of CO₂ emitted per dollar of GDP*
- *Physical intensity measures tonnes of GHG per tonne of product, for example, or MWh (megawatt hour) generated*
- *Implied Temperature Rise measures the temperature alignment of companies, portfolios, funds and indexes against global climate targets*

For example, a straight portfolio emissions reductions metric could measure absolute emissions or economic intensity. Portfolio coverage refers to the percentage of our portfolio covered by credible net zero and climate-aligned plans. We are already increasing and will continue to increase the share of portfolio investments with either net zero commitments or proper transition plans. These can be measured as what percentage of companies have net zero targets and commitments, and how big are those companies, either by economic value or by share of emissions, relative to the portfolio overall. Similarly, they can also be ranked according to a graduated maturity scale.

To measure climate and transition financing, metrics would reflect a commitment to climate and transition financing measured by the amount invested or the green, or transition, asset ratio. The green asset ratio refers to the proportion of a financial institution's assets that are invested in Paris Agreement-aligned economic activities as a proportion of the total covered assets.

Climate Finance refers to local, national, or transnational financing – that comes from public, private or alternative sources of financing – that seeks to support mitigation and adaptation actions that will address climate change.

Transition Finance refers to financing that promotes long-term, strategic GHG emissions reduction initiatives taken by a company toward tackling climate change challenges for the achievement of a decarbonized society.

How Are Other Public Pension Funds Decarbonizing?

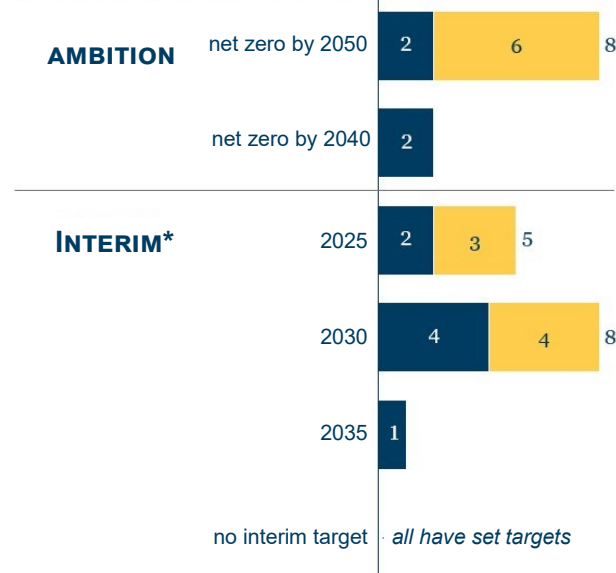
We looked at how other U.S. and international public pension funds were decarbonizing, what intensity target dates they were adopting, and what target dates they were setting themselves to achieve either net zero or other types of emission reducing actions. Some of the pension funds set themselves multiple interim targets. Others have also combined climate and transition financing targets into a single measure for success.

The U.S. pension funds we looked at included California Public Employees' Retirement System, California State Teachers' Retirement System, NYC Employees' Retirement System, NY State Common Retirement Fund, and San Francisco Employees' Retirement System. All but one of the international funds we benchmarked were in North America. They were: Canada Pension Plan Investment Board, Caisse de dépôt et placement du Québec, Public Services and Procurement Canada, Ontario Teachers' Pension Plan, Healthcare of Ontario Pension Plan, New Zealand's Superfund, and New Zealand's public pension plan.

BENCHMARKS OF U.S. AND SELECTED INTERNATIONAL PENSION FUNDS THAT MADE NET ZERO COMMITMENTS

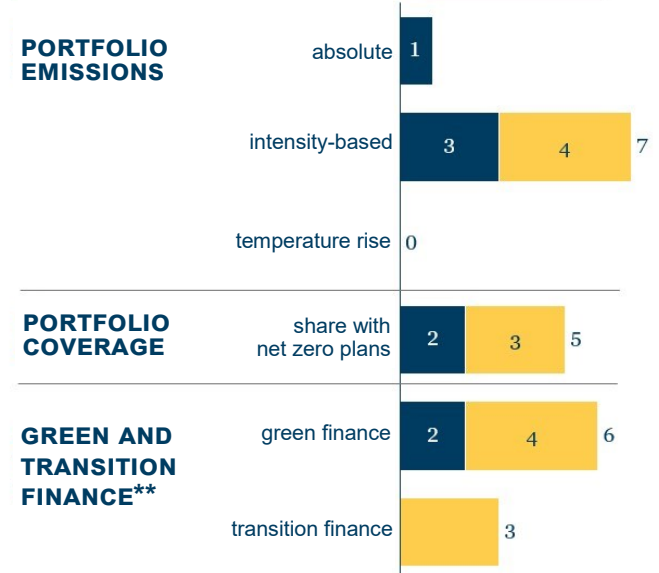
TARGET DATES ANNOUNCED

Number of pensions benchmarked, N=12



INTERIM TARGET DATES ANNOUNCED

Number of pensions benchmarked, N=12



■ U.S.
■ International

Source: Pensions benchmarked include USA (CalPERS, CalSTRS, NYCERS, NY State Common Retirement Fund, NYC Employees Retirement System, SFERS), International (CPPIB, CDPQ, PSP, OTPP, HOOPP, NZ SuperFund)

*Some pensions have set multiple interim targets

**Some pensions have decided to combine climate and transition financing targets

As the chart shows, most funds have set a 2050 target, with a 2030 interim target. Most have also set intensity-based targets rather than absolute metrics. Five funds have set net zero targets, while six have green finance targets.

Treasury's Interim Emissions Intensity Target

Treasury's Net Zero Plan includes a 2035 portfolio-wide emissions intensity target, measured using investment intensity: tonnes of CO₂ by millions of dollars in Assets Under Management (tCO₂e/\$M AUM). The metric was chosen as it provides a more accurate picture of progress against emissions reduction targets even when taking account of portfolio growth. In addition, most companies are already reporting this data.

We chose 2035 to allow us to adjust our investment strategies during the interim period.

We are aiming for a 60% emissions intensity reduction by our interim date of 2035, which is equivalent to a 50% reduction in absolute emissions and is largely consistent with targets and dates set by our peers. This target is ambitious considering that unlike many of OPERF's peers, we are including emissions in our private market investments in our target.

The target applies to the entire OPERF portfolio but allows for some flexibility across different kinds of assets; we have also set specific goals for some asset classes.

Currently, emissions intensity will cover Scope 1 and 2 baselined emissions, which are the most reported and highest quality data and also where Treasury has the most influence. As the standards and reporting improve around Scope 3, Treasury will look to incorporate that data into our decision making.

1 **Metric: Investment Intensity (tCO₂e / \$M AUM)**

Provides a more accurate depiction of emissions reduction progress when factoring in portfolio growth, and can be tracked with data reported by companies today

2 **Timing: 2035 Interim, Net Zero By 2050**

2035 provides OST with adjustment period to calibrate investment strategies and 2050 aligns to U.S. net zero emissions goals, guidance by the treasury and other standard-setting organizations

3 **Magnitude: 60% Reduction By 2035**

Equivalent to 50% absolute emissions reduction, consistent with interim targets set by peers and alliances

4 **Level: OPERF Portfolio-Wide**

Allows some flexibility for investment team to achieve interim target across asset classes while also bolstered by supplemental asset class-specific goals

5 **Scope: Investee Scope 1 And 2 Baselined Emissions**

Most complete and reported data from companies today for credible progress reporting, also where OST has the strongest influence

Decarbonization Actions

Treasury will take four main types of decarbonization actions to achieve both our interim and final targets. While these actions are generally applicable across each of the portfolio’s asset classes, they will be applied differently based on the structure of individual investments.

First, Treasury will continue to evolve our portfolio, such as bringing active public equity investments in line with lower intensity benchmarks. Second, Treasury will increase the percentage of investments in companies or assets that have net zero transition plans through engagement and manager selection. Third, we will invest in climate-positive activities. These could include industries such as wind turbine manufacturing, energy storage solutions, and electric vehicles, or industries that will come to market over the next 20 years. Fourth, we will track changes in the portfolio as a result of the above actions and also consider potential exclusions or re-allocation. ‘Exclusions’ mean we would avoid certain types of investment, such as carbon-intensive ones, while ‘re-allocation’ takes an investment in one company, asset or benchmark index and switches those funds to a low-carbon version.

Each of these actions plays a role in emissions reductions; no one action on its own will get us to 60% portfolio emissions intensity reduction by 2035 or net zero by 2050. These actions also build on and consider steps Treasury has already taken in our portfolio and in broader policy changes and international commitments.

COMMON ACTIONS ACROSS ASSET CLASSES



Increase the share of investments aligned to a net zero economy (i.e. with net zero transition plans)

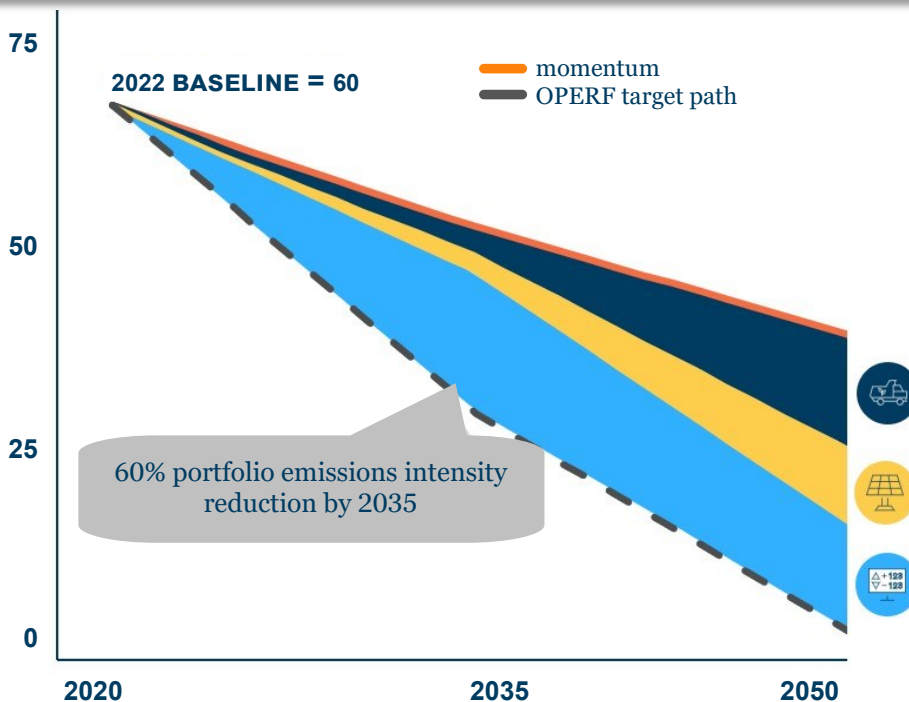


Finance climate-positive activities



Track expected portfolio evolution and consider potential exclusions or re-allocations

POTENTIAL CONTRIBUTION OF EACH ACTION TO THE OPERF NET ZERO TARGET PATH (tCO2e/ \$M*)



*Emissions calculations based on OPERF portfolio data (as of December 31, 2022) and emissions data from MSCI and ISS

As Treasurer Read stressed in his introduction to this report, the success of achieving this Net Zero Plan depends on economy-wide decarbonization efforts, including national and international policy shifts and technological developments. The investable universe is not infinite, and our mandate requires us to earn a rate of return sufficient to support the state's obligations to beneficiaries. While this plan is built around actions that aim to reduce the risk of climate change to our investments – particularly actions with meaningful benefits to the climate – we recognize that our impacts will be limited without influential steps by countless other parties. We also recognize the steps we do take will not be easy even in a perfect policy environment.

As this plan was put together, Treasury staff assessed the feasibility of portfolio emissions reductions under two public policy scenarios:

1. 'No Change,' i.e. a continuation of current emissions reduction actions, which are insufficient to meet the goals of the Paris Agreement
2. Implementation of policies in line with Paris Agreement pledges – known as nationally determined contributions (NDCs)

NDCs describe the post-2020 climate actions by each country, including commitments to reduce national emissions and adapt to the impacts of climate change and were disclosed following the Paris Agreement.

Current emissions reduction policies are estimated to lead to a 28% reduction in emissions intensity by 2035 in the wider economy. If governments act on their Paris pledges, our current emissions reductions would see a 49% reduction.

In the case of the first scenario, 'no change,' around a quarter of actions to meet our interim target of a 60% reduction in portfolio emissions intensity by 2035 would result from very difficult adjustments to our investment strategy. Conversely, under Paris-aligned public policies, none of the portfolio investment strategies would present a high degree of difficulty.

But the degree of difficulty of reducing emissions intensity does not vary only through public policy actions; it also varies by asset class, the nature of investments, and investing strategy more generally.

The percentage of OPERF emissions varies from 47% in the public equities portion of the portfolio down to 3% in corporate fixed income. The next highest proportion of emissions is from real assets investments, at 30%. Public equities and real assets also have the highest emissions intensity, 94 tCO₂/\$M and 128 tCO₂/\$M, respectively. Together, public equities and real assets represent more than three-quarters of OPERF's emissions. Furthermore, the majority of emissions in public equities comes from actively managed equities (36% out of 47%) compared to only 11% from passively managed equities.

Our assessment of the difficulty of decarbonizing the respective parts of the portfolio does not correspond only with the level of emissions. For example, while real assets, one of the highest emitting assets, present a high degree of difficulty to decarbonize, so does corporate fixed income, the lowest contributor of emissions. In the case of real assets, this is an asset class made up of investments such as infrastructure, utilities, manufacturing – generally, harder industries to decarbonize. Public and private equities, on the other hand, present only a moderate degree of difficulty – the former because of already-planned efforts to increase our allocation to growth stocks versus our current bent toward value stocks, and the latter because of already-planned evolution of the types of sectors represented in this asset class.

NET ZERO VS CARBON NEUTRALITY VS GHG EMISSION REDUCTION TARGETS

According to the IPCC's glossary¹⁰ of terms, net zero records the point at which emissions of greenhouse gases (GHGs) into the earth's atmosphere from human activities are balanced by the reabsorption of GHGs through natural and enhanced storage methods over a specified period.

Where more than one type of GHG is involved, the measurement of net zero emissions is more complicated and depends on the effect on the climate of the different types of GHG. For example, methane has a 100-year global warming potential 28-34 times that of carbon dioxide (CO₂). Over a 20-year period, that ratio grows to 84-86 times that of CO₂. Thus, net zero measurements must take into account these different global warming potentialities and the relevant time horizon.

Carbon neutrality is achieved when net zero CO₂ emissions from human activities are balanced globally by CO₂ removals through human activity over a specified period. Carbon neutrality is also known as net zero CO₂ emissions.

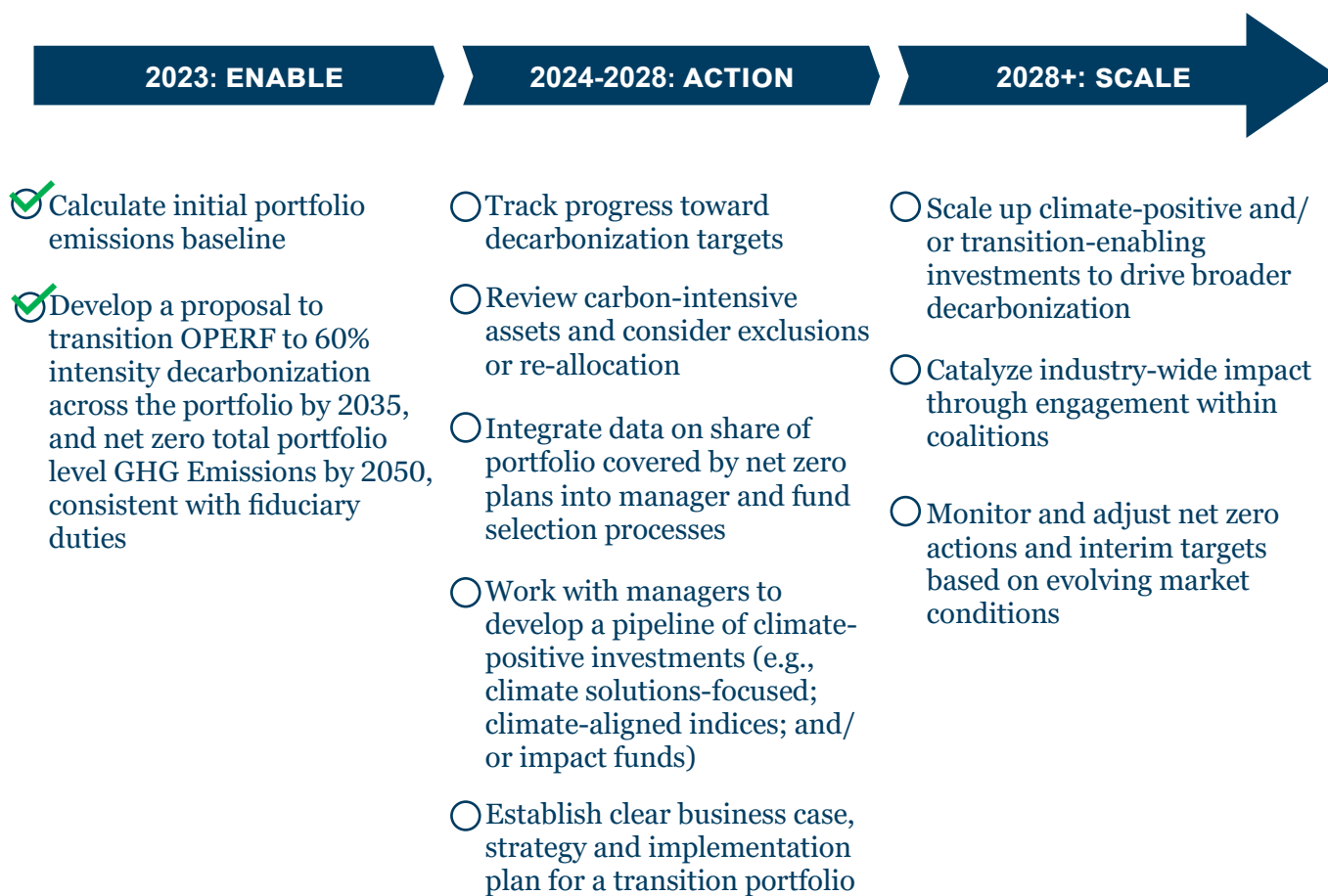
A recent study from the Science-Based Targets initiative¹¹ asked the question: what was the difference between net zero targets and GHG emission reduction targets, and what is the difference if both are science-based? GHG emission reduction targets set a goal to reduce emissions by a specific amount typically by a set date. Science-based GHG emission reduction targets go further than this, ensuring that emissions are reduced at a rate that is in line with limiting global warming to 1.5° C or well below 2° C. Science-based net zero targets go further still. They require that companies address those emissions that have yet to be reduced, or that present elimination problems; neither offsets nor avoided emissions count in achieving science-based net zero targets¹².

Near-Term Phases Of Treasury's Decarbonization Efforts

Implementing changes to a portfolio as large, diverse, and complex as OPERF is not an overnight undertaking. The urgency of financial risks from climate change demands that we take action, but to do so while managing our overall responsibilities to tens of thousands of Oregonians and without introducing even greater risks to the portfolio. The chart below outlines our basic approach.

The first phase, undertaken throughout 2023, included the development of the emissions baseline and strategies and actions to achieve net zero by 2050. Initial decarbonization actions and scoping activities will begin in the second phase, which runs from 2024 through 2028. Decarbonization actions will then increase in scale in the third time horizon, from 2028 on.

As new treasurers are elected, new members are appointed to Oregon Investment Council, and as broader economy-wide changes occur, we expect this plan will evolve and improve.



Supporting Activities

In the development of our net zero strategies, Treasury considered several activities across asset classes that could support decarbonization of the portfolio.

ASSET CLASS	INCREASE SHARE OF NET ZERO ALIGNED INVESTMENTS	FINANCE CLIMATE-POSITIVE ACTIVITIES AND TRANSITION ENABLE INVESTMENTS	TRACK EXPECTED PORTFOLIO EVOLUTION AND CONSIDER POTENTIAL EXCLUSIONS OR RE-ALLOCATIONS
Public Equity & Fixed Income <i>(corporates only)</i>	<p>Consider positive screening and/or climate-aligned indexes</p> <p>Engage companies on their transition plans either directly or through stewardship coalitions</p>	Work with managers to identify climate- and impact-focused products and potentially co-create new offerings	Monitor portfolio emissions of current and new funds and integrate indicators into fund and manager selection processes
Private Equity & Real Assets	<p>Encourage GPs to set and implement targets for the share of portfolios with net zero plans</p> <p>Monitor and track progress and integrate into GP-selection criteria</p>	Develop and monitor pipeline of managers with climate-positive and potentially, transition-enabling funds	Continue to assess transition risk and transition plans of high-emitting investments, and integrate into fund and manager selection processes
Real Estate	Encourage managers of open and closed funds to increase share of investments with building net zero transition plans	Work with property managers to identify profitable decarbonization opportunities in directly-owned real estate	
Portfolio-Wide	Collect primary data for emissions and transition plans of investments	Develop clear taxonomy for qualifying climate-positive and potentially, transition-enabling and brown-to-green investments	Review investments in thermal coal, tar sands thermal coal, oil sands, and shale O&G activities and consider exclusions, require transition plans, and/or re-allocation

These activities, most of which can be applied across asset classes, can be summarized as:

- increase the percentage of climate-aligned and net zero-aligned investments – recognizing that companies that have a plan for the future and are thinking about concepts like mitigation and adaptation are likely to be better long-term investments than companies that are not preparing for climate change
- finance climate-positive, climate-supporting, and transition-enabling investments
- track portfolio evolutions and consider potential exclusions and re-allocations – which would allow us to manage exposure to potentially stranded assets

Examples of these activities include: investing in net zero aligned indexes or selecting managers with portfolio targets for net zero plans and investing in funds that focus on climate solutions like renewable power infrastructure, such as EV charging stations. Treasury also considered the need to track the reallocation of investments from high emitting sectors such as energy and utilities to low-emissions sectors like IT and finance, while acknowledging that these reallocations will likely not result in ‘real-world’ emissions reductions.

Other Climate-Positive Financing Solutions

In his opening to this report, Treasurer Read discussed the importance of timing. OPERF performance will be influenced by how well it evolves and adapts alongside the broader global economy. Ideally, our investments will be structured to capture the unprecedented opportunities created by an economy-wide transition to a clean energy future, but not be so far ahead that we increase unacceptable risk to the fund. This will involve identifying emerging transition pathways and investment opportunities tied to lower carbon intensity activities and continuing our work to understand how the market is pricing in climate change and climate strategies. Along this line, in 2024 Treasury will further evaluate the use of a ‘transition portfolio’ to help track emissions tied to investments in transition-enabling activities.

INVESTMENT TYPE	DESCRIPTION	EXAMPLES
Climate-Positive Solutions	Basic climate solutions that will lead to a net zero economy	Solar and wind power, sustainable agriculture, clean transportation
Transition Enablers	Infrastructure and materials that enable climate technologies	Electrical grids, carbon capture and storage (CCS), raw material inputs for batteries
‘Brown To Green’	Reducing emissions through energy efficiency and technology retrofits	Coal plant conversion, industrial electrification (e.g., electric arc furnaces)
Lower Carbon Intensity	Near-term investment in intermediary energy sources like natural gas	Natural gas infrastructure, blended lower-carbon fuels

Treasury’s internal discussions found broad consensus about the inclusion of both ‘climate-positive’ and ‘transition enabling’ investments inside a transition portfolio. There was additional interest in including ‘brown to green’ investments. For more details about these terms, see Appendix B.

A transition portfolio will allow Treasury to track and monitor emissions stemming from investment opportunities in the economy’s transition to a clean energy future accurately, without inadvertently allowing aggregate emissions measurements to discourage these transition-focused investments. For example, we know that solar and wind energy investments will still generate emissions resulting from the manufacture and transportation of solar panels and wind turbines. These emissions should be considered in our overall targets, but we want to account for emissions as stemming from investments aimed at generating returns from the economy’s transition to a clean energy future.

The same can be said about investment opportunities that fall with the category of ‘transition-enabling’ investments. For example, transitioning away from fossil fuel reliance in the energy sector will require advancements in energy storage and strengthening our electric grid. These activities require investments in infrastructure and materials that have higher emissions or other environmental concerns. Nevertheless, a transition away from carbon intensive fossil fuels is unattainable without these inputs.

There was less consensus about including investments in ‘brown to green’ activities in such a transition portfolio. For example, while investments tied to improving the efficiency of existing brown activities, such as coal plant conversion to LNG could present an opportunity for the portfolio to generate excess returns while leading to lower overall emissions, there is less agreement that these activities will lead to a broader, economy-wide transition.

While these conversations have been robust, Treasury acknowledges that more discussion around the construction and use of a transition portfolio is required. The Treasury team will continue to build out definitions of concepts like ‘climate positive’ and ‘transition enabling’ in 2024, along with further defining how a transition portfolio can be helpful in this effort. We also will continue to monitor the climate strategies of our peers. For example, PSP Investments, CPP Investments, and CDPQ all set separate financing commitments for climate-positive and transition assets. CDPQ used the Climate Bonds Initiative to help classify these assets, while PSP and CPP used internally developed classifications. For example, CPP: defines green as “95% of asset’s revenue derived from climate-positive activities, and transition as having announced commitment to net zero with a credible target.” Please see Appendix C for more details on these commitments and classifications.

Changes To Investment Strategy By Asset Class

The following sections look at the strategies and activities that will be undertaken for each asset class in order to reach our eventual goal of net zero by 2050. As can be seen, there are some similarities between the strategies and actions for each asset class. Progress toward both the interim target and our final goal will also differ by asset class, both in speed and timing, because of the relevant difficulty inherent in decarbonizing each asset class. All have the same goal, however, of net zero, though each will contribute at different levels to the portfolio as a whole.

The contributions of each asset class depend on: sector composition, market readiness, and portfolio context. For example, different sectors face different costs and other barriers to decarbonize; they also depend on the current availability of climate- and transition-enabling products, as well as other strategic changes they are undergoing. Guidance on asset and portfolio-level target setting has been developed for Paris Aligned Asset Owners and Net Zero Asset Managers through the Institutional Investors Group on Climate Change's Net Zero Investment Framework.¹³

Strategy And Actions By Asset Class

Changes To Investment Strategy: Public Equity

For public markets, the table below shows the different investment strategies and stewardship activities that are available to Treasury to support our net zero efforts.

FOCUS AREA	ACTION	POTENTIAL IMPACT ON PORTFOLIO EMISSIONS	RELEVANT ASSET CLASS
Investment Strategy	A Bring emissions intensity of active portfolio in line with portfolio benchmark	Active portfolio has an emissions intensity that is ~2x the portfolio benchmark (MSCI ACWI IMI) due to higher exposure in emissions-intensive sectors	Public Equity
	B Increase active climate-positive investments	Intensity would depend on manager strategy but assumed to be similar to climate-aligned passive indices. <i>Note:</i> transition-enabling and brown to green finance is not included but can be considered should OST define a related taxonomy and dedicated strategy	Public Equity Fixed Income (corporates)
	C Switch passive investments to climate-aligned indexes	Climate-aligned indices have up to a 6x lower intensity than benchmark	Public Equity Fixed Income (corporates)
Stewardship	D Increase engagement and stewardship activities with companies on net zero plans	Not quantified but an important component of any net zero plan	Public Equity

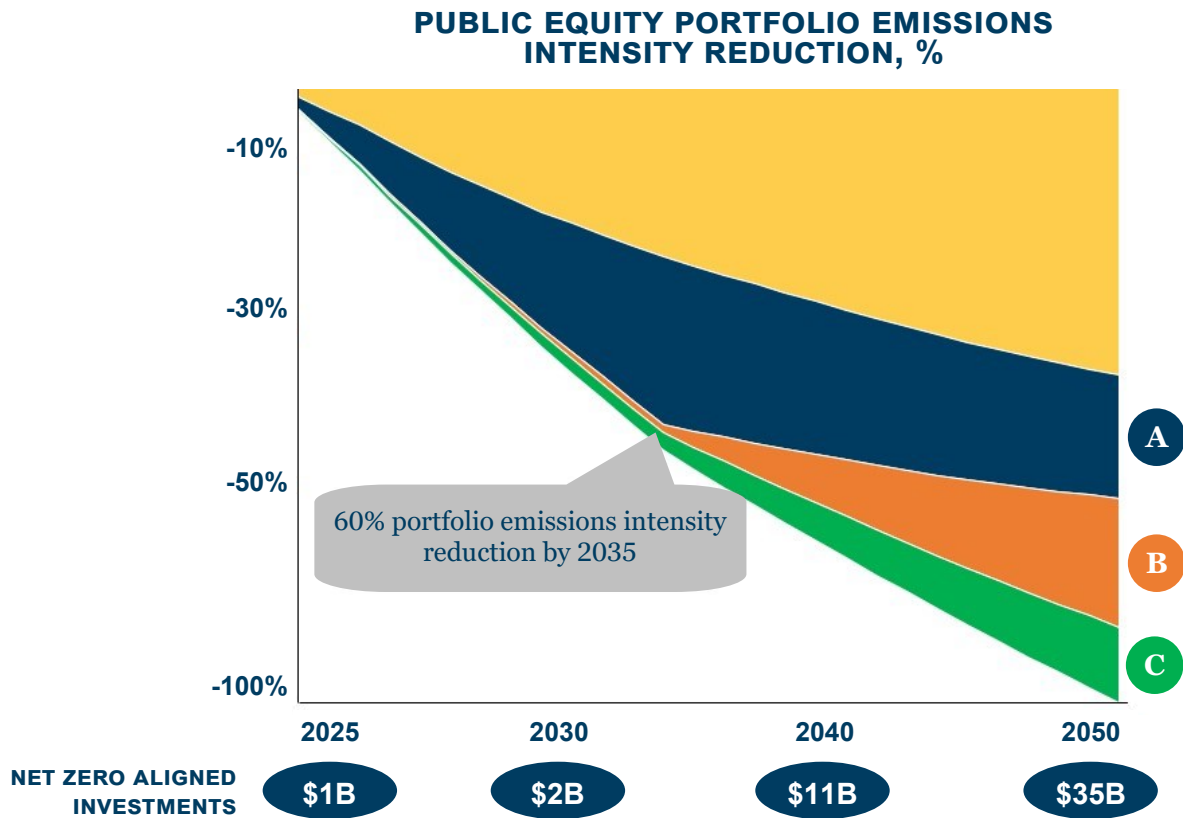
ACTION	SUPPORTING ACTIVITIES
A Bring emissions intensity of active portfolio in line with portfolio benchmark	<ul style="list-style-type: none"> Engage managers to increase focus on sustainable investing Co-develop custom strategies with lower-emission intensity Ask managers to disclose portfolio emissions for existing and new strategies
B Increase active climate-positive investments	<ul style="list-style-type: none"> Develop and monitor pipeline of potential strategies that focus on investments in climate solutions Explore net zero aligned products from new managers within the Opportunity Portfolio
C Switch passive investments to climate-aligned indexes	<ul style="list-style-type: none"> Engage with index providers to learn about various products available and extent to which they can be customized for OST's purposes Test part of passive portfolio with climate-aligned index before full commitment
D Increase engagement and stewardship activities with companies on net zero plans	<ul style="list-style-type: none"> Identify select sectors or companies where OST would engage in active stewardship through proxy voting Partner with pension peers or via a coalition for collective engagement with high-emitting companies

For example, Treasury could aim to increase active climate-positive investments and invest in climate-aligned products and indexes that have a lower intensity than a standard benchmark index. This could further reduce emissions. This would require developing a pipeline of potential investment strategies that focus on climate-friendly and net zero products. We would test our passive portfolio against any chosen climate-aligned index before fully committing to it. We would also expand our sustainability stewardship, either independently or with partners, or, most likely, both.

PUBLIC EQUITY STRATEGY

ACTIONS

- Momentum portfolio emissions reductions
- Ⓐ Bring active portfolio emissions intensity in line with benchmark
- Ⓑ Increase investments in climate-focused products
- Ⓒ Transition passive investments to climate-aligned indexes



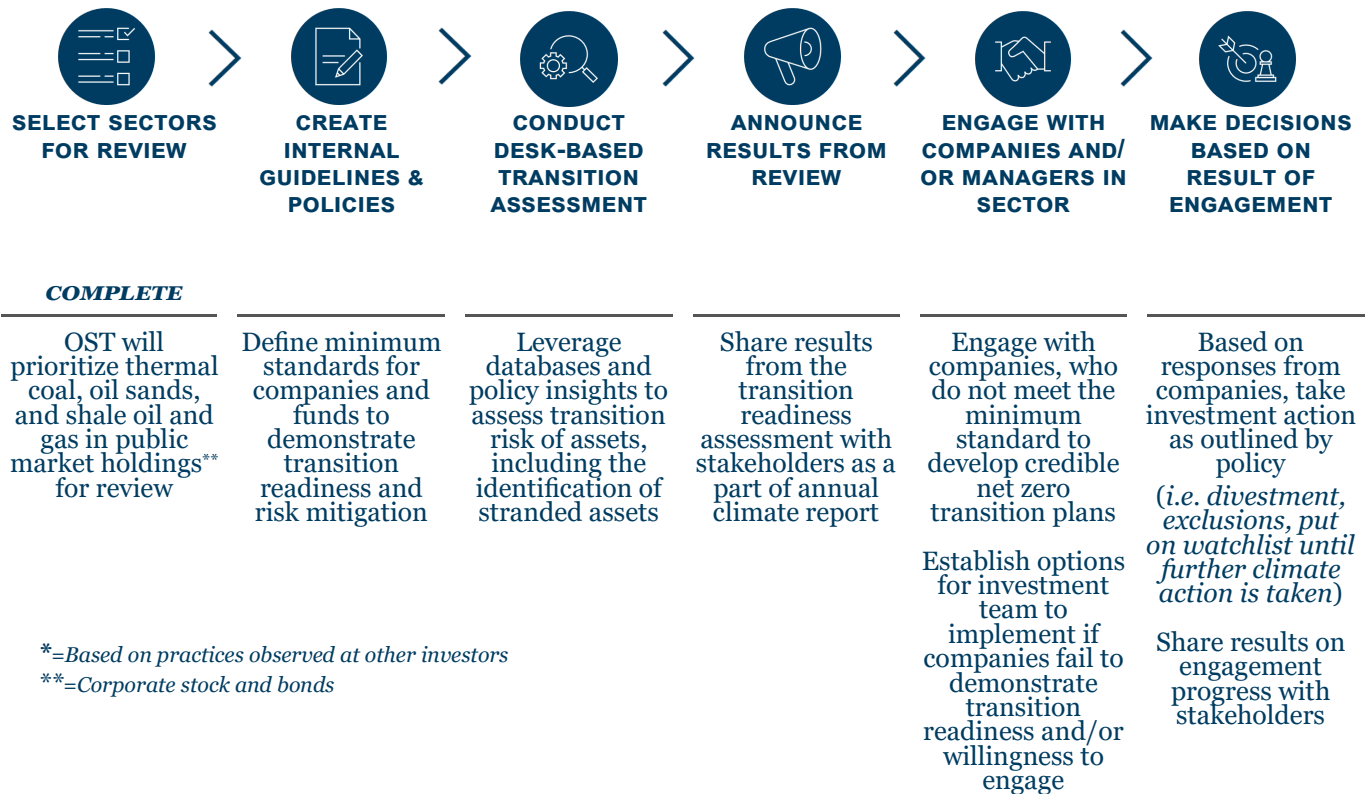
Source: Feasibility analysis conducted by OST as of 09/27/2023

Review Of Public Equity Carbon Intensive Investments

The analysis completed in 2023 that forms the foundation of this plan looked at high-level information related to emissions associated with our investments. In 2024, Treasury will go deeper in our review of our public holdings of thermal coal, oil sands, and shale oil and gas. This review is expected by February 2025. Section 3 of this report goes into additional detail on this effort.

PREPARATION ACTIVITIES*

CONDUCT REVIEW FOR EACH SECTOR*






Two U.S. public pension funds are in the process of reviewing their carbon-intensive investments in a similar way. The following details come from the following publications: Update to the Legislature Regarding NYSTRS’ Deliberative Process to Address Climate Risk and Opportunities¹⁴ and Progress Report on the New York State Common Retirement Fund’s Climate Action Plan¹⁵. Treasury will continue to look at how other pensions are approaching net zero work to better inform our own decisions.

Portfolio Emissions Related To Fossil Fuel Extraction

An initial screen of the emissions related to fossil fuel extraction estimates that they represent approximately 10% of the portfolio's total emissions, while only representing 2.4% of OPERF's total assets. Because we only looked at Scope 1 and Scope 2 emissions, we excluded integrated oil and gas companies from the estimates as most of their emissions are Scope 3. The largest portion of our financed emissions – estimated at 9.5% - comes from natural gas and oil extraction, most of which is within real assets. Thermal coal and oil sands extraction both represent only a de minimis exposure.

REAL ASSETS
 PRIVATE EQUITY
 PUBLIC MARKETS

SECTORS REVIEWED	SHARE OF SCOPE 1+2 BASELINE EMISSIONS*	TOTAL SHARE OF OPERF AUM*
Natural Gas & Oil**	 9.5%	2.3%
Thermal Coal Extraction	<0.1%	<0.1%
Oil Sands Extraction	 0.3%	0.5%
Total	 9.9%	2.4%

*Public markets based on an OST screen of exclusion criteria from MSCI. Private Equity and Real Assets based on OST sector taxonomy

**Does not include integrated oil and gas companies

Source: OPERF portfolio data (as of December 31, 2022) and emissions data from MSCI and ISS

Strategy And Actions By Asset Class

Changes To Investment Strategy: Private Equity

The table below shows the different changes to investment strategy and stewardship that will support Treasury's efforts to reduce carbon emissions in the private equity portfolio. Efforts to align manager and fund selection with the portfolio's emission reduction goals will be more fully integrated into our due diligence process moving forward. Treasury will also focus on improving access to data on emissions in private markets and integrating that data into general partner selection processes.

FOCUS AREA	ACTION	POTENTIAL IMPACT ON PORTFOLIO EMISSIONS
Investment Strategy	A Increase share of portfolio covered by net zero plans	Investments that are net zero aligned could decarbonize at a higher rate (~7% p.a. vs ~2% p.a.)
	B Increase the share of the portfolio invested in climate-positive (i.e. climate solutions) or 'impact' funds	Green investments typically have a lower intensity within their sector (i.e. renewables vs fossil power)
	C Evolve portfolio composition to lower intensity sectors	The portfolio is expected to continue to evolve towards sectors such as technology that have a lower intensity than those in utilities, energy, and materials

ACTION	SUPPORTING ACTIVITIES
A Increase share of portfolio covered by net zero plans	<ul style="list-style-type: none"> Ask existing GPs to disclose data on net zero plan of portfolio companies Request GPs to either disclose or set net zero targets or plans during fundraising cycles Encourage GPs to set net zero targets and plans on their own portfolio
B Increase the share of the portfolio invested in climate-positive (i.e. climate solutions) or 'impact' funds	<ul style="list-style-type: none"> Develop and monitor pipeline of managers that are fundraising for climate and climate-positive and related 'impact' funds Test investments in these funds and, potentially, transition enabling or brown-to-green funds within OPERF's Opportunity Portfolio
C Evolve portfolio composition to lower intensity sectors	<ul style="list-style-type: none"> Integrate data on emissions intensity in manager and fund selection process to better understand impact on targets and potential transition risks

Source: Feasibility analysis conducted by OST as of 09/27/2023

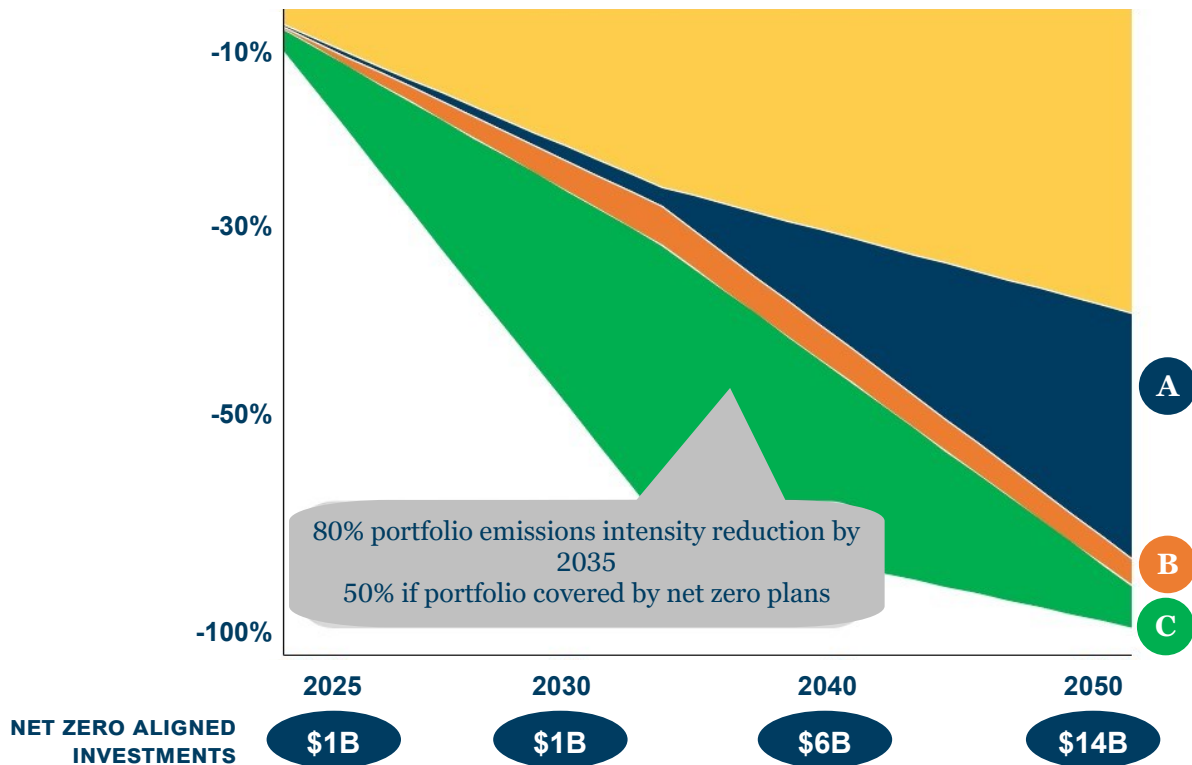
It is anticipated that Treasury will continue transitioning the portfolio away from high carbon intensity sectors such as utilities, energy, and materials and into other lower intensity sectors like technology, consumer, and health care. Treasury’s net zero plan also establishes a goal of increasing the share of OPERF that is invested in climate solutions and green investments. Finally, where appropriate we will use our influence as limited partners to increase the share of our private equity portfolio covered by credible net zero transition plans.

PRIVATE EQUITY STRATEGY

ACTIONS

- Momentum portfolio emissions reductions
- A Increase share of portfolio covered by net zero plans
- B Increase climate ‘impact’ investments
- C Evolve portfolio composition to lower intensity sectors

PRIVATE EQUITY PORTFOLIO EMISSIONS INTENSITY REDUCTION, %



Source: Feasibility analysis conducted by OST as of 09/27/2023

Strategy And Actions By Asset Class

Changes To Investment Strategy: Real Assets

Treasury's real asset investments have performed a unique role within broader portfolio management and performance. Many of these assets have historically provided inflation protection and cash generating opportunities. At the same time, these real asset investments have a higher exposure to high carbon emission sectors, including oil and gas. Reducing our emissions intensity while simultaneously maintaining the intent of this asset class to our broader portfolio goals will be a significant challenge for Treasury.

As with our private equity investments, Treasury will encourage our general partners to set net zero and transition plans for their portfolio companies. Treasury has set a goal of having at least 65% of our real asset portfolio covered by credible net zero plans by 2035. Additionally, Treasury has set an interim target for the share of the real asset portfolio allocated to climate-positive and transition-enabling investments. Much of this will be accomplished through partner and fund selection. The table below shows the actions, impacts, and supporting activities available to Treasury.

FOCUS AREA	ACTION	POTENTIAL IMPACT ON PORTFOLIO EMISSIONS
Investment Strategy	A Increase share of portfolio covered by net zero plans	Investments that are net zero aligned could decarbonize at a higher rate (~7% p.a. vs ~2% p.a.)
	B Increase the share of the portfolio invested in climate-positive (i.e., climate solutions) investments	Climate-positive investments typically have a lower intensity within their sector (e.g., renewables vs fossil power) Additionally, transition-enabling or brown-to-green investments could also support economy-wide decarbonization
	C Evolve remaining fund composition towards lower-intensity sectors (beyond momentum)	Investments in infrastructure, for example, have lower intensity than those in natural resources

ACTION	SUPPORTING ACTIVITIES
A Increase share of portfolio covered by net zero plans	<ul style="list-style-type: none"> Ask existing GPs to disclose data on net zero plan of assets Request GPs to either disclose or set net zero targets or plans during fundraising cycles Encourage GPs to set net zero targets and plans on their own portfolio
B Increase the share of the portfolio invested in climate-positive (i.e., climate solutions) investments	<ul style="list-style-type: none"> Develop and monitor pipeline of managers investing in climate-positive assets Test investments in these funds within the Opportunity Portfolio Consider transition-enabling assets to support economy-wide decarbonization
C Evolve remaining fund composition towards lower-intensity sectors (<i>beyond momentum</i>)	<ul style="list-style-type: none"> Integrate data on emissions intensity in manager and fund selection process to better understand impact on targets and potential transition risks

Source: Feasibility analysis conducted by OST as of 09/27/2023

Finally, because of the carbon intensity of our existing real asset investments, Treasury will look for opportunities to evolve away from natural resource investments and toward lower intensity sectors like infrastructure and transition-enabling sectors.

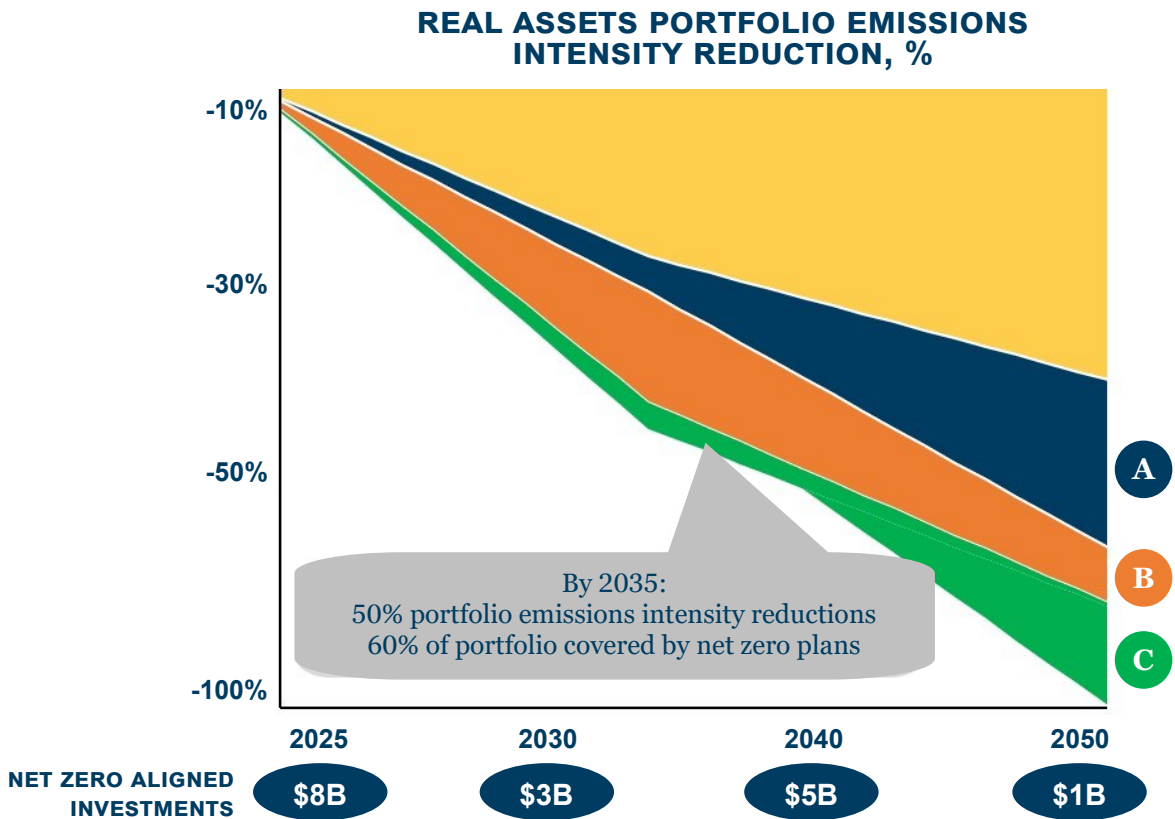
The structure of our private market investments and the nature and role of real asset investments in our portfolio will present challenges for Treasury to decarbonize. This is partly because limited partners such as OPERF have no control or influence over the investment decisions made by the general partner managing the funds and partly because OPERF seeks to achieve different performance outcomes than other asset classes such as public equity. In addition, many funds diversify their own portfolio investments across both carbon intensive sectors as well as green and renewable energy activities.

Therefore, Treasury will no longer make new investments in private market funds that have a stated intention to invest primarily in fossil fuels. This exclusion is aimed at guiding Treasury’s fund selection. It does not exclude future investments in general real asset funds where traditional energy sector investments are possible. Treasury considers this to be a prudent step to begin addressing our 2035 interim target, while protecting the integrity of this asset class.

ACTIONS

- Momentum portfolio emissions reductions
- A Increase share of portfolio covered by net zero plans
- B Increase climate-positive (i.e., climate solutions) investments
- C Evolve remaining fund composition towards lower-intensity sectors (*beyond momentum*)

REAL ASSETS STRATEGY



Source: Feasibility analysis conducted by OST as of 09/27/2023

Strategy And Actions By Asset Class

Changes To Investment Strategy: Real Estate

Treasury will continue to increase the share of separate accounts in the portfolio and these investments provide opportunities to invest directly in lower intensity properties. Separate accounts are investment vehicles where a single investor provides virtually all the necessary equity capital for a fund.

FOCUS AREA	ACTION	POTENTIAL IMPACT ON PORTFOLIO EMISSIONS
Investment Strategy	A Work with property managers to identify profitable decarbonization opportunities	More control over separate accounts provides greater influence in setting up net zero goals and transition plans
	B Increase share of co-mingled real estate investments covered by net zero plans	Investments that are net zero aligned could decarbonize at a higher rate
Stewardship	C Increase share of separate accounts in portfolio composition	OST expects its share of the portfolio in separately managed accounts to increase over time which invests in lower emissions intensity properties today

ACTION	SUPPORTING ACTIVITIES
A Work with property managers to identify profitable decarbonization opportunities	<ul style="list-style-type: none"> Ask all property managers to submit net zero transition plans for all properties that have not achieved LEED certification. Plans would include detail on the current characteristics of the building, options and business case for any capital investments and expected impact on emissions Review the plans to identify and invest in profitable decarbonization opportunities such as energy efficiency and onsite renewables
B Increase share of co-mingled portfolio covered by net zero plans	<ul style="list-style-type: none"> Ask managers to disclose emissions, LEED or similar certifications and net zero plans for all properties, where possible Encourage managers to identify profitable decarbonization opportunities or achieve LEED or similar certifications Integrate data on progress against net zero plans into manager and fund selection criteria where available
C Increase share of separate accounts in portfolio composition	<ul style="list-style-type: none"> Continue to track the emissions intensity of separate accounts vs other types of funds and understand what may be driving these differences

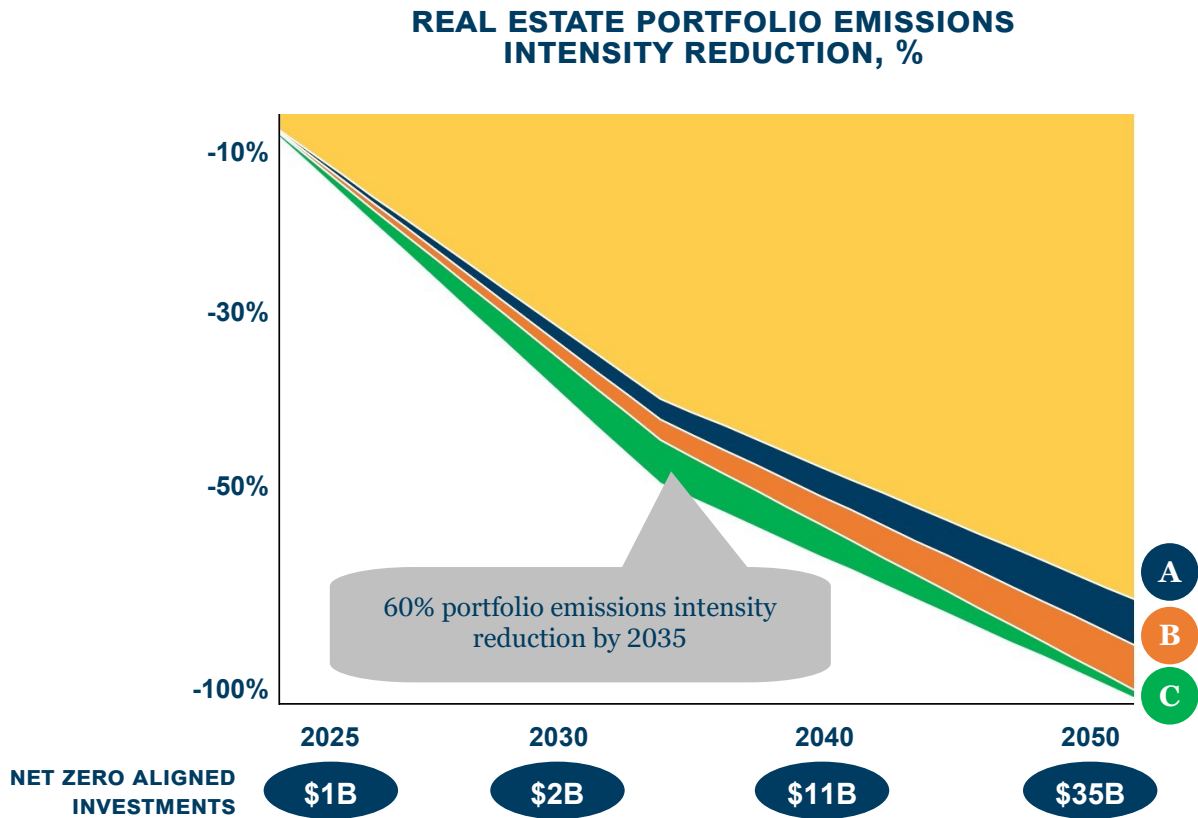
Source: Feasibility analysis conducted by OST as of 09/27/2023

As well as decarbonization opportunities, our investments in co-mingled funds provide opportunities to ask property managers to engage in decarbonization efforts—such as pursuing LEED certification and pursuing other profitable energy efficiency efforts.

REAL ESTATE STRATEGY

ACTIONS

- Momentum reduction for assets aligned with net zero
- A Work with property managers to identify profitable decarbonization opportunities
- B Increase share of co-mingled real estate investments covered by net zero plans
- C Increase share of separate accounts in portfolio composition



Source: Feasibility analysis conducted by OST as of 09/27/2023

Data Enhancements

Treasury will take steps to enhance data collection and usage to help make decisions about strategies surrounding emissions reductions, target setting, financing, and risk. In order to determine portfolio emissions and targets, Treasury will collect data on:

- Reported emissions
- Financial and operational data (EVIC [enterprise value including cash], revenues, assets, production, floor area)
- Sector emissions factors for internal baseline calculations [emissions factors are estimates that link the quantity of emissions to the activity responsible for it; thus they are representative of long-term average emissions]
- Net zero transition plans
- Portfolio data on investments in carbon intensive sectors

Some of this data will be sourced from the investee companies, some from managers and some from third-party providers.

Information on climate and transition finance will include data and performance on investments by each category of climate or transition investments. For transition risk, Treasury will continue to collect data on economy and sector-specific transition scenarios and the impact of those scenarios on portfolio performance.

We looked at the feasibility of three different timeframes and approaches to decarbonize the portfolio.

The first was to make a series of incremental reductions, though with a high degree of conviction that these changes would produce a positive effect, in our emissions intensity, with the goal of reaching net zero by 2050. The second was setting a net zero target by 2050 as well, but with an interim target of a 60% reduction in emissions intensity by 2035. This second approach increases the likelihood of reaching net zero by 2050 and responds faster to concerns about the risk that climate change represents to our portfolio. The third was a more ambitious net zero by 2040 target. In order to reach net zero by this date, Treasury would have to reduce carbon emission intensity by 80% by 2035.

A net zero by 2040 strategy would require immediate and large shifts in portfolio allocation, including widespread restrictions, that could have major impacts on our investment risk and returns. More significantly, a 2040 strategy would require aggressive changes to investment policy. Furthermore, such a strategy would likely not align with our Net Zero Plan design principles – for example, putting beneficiaries first – without substantial policy changes that would shift investments more quickly and at a greater rate than has been achievable in the past.

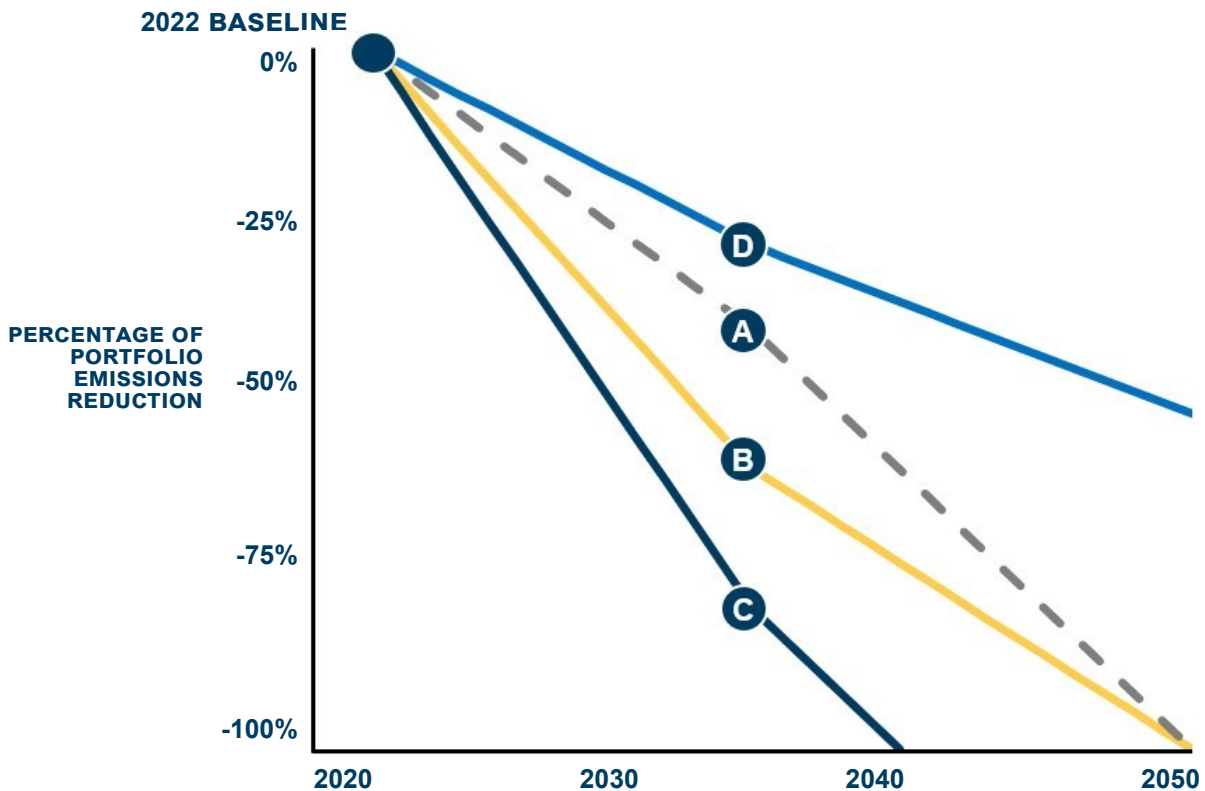
It is important to note that in assessing the feasibility of a 2040 target, Treasury determined that the strategies necessary to reach these more aggressive targets did not entail adoption of fundamentally different strategies. Rather, they would require Treasury scaling up those strategies already identified as necessary for our net zero by 2050 plan and eliminating programs that provide needed inflation hedging, risk mitigation, and income production. For example, while the 2050 plan would require shifting 30% of our passive public equity holdings to climate-aligned indexes by 2035, the 2040 target would require shifting 100% of our passive public equity holdings to these climate-aligned indexes by 2035.

Even if this could be done without negatively impacting returns, such an approach would be costly and entail increasing the risk and tracking error allocation to public equity at a level that could constrain investment opportunities elsewhere. Tracking error is defined as the annualized standard deviation of the difference in returns between a portfolio and its benchmark. It measures the extent by which a portfolio's returns deviate from those of the benchmark. This approach would require a significant adaptation of the Oregon Investment Council's investment policies, likely require changes in our strategic asset allocation policies, and potentially force the Oregon Investment Council to lower its capital market assumptions—its projected rate of return.

POTENTIAL PATHWAYS

- A** Incremental Near-Term Reductions, Reaching Net zero By 2050 In The Long-Term
- B** Net zero By 2050 With A 60% Intensity Target By 2035
- C** Net zero By 2040 With A -80% Intensity Target By 2035
- D** Momentum Glidepath Path Based On Public Policies Currently In Place To Reduce Emissions

POTENTIAL OPERF NET ZERO TARGET PATHWAY



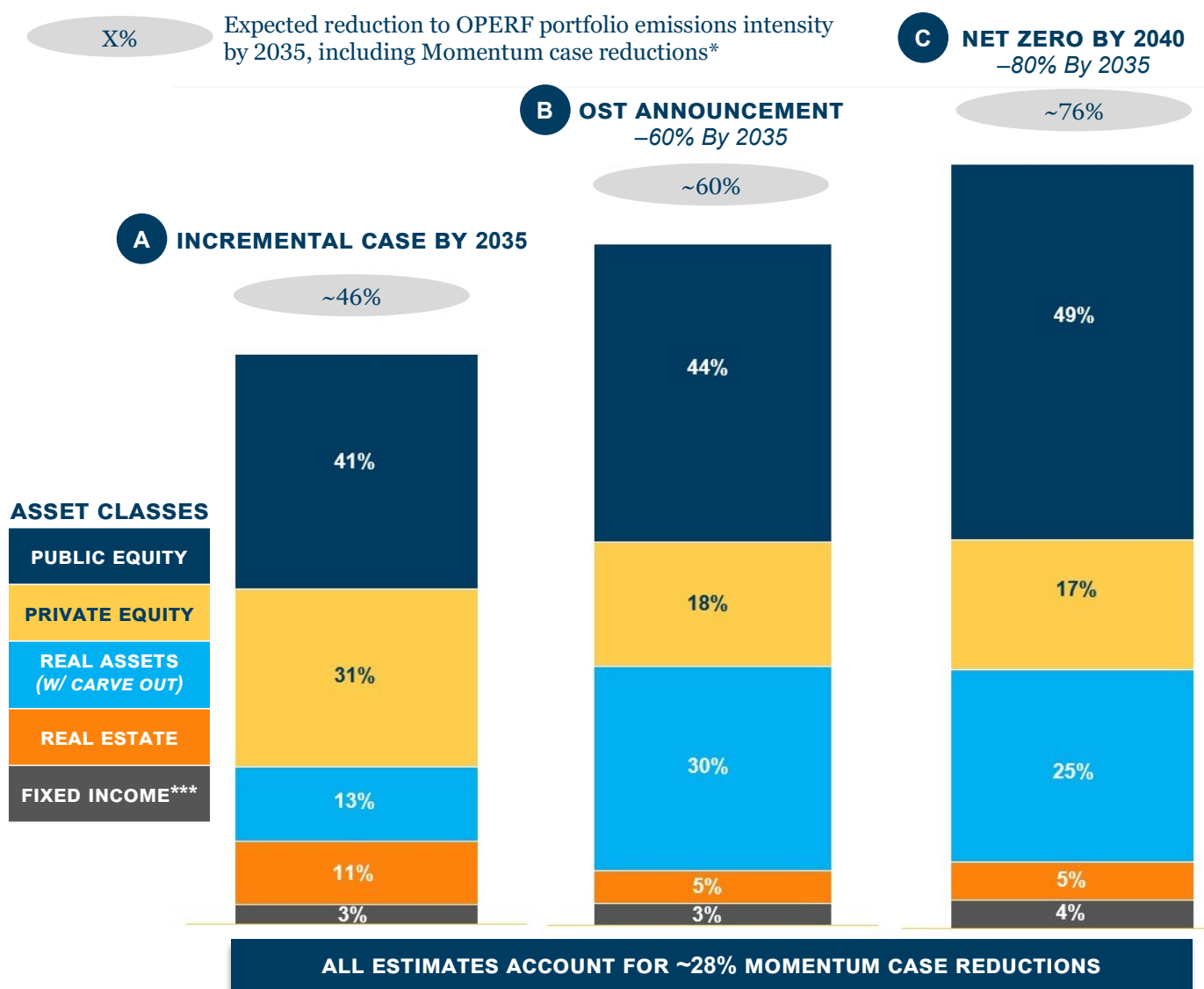
Source: IEA scenario emissions from World Energy Outlook (2022), Oxford Economics Real GDP Growth, OPERF portfolio data (as of 12/31/22), ISS and MSCI company emissions reporting

Line A represents the incremental strategy, while B and C are net zero by 2050 and 2040, respectively. Data was put together using data from the IEA scenario emissions, taken from its World Energy Outlook (2022), Oxford Economics Real GDP Growth, OPERF portfolio data (as of 12/31/22), ISS and MSCI company emissions reporting.

Understanding Tradeoffs & Feasibility Of 2040 & 2050 Targets

The following charts and tables show the level of contribution of emissions intensity reduction from each of the asset classes in order to reach certain targets. It is important to recognize that we expect each asset class to reduce its individual emissions intensity by 60% by 2035; their ‘contributions’ are differentiated because of the different levels of emissions intensity within each asset class – higher in public equities, lower in private equity, for example. Thus, if public equities reduces its emissions intensity by 60% it will represent a greater contribution to the overall reduction.

We also made assumptions about climate financing targets, with a \$5.4 billion target for the incremental strategy (around 7% of our portfolio), a \$6.3B target for 60% interim (around 8%) and an \$11.1B (around 14%) for the 80% interim target. We also assumed that fixed income – which consists mostly of corporate bonds for the purpose of this net zero plan – would follow a pathway similar to public equities and that real estate would actually see a reduction of 70%, 70% and 80%, respectively, for the three target scenarios.



*Current view expects all asset classes to contribute equally to portfolio emissions reduction and does not consider the concept of burden sharing (e.g., all asset classes will aim to hit 60% reduction by 2035) Current view builds in assumptions for climate financing targets for the portfolio at: A. \$5.4B (7%); B. \$6.3B (8%); C. \$11.1B (14%)

**Estimates assume that Fixed Income (Corporate Bonds) would follow a decarbonization trajectory equal to that of Public Equities and that Real Estate would reach decarbonization targets of 70% by 2035 in A&B, and 80% in C

Public Equity & Interim Targets

The benchmark we used is the MSCI ACWI IMI index, an index that includes more emerging markets than many others. Its estimated carbon footprint has a carbon intensity of 62, using a carbon intensity -to-enterprise value including cash estimate [EVIC] of 62 based on our internal MSCI findings. Carbon intensity is a measure of how much CO₂ is produced, for example, scaled for a company's size.

It is important to note that while the carbon emissions tied to specific strategies might appear linear, implementing these strategies could be exponentially more challenging. For example, finding the investible opportunities to meet our target of 5% in active investments being climate-positive will be a challenge. Reaching a target of 35% in order to get to an overall target of 80% by 2040 would be exponentially more challenging.

NO CHANGE

MODERATE CHANGE

LARGE CHANGE

POTENTIAL ACTIONS	2022 STARTING ASSUMPTIONS	INCREMENTAL CASE BY 2035	-60% TARGET BY 2035	-80% TARGET BY 2035
Bring emissions intensity of active portfolio in line with portfolio benchmark	Emissions of active investments is 121 vs 62 tCO ₂ e / \$M for benchmark (MSCI ACWI IMI)*	Based upon OST inputs - 50% of emissions gap closed between active investments and benchmark	Based upon OST inputs - 100% of emissions gap closed between active investments and benchmark	Based upon OST inputs - 100% of emissions gap closed between active investments and benchmark
Increase share of active investments in climate-positive (i.e., climate solutions)	0% of active investments**	Based upon OST inputs - 0% of active investments	Based upon OST inputs - 5% of active investments	Based upon OST inputs - 35% of active investments
Switch passive investments to climate-aligned indexes	0% of passive investments	Based upon OST inputs - 0% of passive investments	Based upon OST inputs - 20% of passive investments	Based upon OST inputs - 100% of passive investments
Potential change in scope 1+2 portfolio emissions intensity by 2035		~-45%	~-60%	~-80%

ALL ESTIMATES ACCOUNT FOR ~28% MOMENTUM CASE REDUCTIONS

*MSCI ACWI IMI Index estimated carbon footprint has a carbon intensity (CI) of 62, using a CI to EVIC estimate of 62 based on OST's internal MSCI findings

**Based off of calculated Public Equities baseline (assets as of 12/31/2022), and Global Industry Classification Standard of corporates
Source: OPERF Portfolio Data shared by 9/21/23, Global Industry Classification Standard

Private Equity & Interim Targets

For these estimates we considered several of what are called ‘dampening factors,’ factors that might produce lower or different expectations. These include the number of companies that have set emissions reduction targets and the fact that not all of them would achieve those targets by 2050. We estimate that 15% of this asset class has net zero plans currently, based on a combination of a sectoral average target that has been achieved thus far, using data taken from carbon disclosure and data collection expert CDP, and an average sectoral target annual achievement using data from IT company Accenture.

Again, this chart captures the significant challenge of moving from a net zero 2050 target to a more aggressive net zero 2040 target. For example, accomplishing a reduction of 64% carbon intensity in our private equity portfolio by the interim date of 2035 will require transitioning our portfolio entirely away from materials, energy, and utilities by then. This is a transition that is both meaningful and already in process. But in order to move to an 80% carbon intensity reduction by 2035, the portfolio would not only have to accomplish that evolution away from materials, energy, and utilities by 2035, but also have to reduce its exposure to industrials and consumers to just 10% of the portfolio. This would significantly limit the universe of investible opportunities in our private equity portfolio and likely trigger adjustment by the Oregon Investment Council to its broader strategic asset allocation policy.

NO CHANGE

MODERATE CHANGE

LARGE CHANGE

POTENTIAL ACTIONS	2022 STARTING ASSUMPTIONS	INCREMENTAL CASE BY 2035	-60% TARGET BY 2035	-80% TARGET BY 2035
Increase share of portfolio covered by net zero plans*	~15% of the portfolio has net zero plans**	Based upon sectoral analysis -50% of portfolio companies set net zero plans*	Based upon sectoral analysis -56% of portfolio companies set net zero plans*	Based upon sectoral analysis -60% of portfolio companies set net zero plans*
Evolve portfolio composition to lower intensity sectors	~6% of the portfolio is either Materials, Energy, or Utilities, 8% in Industrials, 23% in Consumer	Based upon OST portfolio shift - Materials, Energy, and Utilities shifts to 0% before 2035	Based upon OST portfolio shift - Materials, Energy, and Utilities Shifts to 0% before 2035	Based on sectoral analysis – Impact seen in A/B + decrease to Industrials + Consumer to 10% of portfolio
Increase share of active investments in climate-positive (i.e., climate solutions)	~1% of portfolio currently invested in renewables	Based upon OST inputs - 5% of the portfolio in climate-positive or impact products by 2035	Based upon OST inputs - 10% of the portfolio in climate-positive or impact products by 2035	Based upon OST inputs - 10% of the portfolio in climate-positive or impact products by 2035
Potential change in scope 1+2 portfolio emissions intensity by 2035		~-62%	~-64%	~-80%

ALL ESTIMATES ACCOUNT FOR ~28% MOMENTUM CASE REDUCTIONS

*Dampening factors considered in the feasibility model: 1) Number of companies that have set targets; 2) Not all companies will achieve targets by 2050

**15% estimate is based on "% estimate is based on combination of sectoral average target achievement today from CDP data, scaled by average sectoral target achievement year from Accenture data". Based upon GICS classifications of Private Equity baseline (as of 12/31/2022)

Source: OPERF Portfolio Data shared by 9/27/23, Global Industry Classification Standard, MSCI data provided by OST by 9/27/2023

Real Assets & Interim Targets (*Without Transition Carve Out*)

These estimates include the same dampening factors as for private equity, but the 15% of companies with net zero plans estimate will be tested against fund managers' knowledge.

POTENTIAL ACTIONS	2022 STARTING ASSUMPTIONS	INCREMENTAL CASE BY 2035		
		NO CHANGE	MODERATE CHANGE	LARGE CHANGE
			-60% TARGET BY 2035	-80% TARGET BY 2035
Increase share of portfolio covered by net zero plans	~15% of the portfolio has net zero plans*	Based upon sectoral analysis –46% of portfolio sets net zero plans*	Based upon sectoral analysis –56% of portfolio sets net zero plans*	Based upon sectoral analysis –56% of portfolio sets net zero plans*
Increase climate-positive share (<i>without transition-enabling or other carve-out</i>)	~21% of the portfolio is invested in climate-positive assets**	35% of the portfolio invested in climate-positive (20%) and transition enabling assets (15%) by 2035	35% of the portfolio invested in climate-positive (20%) and transition enabling assets (15%) by 2035	25% of the portfolio invested in climate-positive (20%) and transition enabling assets (5%) by 2035
Evolve remaining fund composition towards lower-intensity sectors (<i>beyond momentum</i>)	~27% of the portfolio in the energy and mining sub-portfolios***	Based upon OST inputs - Sector composition does not change	Based upon sectoral analysis – 100% of energy and metals & mining exposure shifts (~\$2.4B) to lower emission sectors	Based upon sectoral analysis – 100% of energy and metals & mining exposure shifts (~\$2.4B) to lower emission sectors
Potential change in scope 1+2 portfolio emissions intensity by 2035		~-37%	~-56%	~-68% (<i>target not met</i>)

ALL ESTIMATES ACCOUNT FOR ~28% MOMENTUM CASE REDUCTIONS

*Dampening factors considered in the feasibility model: 1) Number of companies that have set targets; 2) Not all companies will achieve targets by 2050
15% estimate is based on "% estimate is based on combination of sectoral average target achievement today from CDP data, scaled by average sectoral target achievement year from Accenture data". This will be confirmed with GPs to get a more accurate baseline

**Based on preliminary classification provided by OST on 8/25/23, to align and confirm

***Based on baseline of real assets portfolio (as of 12/31/22)

Source: OPERF Portfolio Data shared by 9/27/23, Global Industry Classification Standard, MSCI data provided by OST by 9/27/2023

Real Assets & Interim Targets (*With Transition Carve Out*)

These estimates include the same dampening factors as for private equity, but, again, the 15% of companies with net zero plans estimate will be tested against fund managers' knowledge.

POTENTIAL ACTIONS	2022 STARTING ASSUMPTIONS	INCREMENTAL CASE BY 2035		
		NO CHANGE	MODERATE CHANGE	LARGE CHANGE
			-60% TARGET BY 2035	-80% TARGET BY 2035
Increase share of portfolio covered by net zero plans	~15% of the portfolio has net zero plans*	Based upon sectoral analysis –46% of portfolio sets net zero plans*	Based upon sectoral analysis –56% of portfolio sets net zero plans*	Based upon sectoral analysis –56% of portfolio sets net zero plans*
Increase climate-positive share (<i>with transition-enabling or other carve-out</i>)	~9% of the portfolio is invested in solar, wind, or hydro assets**	Based upon OST inputs - ~20% of the portfolio invested in climate-positive assets by 2035	Based upon OST inputs - ~20% of the portfolio invested in climate-positive assets by 2035	Based upon OST inputs - ~20% of the portfolio invested in climate-positive assets by 2035
Evolve remaining fund composition towards lower-intensity sectors (<i>beyond momentum</i>)	~27% of the portfolio in the energy and mining sub-portfolios***	Based upon OST inputs - Sector composition does not change	Based upon sectoral analysis – 74% of energy and metals & mining exposure shifts (~\$1.8B) to lower emission sectors	Based upon sectoral analysis – 100% of energy and metals & mining exposure shifts (~\$2.4B) to lower emission sectors
Potential change in scope 1+2 portfolio emissions intensity by 2035		~-39%	~-60%	~-68% (target not met)

ALL ESTIMATES ACCOUNT FOR ~28% MOMENTUM CASE REDUCTIONS

*Dampening factors considered in the feasibility model: 1) Number of companies that have set targets; 2) Not all companies will achieve targets by 2050 15% estimate is based on "% estimate is based on combination of sectoral average target achievement today from CDP data, scaled by average sectoral target achievement year from Accenture data". This will be confirmed with GPs to get to a more accurate baseline
**Based on preliminary classification provided by OST on 8/25/23, to align and confirm

***Based on baseline of real assets portfolio (as of 12/31/22)

Source: OPERF Portfolio Data shared by 9/27/23, Global Industry Classification Standard, MSCI data provided by OST by 9/27/2023

We identified a number of other actions that we could take to bridge any gaps between estimated emissions intensity reductions and the actual reductions that transpire when the Plan is put into practice. These include tracking policy developments, excluding stranded assets, and leveraging the asset owner universe.

If we track policy developments, we can identify whether these would create greater emissions intensity reductions across economies or in particular sectors. Being aware of these developments would allow us to adapt our investment strategy to incorporate changes to the momentum pathway.

We will also consider excluding investments that are exposed to stranded asset risk, such as fossil fuel companies without transition plans, and companies in ‘hard to abate’ sectors or industries. Stranded assets are those that lose value or turn into losses because they cannot be profited from. While the obvious examples are oil fields that have been acquired and invested in, which end up having to stay in the ground because of the net zero economy, they can also include crops that are damaged by the impacts of climate change such as flooding or drought. For example, the Intergovernmental Panel on Climate Change (IPCC) has said that the coal industry could face significant stranded asset risk by 2030 and the oil and gas industry by 2050. But other industries and assets, like fossil fuel-powered power plants, could also end up being stranded as society adopts a less carbon-dependent lifestyle. We will look for investment vehicles that consider these risks over the lifespan of the investment.

Maximizing our own leverage may lead to joining with other asset owners or NGOs. Groups and alliances already exist, such as Climate Action 100+, an association of shareholders taking action to influence the world's largest corporate greenhouse gas emitters to act on climate change. Participating in such efforts will have value so long as it complements our fiduciary responsibilities. We may also find that joining with other asset owners or selected fund managers can more effectively increase collective influence over decarbonizing portfolio companies.

Section 3: Next Steps

Treasurer Read developed this Net Zero Plan to ensure the sustainability of pension fund returns by accelerating the reduction of carbon emissions in the OPERF portfolio, and to do so as aggressively as possible, without requiring a reduction in the anticipated capital market assumption of OPERF's rate of return over the coming years. Further, the major strategies of the plan are scaled to avoid requesting major changes from the Oregon Investment Council to our investment strategy or our strategic asset allocation.

Implementing this plan will be a years-long effort, with several specific, initial steps critical to its success over the next few years. These include, but are not limited to:

- Oregon Investment Council Consultation and Review
- Carbon-Intensive Review
- Ongoing Staff Analysis and Additional Methodology Development
- Corporate Engagement
- Reporting and Beneficiary Engagement
- Increased Staffing Capacity

Treasurer Read will present this plan to the Oregon Investment Council in February 2024. We anticipate that the Council will seek to examine the concepts, recommendations, and strategies carefully over the next year and beyond to better understand how the portfolio might change and what those changes could mean to earnings, risk budget, and diversification.

This evaluation and feedback from the Oregon Investment Council will make the plan better, with deeper analysis of investment options and scenarios than we were able to complete in 2023. Further, it offers an objective analysis of staff and consultant work that is prudent given the fiduciary responsibilities Treasury and Oregon Investment Council have to beneficiaries of the fund.

WHAT IS THE OREGON INVESTMENT COUNCIL AND WHAT DOES IT DO?

The Oregon Investment Council is a policy-setting council that largely oversees and assigns the investment management activities of the Oregon State Treasury and qualified external fiduciaries. The Oregon Investment Council is responsible for setting asset allocation, investment policies, and guidelines which guide staff in their work, and provide Council the ability to oversee the program as fiduciaries. The Oregon Investment Council tasks Treasury staff, external managers, consultants and other service providers with policy implementation.

The Oregon Investment Council's policy assigns many of the key investment implementation responsibilities to Treasury staff. As part of its oversight role, the Oregon Investment Council requires timely reports to ensure assigned responsibilities are being carried out in accordance with fiduciary duties and in compliance with relevant policies, guidelines and approvals.

Staff have the responsibility to recommend retaining an investment manager, terminating investment managers, and overseeing individual investment managers to ensure their portfolios comply with portfolio mandates/guidelines.

While this plan contains numerous elements we can implement immediately and that do not require action from the Council, this additional review from the Oregon Investment Council helps to ensure continuity as Treasurer Read completes his final year in office and is replaced by a new treasurer in early 2025. There is the possibility that future treasurers will have new and/or different ideas about managing the risk of climate change, and this engagement helps to maintain institutional knowledge at the Council level as Treasurer Read leaves his role.

Within this context of existing OIC policy – which aims to balance asset allocation based on the risk return profile of each asset class with the need to grow the size of the fund, generate returns, and protect for liquidity and market volatility – new or amended policy specifics may be identified by the Council's outside consultants as the Net Zero implementation moves forward. Treasury anticipates that the February 2024 discussion with OIC on Net Zero implementation will be the first of many.

Carbon-Intensive Review

The analysis completed in 2023 that forms the foundation of the Plan looked at high-level information related to emissions associated with many of our investments. In 2024, Treasury will go deeper in our review of our public holdings of thermal coal, oil sands, and shale oil and gas. This review, which will be largely completed by February 2025, will be driven by additional Treasury staff analysis and informed by the efforts of other institutional investors that have implemented or initiated net zero plans for their investments.

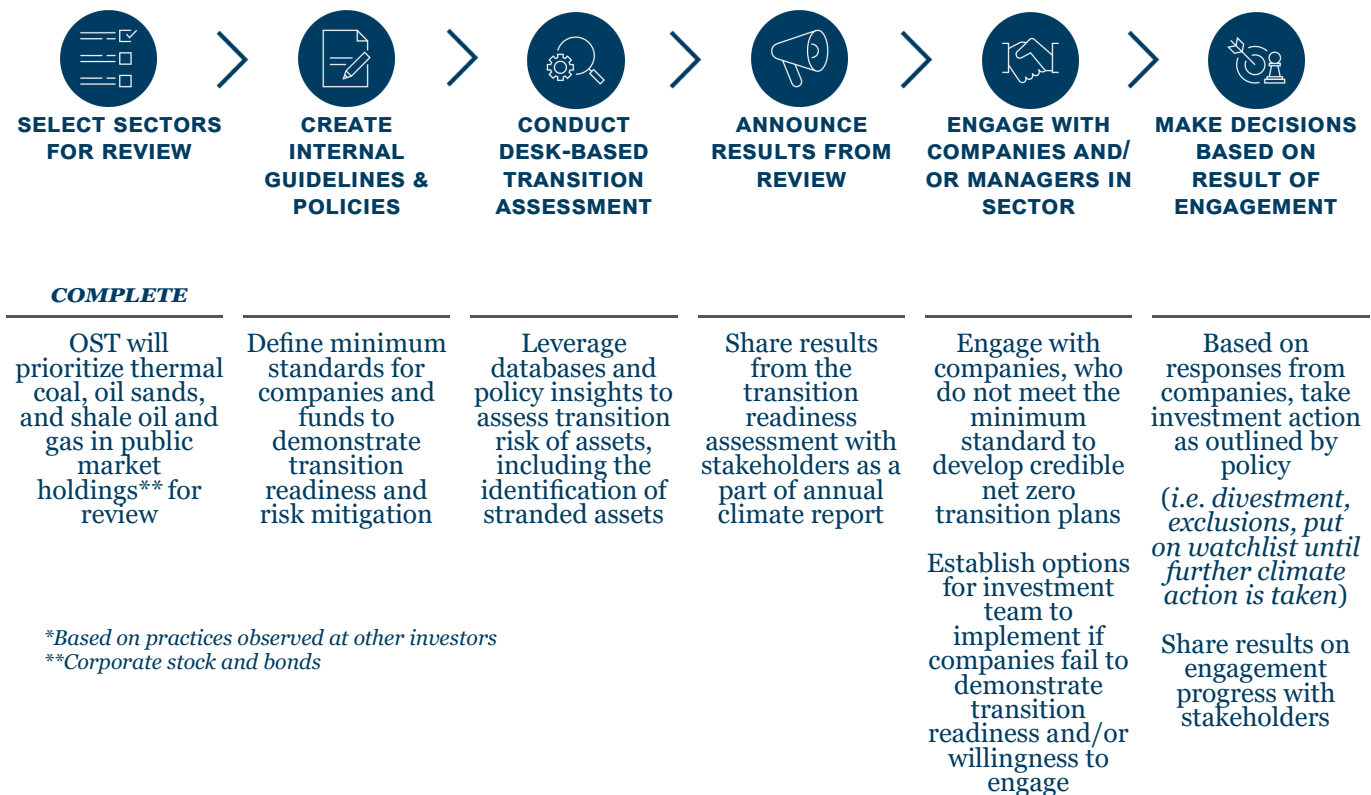
This review will evaluate whether publicly traded companies we are invested in:

- meet the definition of being carbon intensive (thermal coal, oil sands, and shale oil and gas)
- assess whether the identified companies meet minimum transition standards and readiness
- engage with those companies and managers that fail to meet minimum transition standards to encourage them to develop credible plans for the coming energy transition

Treasury will work to determine which companies engaged in these industries fall within the ‘carbon intensive’ category based on the production or size of reserves of thermal coal, oil sands, or shale oil and gas. We estimate that reviewing each industry will take around four months, after which more direct engagement can begin. This work is a critical part of a net zero pathway, especially since more carbon-intensive companies represent greater opportunities for meaningful real-world emissions reductions.

PREPARATION ACTIVITIES*

CONDUCT REVIEW FOR EACH SECTOR*



At least two other U.S. public pension funds are in the process of reviewing their carbon-intensive investments in a similar way. The details below come from the following publications: Update to the Legislature Regarding NYSTRS’ Deliberative Process to Address Climate Risk and Opportunities¹⁴ and Progress Report on the New York State Common Retirement Fund’s Climate Action Plan¹⁵. Treasury will continue to look at how other pension funds are approaching net zero work.

PENSION

TAXONOMY

EVALUATION CRITERIA



The NYSTRS periodically reviews and updates a “Restricted List” that ceases further purchases for public equity securities that meet the following criteria:

- Top 10 largest positions that have more than 0.3 gigaton of potential CO2 emissions from thermal coal reserves
- Top 10 largest positions that (i) derive more than 20% of their revenue from O&G, or (ii) have more than 0.1 gigaton of potential CO2 emissions from O&G
- Companies that derive more than 10% of their revenue from oil sands

- Companies on the Restricted List are evaluated using forward-looking factors, including transition readiness
- Companies that are committed to climate transition are favorably looked upon



The NYSCRF conducts an annual review on thermal coal, oil sands, and shale oil and gas companies

NYSCRF is also planning on evaluating the transition readiness of companies in the integrated oil and gas sector

- Potential ways to meet the NYSCRF minimum standard for transition readiness:
- Establishing strategies to produce lower-cost and lower-carbon assets
- Adopting and executing net zero and methane reduction targets; and/or
- Disclosing in line with the TCFD recommendations
- Companies that failed to meet minimum standards have been restricted or

Our work in 2024 will require prioritization, both to make sure that we are not pursuing an investment strategy that is working against our emissions intensity reduction targets, and to ensure progress as net zero activities increase. Any changes to multi-billion-dollar investments do not happen overnight; they require due diligence, but that due diligence can begin with existing staff capacity and accelerate when we receive legislative approval to hire additional staff.

Treasury currently has a large and growing body of assets invested in what can reasonably be considered climate- or transition-aligned investments, including companies with net zero plans and renewable energy companies. Since the Plan requires us to achieve the 60% reduction in emissions intensity by 2035, the pace of this investment will need to increase. A major next step, therefore, is identifying and appropriately vetting investment opportunities that will align with both our investment and emissions objectives. On the public equities side, for example, we will look at climate-aligned investment funds we believe will generate the best returns. This work will begin in 2024 and continue as the plan is scaled up over time and as additional staff resources are added to handle the workload. Similarly, there will be many, many companies pitching Treasury on net zero products. It will take time and work to evaluate these options – to separate more meaningful options out of any marketing spin.

Further, some of the additional work that Treasury staff will do includes the systematization of climate-aligned investments, such as what should be included in our renewable energy portfolio, and what can be defined as climate-aligned versus transition-enabling.

We recognize that, during the transition, there may be some unintended consequences as companies attempt to scale down their emissions or their use of fossil fuels or both. For example²⁴, natural gas was once seen as a less carbon-emitting bridge fuel moving away from coal and oil toward more sustainable, clean energy sources, but the amount of methane emitted in the production process has negated this advantage. In another example²⁵, toy manufacturer Lego had to abandon its attempt to move away from petroleum used in the manufacture of its bricks because shifting to using recycled plastic bottles would actually have emitted more CO₂ than its current manufacturing process. It has had to scale back its ambitions and move to gradually introducing more plant-based materials instead. Likewise, CarbiCrete, a new carbon negative technique of producing cement²⁶ – one of the highest carbon emitting industries worldwide – will initially emit huge amounts of carbon as the company scales up its production facilities, before eventually becoming carbon negative. We understand that the transition from carbon-based energy to renewable fuels is likely to be messy, and that some of our investments may increase the carbon emissions in our portfolio initially, but we are committed to making such investments if the long-term consequences are to reduce emissions associated with our portfolio. Analysis of this nature will be part of plan implementation in 2024 and beyond.

Corporate Engagement & Proxy Voting

During 2024, Treasury staff will identify opportunities for enhanced engagement with companies outside the carbon intensive review. We may pursue this work independently, using existing outreach and stewardship resources, or we may seek opportunities to collaborate with other net zero-aligned institutional investors. To scale up this work, we will need to add staff capacity, as outlined later in this part of the report. But we also have existing staff expertise and experience engaging with companies and pushing for change as shareholders. Staff will continue to look for opportunities where Oregon can take a lead, or build a niche, in addition to joining existing groups and initiatives focused on net zero targets.

With more than 8,500 public companies comprising our public equity portfolio, our current engagement resources will have to grow not only for shareholder outreach, but also to help us collaborate with other net zero aligned institutional investors and other climate-focused investors to conduct meaningful engagement activities.

Treasury will accelerate our work and engagement with existing and new organizations working toward net zero and the goals of the Paris Agreement to leverage our influence on markets to decarbonize. We are already members of and/or work with the following: IFRS Foundation, CDP (Science Based Targets initiative), Ceres, Climate Action 100+. The IFRS Foundation is a not-for-profit organization responsible for developing global accounting and sustainability disclosure standards. CDP, formerly the Carbon Disclosure Project, is a not-for-profit that runs a global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. SBTi defines and promotes best practice in science-based target setting. Ceres is a not-for-profit organization working with influential capital market leaders and investors to solve sustainability challenges. Climate Action 100+ is an investor-led initiative to make the world's largest greenhouse gas emitting companies take action to reduce their emissions.

We will consider, where appropriate and consistent with our fiduciary duties, partnering with other asset managers on joint ventures, similar to the examples in the box below. We anticipate working with other pension funds or shareholder representatives to encourage companies to take net zero actions. We will prioritize collaborating with those industry groups and alliances that promise to make the biggest impact on decarbonization efforts and be open to sharing best practices and taking collective action to signal the urgent need for emissions reductions to the market and to governments.



In 2022, EBRD and PGGM launched an institutional co-investment partnership to mobilise €250M of European pension-fund capital

Investments to be in climate finance and areas that support the Paris Agreement goals of EBRD investee economies



CALSTRS serves as the lead engager for eight corporations, as a part of Climate 100+, to persuade the largest GHG emitters in the world to reduce their emissions

As a result of the collective effort, 90% of boards now oversee climate change and 69% of targeted companies made net zero pledges



CERES formed a collaboration in 2010 with Nike, the Skoll Foundation and the California Public Employees' Retirement System (CalPERS) to use their collective influence to urge the nation's largest companies to move more quickly to understand global sustainability risks

Also by the end of 2024, staff will make recommendations on whether Treasury should join groups working toward a carbon-free economy. These might include some or all of the following: Paris Aligned Investment Initiative, “a global group of 56 asset owners, with over \$3.3 trillion in assets that are committed to transitioning their investments to achieve net zero portfolio GHG emissions by 2050, or sooner,” Task Force on Nature Related Financial Disclosures, the publisher of “disclosure recommendations and guidance for organizations to report and act on evolving nature-related dependencies, impacts, risks and opportunities,” and Net Zero Asset Owners Commitment, global asset owners “committed to decarbonizing their investment portfolios and achieving net zero emissions by 2050.”

Engagement with investment managers and with companies directly will be a crucial part of implementation. It will also be an important element of Treasury’s efforts to include “just transition” principles into our decarbonization effort. As an institutional investor, one of the primary methods we use to influence a company’s ESG implementation and ensure alignment with our interests is by participating in voting during corporate meetings. It is also part of our statutory role under Oregon state law. This work will continue under the Net Zero Plan.

Given the number of companies holding board meetings and considering various proposals throughout the year, institutional investors like Treasury typically work with outside consultants to organize, recommend, and submit shareholder votes. Treasury contracts with Glass Lewis for this service, in part due to the international scope of these votes. Treasury holds the voting rights for all internally managed and separately managed accounts (SMAs). Some Treasury strategies require a commingled or partnership structure, in those cases, the voting duty shifts to the asset manager, adhering to their fiduciary commitment to Treasury and associated clients. Every year, Treasury votes in over 8,000 meetings, covering more than 100,000 items. Proxy voting data from the last five years is accessible through a link on the Treasury's website¹⁶.

Glass Lewis ESG voting policy

In 2019, Treasurer Read moved Treasury to receive recommendations based on the Glass Lewis ESG Policy¹⁷, which "Supports investors with a pronounced emphasis on promoting ESG-related disclosure in portfolio firms, underscoring stakeholder-centric concerns like diversity and sustainability-driven executive pay."¹⁸ Thus the 2023 voting record reflects Glass Lewis recommendations under its ESG Policy.

Under these policies, Glass Lewis evaluates environmental and social shareholder resolutions by looking at the financial materiality of the issue to the company's operations. While all companies face environmental and social risks, these risks are different at each company because of a range of factors, so the financial implications of the same proposal might be different at different companies. The advisory firm also examines proposals in light of direct risks, such as chemical spills or inadequate human right policies, legislative and regulatory risk legal and reputational risk and governance risk, such as leadership failure.

For example, it is generally in favor of proposals that:

- seek to align climate lobbying with a company's public position on climate change
- call for enhanced disclosure, such as reporting in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)
- ask companies to set GHG reduction targets
- ask for energy transition disclosures
- call for explicit statements of board oversight, without which it may recommend voting against relevant directors

On the social side, it generally recommends for proposals that:

- seek adequate information on diversity in the workforce and associated policies
- ask for disclosures on equal opportunity employment
- seek disclosure of gender/racial pay equity data
- in general, call for more detail on corporate lobbying and political expenditures

The ESG policy on governance-related proposals is very detailed and granular and covers subjects ranging from board diversity to multi-class share structures to executive pay, including linking pay to ESG performance, which it recommends a vote for only after reviewing a company's environmental and social record. Treasury staff oversees proxy voting and may vote contrary to Glass Lewis' recommendation, at the Treasurer's discretion.

The Proxy Voting Process

Treasury’s custodian is State Street. A custodian has physical possession of its clients’ financial assets, which can include cash, stock certificates, bonds, and other financial instruments. State Street combines all the shares owned by OPERF in individual companies, regardless of which manager or managers hold the shares, and sends the list to Glass Lewis. The advisor then applies its ESG policy to the votes listed in each of those company’s proxy statements. Treasury then considers those recommendations and assesses them against a focus list of companies. If the company is on a focus list, staff will review the recommendations and apply the Treasurer’s concerns, if any exist, going through a due diligence process if any changes to Glass Lewis’ recommendations are required. This happens in only a handful of cases every year, and often because it is an Oregon-based company with which Treasury has an engagement relationship and can ask for a policy or practice change directly rather than through a proxy vote.

Treasury is working on putting together a policy statement that examines how it applies Glass Lewis’ policy to its voting practices, as well as if there are times where we want to make modifications to that policy, which we have some ability to do.

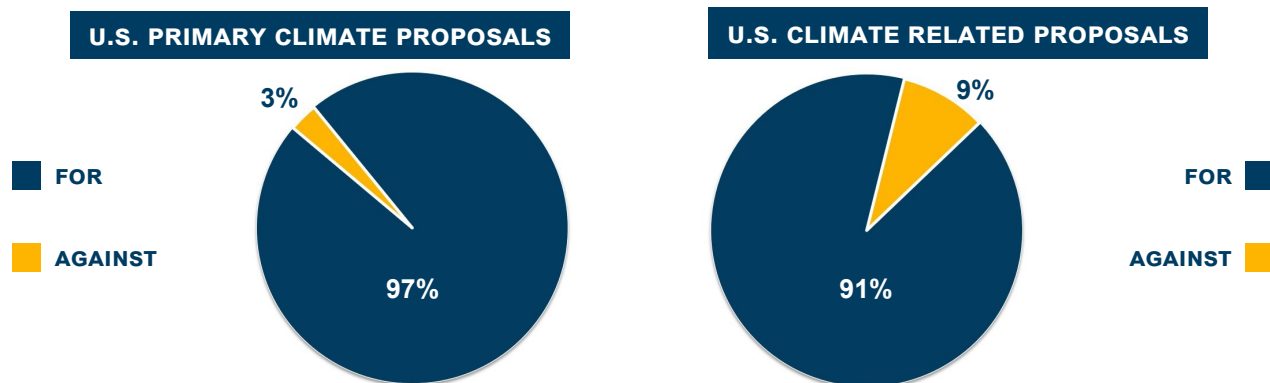
Proxy Voting Record

A brief review of Treasury’s voting record indicates broad support for many shareholder resolutions, plus a number of votes against directors and against compensation policies or plans that might be considered egregious. Treasury has voted against between 10% and 15% of directors in the U.S.; in the majority of cases, a vote against a director is likely to be because they are on the nominating committee of a company that has poor board diversity. However, there are a number of other reasons: lack of attendance at meetings or over boarding, for example, and poor pay policies might lead to votes against compensation committee members.

Voting Record On Climate Proposals

An analysis of Treasury’s voting record on climate-related shareholder proposals splits climate votes into two categories: primary climate votes and climate-related votes. Primary climate votes are proposals that are directly related to climate policy or emissions. While climate-related votes are proposals that indirectly or partially relate to company climate policy and actions, for example, linking compensation to ESG goals, or proposals that addressed ESG or sustainability as a general topic.

During the 2023 proxy season, Treasury supported all but 9% of combined climate votes in the U.S. and globally. Supporting the same proportion — 9% — of primary climate votes, we supported all but 8% of climate-related shareholder proposals. In just the U.S., we supported 97% of primary climate proposals and 91% of climate-related proposals.



Voting Record On Other Proposals

As well as supporting climate shareholder proposals, we demonstrated support for other environmental and social proposals. For example, at one engineering company we supported a shareholder proposal calling for disclosures proving that lobbying activity was in line with the Paris Agreement; we also supported three other resolutions: one calling for more disclosures on lobbying expenditures in general, one on the effectiveness of the company's due diligence process and one calling for a civil rights audit.

As an example of our decision-making processes, the reason for voting against the director was about the company's problems with its social license to operate demonstrated by a lack of consideration for shareholders "which can present legal, regulatory, and reputational risks..." and "where companies who are not signatories or participants in the United Nations Global Compact or that have not adopted a human rights policy that is aligned with the standards set forth by the International Labour Organization or the Universal Declaration on Human Rights." The vote against ratification of the auditor was due to there being no change to the auditor for more than 20 years – in this case since 1925 – and that typically leads to a problem with conflicts of interest and lack of oversight.

Our voting on social shareholder proposals was similarly supportive as on environmental resolutions. In the U.S., we supported 98% of the proposals, or 215 resolutions, and voted against only five. Outside the U.S., in contrast, the situation was almost completely reversed, where we voted against 94% of resolutions and voted for only two. While we voted along with Glass Lewis' recommendations closely outside the U.S., we supported many more social resolutions in the U.S. than Glass Lewis' ESG policy recommended.

In the future, we will expand our understanding how our external managers integrate ESG into their processes and what their ESG engagements are. Most importantly, we want to understand how they are using ESG to select companies to invest in; this might include, for example, asking questions during quarterly calls about whether companies are meeting their targets for GHG emission reductions, or are they up to date on their reporting of these issues. In most instances we control the votes for these investments, but in cases where we are invested in co-mingled funds and the other partner controls the votes, we will also engage with those partners to understand how they are voting, and why, on ESG issues. In general, we want to make sure that they are supporting our need to get the disclosures necessary to report on how we are progressing toward net zero, and also to support any reallocation decisions.

Treasury is also running a campaign this coming proxy year to support fair and reasonable use of the universal proxy card. A universal proxy card is mandatory when there is a proxy contest at a company and an independent director or slate of directors is being nominated by a group of shareholders in addition to those being nominated by the company. Companies must list all directors up for election, not just those being nominated by the company.

But the universal proxy card rule requires shareholders to provide a certain amount of information on their nominees to make sure that other shareholders understand who it is they might be electing. Some companies have been over-applying this part of the rule in an attempt to keep outside nominees off the ballot card, indicating that, for example, this nominee has never been a CEO nor has sufficient financial experience. This is especially the case if a nominee is being put up for election because they are a climate specialist and the board lacks climate expertise.

Treasury believes if the nominee has passed the suitability bar to being a director, it is now up to shareholders to determine whether to vote for them rather than being influenced by the company. We have filed nine proposals on this issue. One has already been settled; other companies are sending us language that they are going to insert in their bylaws, and it looks like these actions will result in the resolutions being withdrawn. Nevertheless, we are likely to have five proposals that go to a vote.

We will also be conducting engagements via coalitions, such as partnering with CII [Council for Institutional Investors] and international organizations like IFRS [International Financial Reporting Standards] and ISSB [International Sustainability Standards Board]. Since the largest carbon emitters get a lot of attention from institutional investors, Treasury is especially interested in being effective through specialization. This means targeting some companies or industries, like cement or agriculture, that have high emissions, but not necessarily the highest. We also would hope to be more impactful engaging with companies that, for example, have set transition targets but aren't meeting them.

On the private equity side, Treasury's engagement models are different. Treasury goes into privately-placed investments primarily as a limited partner. We select fund managers – or general partners – based on their experience, track record, performance and after a lengthy and intense due diligence process. We are not choosing companies; we are choosing strategies and the right people to implement those strategies. The managers then go on to select companies based on those strategies, criteria, and their own best judgment. Treasury has no say or influence in the companies general partners select through a fund – that is part of what being a limited partner means.

Because climate change is not a new risk, Treasury staff have been engaging with general partners on this and associated issues for a long time. The Net Zero Plan will accelerate that engagement.

Future Engagement Plans - Beneficiary Engagement

The development of this plan was made possible by regular engagement with current and future retirees. Treasury has strived to reiterate to legislators and other stakeholders that the dollars invested by Treasury and the Oregon Investment Council are owned by current and future beneficiaries. These are trust dollars, not public dollars, once they hit OPERF. To that extent, Treasurer Read and his staff communicated directly with individual beneficiaries and organizations representing public employees and retirees. We believe that direct communication should continue as we move into implementing that plan.

To facilitate that communication, Treasurer Read will establish a Net Zero Beneficiary Advisory Committee that will meet at least twice a year with the Treasurer and his staff to receive updates, ask questions, and provide feedback. It is anticipated that Treasurer Read will appoint that committee by mid-Spring 2024 and hold the initial meeting by Summer of 2024.

Treasury has acknowledged that our emissions data for certain asset classes will remain ‘noisy’ for some time as the investment community continues to adopt more standardized accounting measures, and as institutional investors continue to push companies for specific emissions data versus proxy data. Additionally, the workload involved with collecting and standardizing data is likely to be beyond Treasury’s immediate capacity. Therefore, Treasury plans to release updated emissions baseline data every two years, at least until our accounting procedures standardize across asset classes and internal capacity at Treasury increases.

In addition to biennial emissions intensity reporting, we will also provide annual updates to beneficiaries, stakeholders, and legislators on actions taken by Treasury to implement and/or adjust the Net Zero Plan. We anticipate that this will take the form of an annual public report provided to the Governor and Legislative leadership.

SCOPE 1, 2, AND 3 EMISSIONS

Scope 1 emissions are defined as direct emissions from company-owned or controlled operations, including, among other things, emissions from transportation, including, for example, movement of materials. Scope 2 emissions include indirect emissions generated through the purchase of electricity and other energy consumption. Scope 3 emissions are all other emissions sources within the company’s value chain that are not covered by Scopes 1 and 2. Scope 3 emissions cover a wide range: use of products sold (such as gas and vehicles), supplier emissions, emissions associated with investments, company travel, and employee commuting.

Scope 1, 2... and 3?

Our emissions intensity measurement covers only Scopes 1 and 2 because Scope 3 emissions are complex and not widely disclosed. For example, in a recent study¹⁹, shareholder representative As You Sow found that of 55 large companies only 20 disclosed all 15 types of Scope 3 emissions.

Initially, in March 2022, when it first proposed its new climate risk disclosures, the Securities and Exchange Commission (SEC) proposed²⁰ requiring publicly listed companies to disclose their Scope 3 emissions when they are ‘material’ and when companies have set reduction targets for them. But this has been the main subject of lobbying, with companies trying to persuade the SEC to remove this requirement. Companies, in responses to the SEC – even though some of them are already reporting – argued that the data is hard to identify and could create legal problems say, for example, if a company claimed to have disclosed all its Scope 3 emissions but was then found to have omitted some accidentally.

While the future of Scope 3 emissions requirements by the SEC continues to play out, European Union rules²¹ will make Scope 3 disclosures mandatory for large companies starting in 2024. The EU has also made reporting standardized.

We will include Scope 3 emissions measurement as soon as disclosure rules apply across the board or once the majority of companies in our portfolio have begun disclosing them.

Increased Staffing Capacity

The workload that will be generated by the Net zero Plan is resource intensive. While Treasury's investment division has grown considerably over the past six years, we remain a lean operation, accomplishing a lot and achieving a strong return on investment for the number of full-time employees we have, who are managing well over \$100 billion across nearly a dozen different portfolios.

Previously in this section of the report, we identified several general areas where increased staffing capacity will be necessary in the future, such as investment analysts to help identify and vet investment opportunities. By putting out a plan like this, we expect potential managers to reach out to us with new investment vehicles. Our interest in lower-emission investment opportunities does not outweigh our commitment to investment decisions that put beneficiaries first. Our due diligence process will continue to support sound financial decisions.

Similarly, we will need additional engagement staff to help analyze companies' transition readiness and net zero alignment. Going forward, Treasury will seek to build upon existing competencies and capabilities to support the implementation of our Net Zero Plan.

In 2023, one of our major work products was a deeper accounting of emissions associated with our portfolio holdings. Given the size and complexity of OPERF, the evolving protocols for emissions accounting, and the various systems used for investment-related reporting, this work product was time and labor intensive. And even then, there remain gaps in the data reflecting the lack of information available for some sectors of the economy. Measuring our progress is critical to reaching the 2050 goal, so we will ensure staff have additional resources to update emissions accounting regularly.

Increasing Internal Treasury Capacity To Support And Implement The Net zero Plan

We will expand data collection from both our managers and third-party data providers to get more information regarding portfolio emissions, conduct risk analyses, and measure climate and transition financing. We will need to monitor and report on Treasury's performance against our 2022 emissions baseline and our 2035 interim target. Staff will need to track the internal momentum of the plan, as research broader policy updates both internally and externally, and produce progress reports against internal targets using financial target reporting tools such as the Task Force on Climate-related Financial Disclosures (TCFD). Even with third-party assistance and verification, we anticipate the need to expand our data team.

Building this capacity has reverberations across Treasury and may involve additional IT, legal, and shared services support. Treasury will need to engage beneficiaries, stakeholders, and legislators in order to secure the budget and position authority necessary to implement the plan.

Conclusion

Prior to beginning work on the Plan, we looked to other pension funds and institutional investors to better understand different approaches to better managing exposure to climate change-related risk and positioning OPERF for the future. Outside consultants, including outside legal counsel, helped to inform the parameters of the decarbonization actions outlined herein. The beneficiary survey – detailed in Section 1 of this report – showed that the beneficiaries want us to make progress on mitigating our exposure to climate change risk but do not want us to abandon our existing investment strategy or sacrifice investment returns. That is consistent with what we understand our legal obligations to be and how we manage the fund each day: loyal to all our beneficiaries, and treating all risk, not just climate risk, as material to fulfilling that loyalty. With that in mind, this plan was reviewed to ensure that all the decisions and actions reflect our fiduciary duty.

We know this work is not theoretical. The decisions we make could have significant implications, not just for retirees, but for people across the state. A rashly implemented net zero plan that lowers investment returns would mean an increase in OPERF's unfunded liability. A larger unfunded liability would require larger contributions from employers and their employees. When public entities have to direct more money to cover their retirement system obligations, they have less money for the classroom, the firehouse, child welfare offices, and other state and local government services. That's why the changes this Plan lays out are consistent with Treasury's statutory responsibility to invest for the sole benefit of OPERF beneficiaries. Not doing so invites lawsuits and threatens our tax-exempt status, while breaking beneficiaries' trust in our stewardship of their personal retirement dollars. The approach we have taken has the added benefit of prioritizing real-world greenhouse gas emissions. So, while the strategies themselves are driven by reducing portfolio risk and delivering sustainable returns for PERS members for decades to come, the resulting reduction in emissions delivers for everyone, in Oregon and beyond.

Section 4: Appendix

Appendix A - Treasurer Read's Net zero Pledge

Appendix B - Glossary

Appendix C - Approaches To 'Climate Positive' Investments

Appendix D - References

Treasurer Read's Core Decarbonization Framework

Issued Nov. 16, 2022

Climate change is real. Human actions are driving current warming trends and climate disruption. Climate change poses significant risks and opportunities for Oregon's investments, the markets, and the global economy. The physical impacts of climate change will impact investments in the long term, as well as in the near and medium terms.

Government action at all levels—including statutory, regulatory and policy decisions—is essential to avoid the worst impacts of climate change, including those on frontline communities and workers. According to the latest science-based assessment from the International Panel on Climate Change (IPCC), we need to keep the average temperature increase to 1.5 degrees Celsius, and to achieve that, we need to achieve net zero emissions by 2050.

Oregon has been a leading state in combatting climate change. It adopted one of the nation's first greenhouse gas reduction (GHG) goals in 2007, seeking to reduce GHG emissions by 75% from a 1990 baseline by 2050. Recent executive actions by Governor Brown have increased those goals. Oregon has recently adopted measures to require 100% non-fossil fuel emitting electricity by 2040, electrify the transportation sector by setting ambitious goals for electric vehicle adoption and carbon content fuel reduction goals, and reduce onsite energy usage in new buildings. Recently, Oregon's Department of Environmental Quality completed rules requiring natural gas suppliers to reduce their GHG emissions by 90% by 2050.

Government actions to comply with the latest scientific assessments as well as international agreements will increase, with more entities taking action to adapt to climate change, most of which will impact a broad range of companies and industries. These actions will also bring about new investment opportunities in a decarbonizing economy.

Not all companies or industries facing climate risk represent the same investment risks or opportunities. Furthermore, some companies that face elevated climate risk and economic uncertainty also provide the greatest investment opportunity.

Therefore, consistent and thorough engagement is a key component of any effort to assess, measure, and address identified risks and opportunities. Engagement must include actions taken directly by Treasury staff, but also through efforts taken alongside other institutional investors. This also includes using our proxy voting authority to encourage and support efforts by portfolio companies regarding risk management, strategic planning, and enhanced reporting requirements—all of which are integral to long-term value creation for shareholders.

Immediate and broad sector-based divestment by OST is likely inconsistent with its fiduciary duty and can undermine productive engagement efforts to encourage better long term decision-making by companies. Instead, "divestment" should be used as a risk-reduction measure aimed at specific investments where there is a sustained, acute, and measurable financial risk and where an economic analysis demonstrates divesting would not negatively and materially impact OST-managed funds, and would be consistent with OST's fiduciary responsibilities.

Continuing to address investment-related climate risk and maximizing climate investment opportunities through targeted investment decision-making, proactive engagement, and supporting policy advocacy is consistent with the Treasury's fiduciary duty. Treasury must expand our efforts in these endeavors.

More importantly, decarbonizing OST's portfolio, consistent with our fiduciary duty, is an opportunity to responsibly respond to emerging climate-related risks and opportunities. Decarbonizing our portfolio can be done in a manner that aligns our portfolios with the broader statutory, regulatory,

and policy decisions represented in state, regional, and federal policies, and reflected specifically in international agreements like the Paris Agreement. Specifically, OST and the Oregon Investment Council should consider pursuing strategies that begin to decarbonize our investments with a goal of achieving net zero carbon emissions by 2050.

A STRATEGY TO ACHIEVE NET ZERO EMISSIONS IN OPERF BY NO LATER THAN 2050

The Goal: For Oregon Public Employee Retirement Fund investments to achieve net zero greenhouse gas emissions by no later than 2050, including an interim goal of a 50% decarbonization by 2035.

A Plan: Commitment by Treasurer Read to develop and present a proposal to the Oregon Investment Council to transition OPERF to 50% decarbonization across the total portfolio by 2035, and net zero total portfolio level GHG emissions by no later than 2050, consistent with OST's and OIC's fiduciary duties. OST will engage with representatives of beneficiary groups in developing the plan. The plan will be presented to the OIC no later than February 1, 2024.

This plan will include:

Interim targets: the establishment of interim targets to measure and demonstrate progress toward the 2035 and 2050 targets. It will also include an assessment of the feasibility of reaching net zero by 2040, and any additional impacts on returns, costs, and fiduciary challenges.

Enhanced engagements: Strategies for increased engagement with investment partners to achieve net zero emissions, and continued collaboration with other similarly aligned institutional investors, investor coalitions, and advocacy organizations. •

Timeline: A timeline to review certain carbon intensive investments by June 1, 2025.

- **Prioritization:** That timeline will prioritize a review of OST investments in tar sands, thermal coal, and natural gas derived from fracking, which will be completed by February 1, 2025.
- **Review of carbon intensive investments:** The review will use industry best practices to (1) assess the transition readiness and the risk of continued investment for all carbon intensive investments, (2) establish minimum standards for companies and funds to demonstrate transition readiness and risk mitigation. 3) recommendations for appropriate next steps consistent with the fund's investment styles, including integrating the review of the transition readiness of certain carbon intensive industries into investment manager selection.

Ongoing monitoring: The plan should include recommendations regarding the need for on-going and consistent monitoring of carbon intensive investments.

Increased OST capacity: Identification of additional OST staff and resources necessary to ensure ongoing tracking and measurement of progress towards the 2035 and 2050 targets.

Beneficiary Engagement: The plan shall include a recommendation for beneficiary engagement around implementation and monitoring of progress towards net zero goals.

Governance:

- Identification of any statutory provisions to which OST's and OIC's investment activities are subject.
- Identification of appropriate OIC investment policies that would need to be developed if the OIC were to adopt the plan to align OPERF with decarbonization targets.

Reporting and Accountability: The plan shall include a commitment to appropriate reporting mechanisms and timelines. It is anticipated that reporting will include biennial reports to the legislature.

Appendix B - Glossary

TERM	DEFINITION
1.5°C-aligned/alignment	Goals, targets, or plans that aim to limit global warming to 1.5°C above pre-industrial temperatures—the increase identified in the 2015 Paris Agreement as necessary to avoid significant climate disruption.
2°C-aligned/alignment	Goals, targets, or plans that aim to limit global warming to 2°C above pre-industrial temperatures—the increase identified by the <i>IPCC Special Report on Global Warming of 1.5 C</i> as having catastrophic impacts to global climate.
Absolute Emissions	The emissions of greenhouse gases of a company, asset, or portfolio over a specified time, and expressed in metric tons of CO ₂ equivalent.
Active Management	A hands-on approach to investing where experts track and make buy, hold, and sell decisions about individual assets, rather than participating in the market via passively managed investments. Active management may incorporate higher risk tolerances, may incur higher fees, and can be done externally via outside managers or internally via staff.
Adaptation	Products or processes designed to help the world adapt to climate change that is already present in the atmosphere.
Asset Allocation	Under the Oregon Investment Council, Treasury divides our investments into different types of assets – such as stocks, bonds, private equity, real estate, and cash – based on expected returns, decisions about risk, and liquidity needs.
Assets Under Management (AUM)	The total market value of the investments managed by Treasury.
Beneficiary	Generally in the report, this references a member of the Oregon Public Employees Retirement System (OPERF) who receives or will receive retirement money from OPERF, usually after retirement or as a dependent of a retired or deceased worker.
Brown-to-Green (Grey-to-Green)	Higher GHG emitting projects that intend to change operations to lower emissions over time and increase the value of the investment.
Business-as-Usual	Continuing with the regular way of doing things, without making any changes, even when new situations or challenges arise.
Carbon Capture and Storage (CCS)	A carbon reduction strategy that involves collecting CO ₂ emissions from places like factories, and then storing it deep underground to prevent it from harming the atmosphere.
Carbon Equivalent (CO ₂ e)	The number of metric tons of CO ₂ emissions that have the same global warming potential as one metric ton of another greenhouse gas. CO ₂ e takes into account both the warming potential of a gas and its lifespan in the atmosphere, allowing all emissions to be measured on a single, consistent scale. Usually expressed in tons (tCO ₂ e).

TERM	DEFINITION
Carbon Footprint	A measure of the amount of carbon dioxide and other carbon compounds emitted as a result of fossil fuel consumption by a specific person, group, etc.
Carbon Offsets	An accounting mechanism by which reductions of GHG emissions, or increases in carbon storage, are generated in one place to compensate for GHG emissions created elsewhere, such as reforestation, sustainable agriculture, emissions reduction capacity, or direct carbon capture.
Carbon Pricing	A market-based approach that charges emitters for their greenhouse gas emissions, aiming to reduce carbon output by incorporating the environmental costs.
Carbon-Neutral	Carbon-neutral is when an entity balances out its total amount of carbon emissions. Net zero is the specific case of carbon neutrality at the planetary scale.
Climate Solutions	Investments aimed at creating value by preventing, mitigating, or adapting to climate change.
Decarbonization	The process of reducing or getting rid of carbon dioxide emissions, often from activities like making products or generating energy. In this report, it's also used to reference the reduction of carbon emissions over time from assets held in the portfolio.
Decarbonization Levers	The tools and mechanisms organizations can use to reduce emissions and achieve their climate goals.
Divestment	The act of selling or disposing of one's financial interests or investments in a particular asset, industry, or company. This often occurs as a political or ethical decision to provide distance from activities that are deemed socially or environmentally undesirable.
Diversification	Creating and overseeing a mix of different investments to help manage risks and meet fiduciary duty. This approach aims to limit exposure to any single asset or risk by including a wide variety of investments, thereby reducing the portfolio's overall risk.
Emerging Markets	Economies of developing nations that are experiencing significant economic growth and some characteristics of advanced economies while becoming more involved and integrated in global markets.
Emissions Baseline	For the purposes of this report, Treasury measured carbon emissions associated with OPERF as of 12/31/22 — our most in-depth measurement to-date and the starting point for comparison when we measure carbon emissions associated with OPERF holdings in the future.
Emissions Intensity	A measure of emissions calculated as the financed emissions divided by the capital invested (tCO ₂ e/\$M AUM). At the company level, it's the ratio of emissions produced per unit of output, like emissions per product unit, revenue, or other relevant company-specific factors.

TERM	DEFINITION
Engagement	Strategies Treasury uses to influence the policies and practices of companies in the OPERF portfolio. Common engagement activities include direct dialogue, proxy voting and campaigns, filing shareholder proposals, and litigation. Engagement may be conducted directly by Treasury staff or as part of a coalition of investors with similar interests.
Environmental Impacts	Changes to the physical environment that can be attributed to and measured at the level of company, asset manager or investors, resulting from their activities.
Environmental Justice	Fair treatment and other actions intended to ensure that poor and marginalized communities are not disproportionately affected by the environmental impacts of economic activities.
Environmental Social And Governance (ESG)	A category of risks that investors take into account when assessing business practices and performance.
Failed Transition	Scenario in which the global community fails to keep climate warming below 2°C above pre-industrial temperatures.
Fiduciary Duty	The legal responsibility to act and use the assets of the fund solely in the best interest and benefit of OPERF plan participants.
Financed Emissions (Portfolio Emissions)	The indirect greenhouse gas emissions attributable to financial institutions due to their involvement in providing capital to companies, also known as portfolio emissions.
Fossil Fuels	Energy sources such as coal, oil, and natural gas that are formed by the decomposition of plants and animals. These fuels, found in Earth's crust, contain carbon and hydrogen, which can be burned to produce energy.
GHG Protocol	An accounting and reporting standard for measuring and accounting for GHG emissions developed by the World Business Council for Sustainable Development.
GHG Reduction Targets	A goal to reduce emissions by a specific amount by a pre-determined date. Reduction targets can be on an absolute, intensity, or relative basis; Treasury targets are based on intensity.
Governance / Corporate Governance	The set of rules, practices, and procedures used to manage and regulate a company. Corporate governance is intended to ensure a balance among the needs and interests of different groups connected to the company.
Green Investments	Assets that drive real-world decarbonization, align with or enable the transition to a net zero economy, or support the low-carbon transition. The taxonomy for these assets will be further defined by Treasury.
Green Taxonomy	A classification system established to clarify which activities or investments align with real-world decarbonization, address climate change risks, or capitalize on the opportunities presented by climate change.




TERM	DEFINITION
Greenhouse Gas (GHG)	Gases in the Earth's atmosphere that have the ability to trap heat and contribute to the greenhouse effect and climate change (e.g., CO ₂ , CH ₄ , N ₂ O, O ₃ , HFCs, PFCs, SF ₆).
Greenwashing	When a company or investor falsely claims their products or practices are environmentally friendly, using misleading advertising or metrics to seem 'green.'
Indexing	An investment strategy that mimics the composition of a market. Indexing requires minimal management and trading, offering a cost-efficient, lower-risk investment method.
Interim Targets	Short-term targets to track progress toward a net zero by 2050 climate commitment.
Just Transition	Refers to efforts that ensure that the shift to a low-carbon economy is fair, inclusive, and socially equitable. Includes managing the transition in a way that protects workers, communities, and vulnerable groups.
Managed Phaseout	A plan that involves working with stakeholders to retire high-emission assets early, in line with net zero goals. It includes pursuing new, low-emission assets and encouraging existing high-emission sectors to emit less.
Momentum Pathway	Projected emissions intensity over time, reflecting current policies and decisions, without any new changes.
Net zero	The target of negating the total amount of greenhouse gases produced by human activities. Per the IPCC, this occurs at the point at which emissions of greenhouse gases into the earth's atmosphere from human activities are balanced by the reabsorption of GHGs through natural and enhanced storage methods, aiming for a state where the net addition of greenhouse gases to the atmosphere is zero.
Oregon Investment Council (OIC)	The six-member board that oversees the investment and allocation of all State of Oregon trust funds, including OPERF.
Oregon Public Employees Retirement Fund (OPERF)	The retirement fund for public employees of Oregon.
Paris Accord/Agreement	The 2015 international climate change treaty focused on reducing global warming, adapting to its effects, and financing these changes. Its main goal is to limit warming to 2°C, ideally 1.5°C, above pre-industrial levels.
Physical Risks	Risks such as wildfires, storms, and floods that arise from physical changes in the climate.
Portfolio Coverage (Net zero Plans)	% of AUM invested in assets that are aligned to well below 2°C pathway or have credible net zero plans.
Relative Decarbonization	A Scope 3 investment strategy that might involve investing in a heavy emitter because the emitter's actions prevent other activities that would produce even greater emissions, thus achieving a real-world reduction in emissions.

TERM	DEFINITION
Reference Pathway	For this report, Treasury used information from IEA’s Net Zero by 2050 Scenario to help identify and project expected emissions intensity reductions over time necessary to limit global warming to 1.5oC or well below 2oC above.
Renewable Energy	Energy produced from a source that is not exhausted when used, such as wind or solar power.
Renewable Fuels	Fuels made from resources that can be continually reproduced, like biodiesel from animal fats or vegetable oils and bioethanol from sugarcane.
Science-Based Target (SBTi)	Near term targets that align with climate science scenarios limiting warming to well below 2oC by 2050, with no/low overshoot, and provide transparent GHG emissions reporting. See more details at ScienceBasedTargets.org.
Scope 1 Emissions	The greenhouse gases released directly from things an organization controls or owns, like when burning fuel in boilers, furnaces, or vehicles.
Scope 2 Emissions	The greenhouse gases released indirectly by a company, such as when the organization purchases electricity, steam, heat, or cooling.
Scope 3 Emissions	The greenhouse gases that a company causes indirectly through its value chain, like when buying, using, and disposing of products from suppliers. These emissions aren't directly made by the company or from its owned assets.
Stakeholders	A person or group with an interest or concern in OPERF including members, taxpayers, citizens, and unions, all of whom have a vested interest in its decisions and outcomes.
Stewardship	The management of assets focusing on long-term sustainability, balancing financial returns with social and environmental considerations. This includes engaging with companies and advocating for sustainable practices and responsible governance.
Systemic Risk	Large-scale threats that can affect the entire economy, rather than just one company or sector.
Transition-Critical Resources	Resources essential for producing key energy transition technologies such as wind turbines, solar panels, electric vehicle batteries, and electrolyzers. These resources may be rare or located in environmentally sensitive areas, necessitating a balance between the needs of the energy transition and other environmental or social concerns.
Transition Investments	Investment in assets essential for operating the economy until it can fully achieve net zero emissions. These investments might emit more greenhouse gases initially compared to a net zero economy but are planned to be gradually reduced or eliminated over time.
Transition Enabling	Investments in assets that may emit high levels of greenhouse gases but are necessary for the transition to a net zero economy. For example: mining lithium or copper for electric vehicle batteries and grid improvements.

TERM	DEFINITION
Transition Pathway	A framework guiding companies or investors to become more sustainable and responsible in their practices, particularly in achieving a net zero target by a specific date.
Transition Readiness	Transition readiness is an assessment of a company's preparedness to handle the physical and transition risks of climate change.
Transition Risk	Risks associated with an organization's ability to manage and adapt to GHG reduction requirements necessary to keep climate change below 2C.

Appendix C - Approaches To 'Climate Positive' Investments

Different approaches taken by pension plan peers to define 'climate-positive' investments:

PEER EXAMPLE	COMMITMENT	TAXONOMY
	<p>\$78B (31% AUM)</p> <p>Increase investments in climate-positive assets to \$70B by 2026 (<i>\$40B in 2021 baseline</i>) and in transition assets to \$8B (<i>\$5B in 2021 baseline</i>)</p>	<ul style="list-style-type: none"> Bespoke Green Asset Taxonomy, internally-derived framework for assessing exposure to climate relevant investments Broad view of 'climate-positive' as including investments with 30% better GHG performance than a relevant sector benchmark¹
	<p>\$130B (24% AUM)</p> <p>Increase investments in climate-positive and transition assets from \$67 billion (2021) to at least \$130 billion by 2030</p>	<ul style="list-style-type: none"> Internal definition of climate-positive and transition, largely based on the EU Taxonomy Defines green as 95% of asset's revenue derived from climate-positive activities, and transition as having announced commitment to net zero with a credible target
	<p>\$64B (16% AUM)</p> <p>Hold \$54 billion in climate-positive assets by 2025 (<i>\$18B in 2017</i>) and create a \$10B transition envelope to decarbonize industrial sectors</p>	<ul style="list-style-type: none"> Use Climate Bonds Initiative (CBI) to determine classification of climate-positive assets, and criteria on standards and transparent reporting for transition assets

Appendix D - References

1. Oregon State Treasury, “INV1201: Statement of OIC Investment and Management Beliefs”, last modified September 2020, <https://www.oregon.gov/treasury/invested-for-oregon/Documents/Invested-for-OR-OIC-INV/INV-1201-Statement-of-OIC-Investment-and-Management-Beliefs.pdf>
2. Oregon State Treasury, “Performance and Holdings”, last modified December 2023, <https://www.oregon.gov/treasury/invested-for-oregon/pages/performance-holdings.aspx>.
3. For purposes of the plan, carbon-intensive fossil fuel investments are defined as any company or asset that derives >20% of revenues from the exploration, drilling, extraction or production of thermal coal, oil sands, or shale oil and gas.
4. Science Based Targets, “SBTi Criteria and Recommendations TWG-INF-002 | Version 4.2”, last modified April 2021, <https://sciencebasedtargets.org/resources/files/SBTi-criteria-legacy.pdf>
5. IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf
6. IEA, “Stated Policies Scenarios (STEPS)”, last modified October 2023, <https://www.iea.org/reports/global-energy-and-climate-model/stated-policies-scenario-steps>
7. IEA, “Net Zero Emissions by 2050 Scenario (NZE)”, last modified October 2023, <https://www.iea.org/reports/global-energy-and-climate-model/net-zero-emissions-by-2050-scenario-nze#abstract>
8. IEA, “Announced Pledges Scenario (APS)”, last modified October 2023, <https://www.iea.org/reports/global-energy-and-climate-model/announced-pledges-scenario-aps#abstract>
9. IEA, “Innovation needs in the Sustainable Development Scenario”, last modified October 2023, <https://www.iea.org/reports/clean-energy-innovation/innovation-needs-in-the-sustainable-development-scenario>
10. IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: □Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty□[Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf
11. Alberto Carrillo Pineda, Andres Chang, Pedro Faria, “Foundations for Science-Based Net-Zero Target Setting in the Corporate Sector”, September 2020. See page 9. <https://sciencebasedtargets.org/resources/legacy/2020/09/foundations-for-net-zero-full-paper.pdf>
12. Science Based Targets, “SBTi Criteria and Recommendations TWG-INF-002 | Version 4.2”, last modified April 2021, <https://sciencebasedtargets.org/resources/files/SBTi-criteria-legacy.pdf>
13. IIGCC, “Net Zero Investment Framework: Supplementary target setting guidance”, last modified December 2021, <https://www.iigcc.org/resources/net-zero-investment-framework-supplementary-target-setting-guidance>

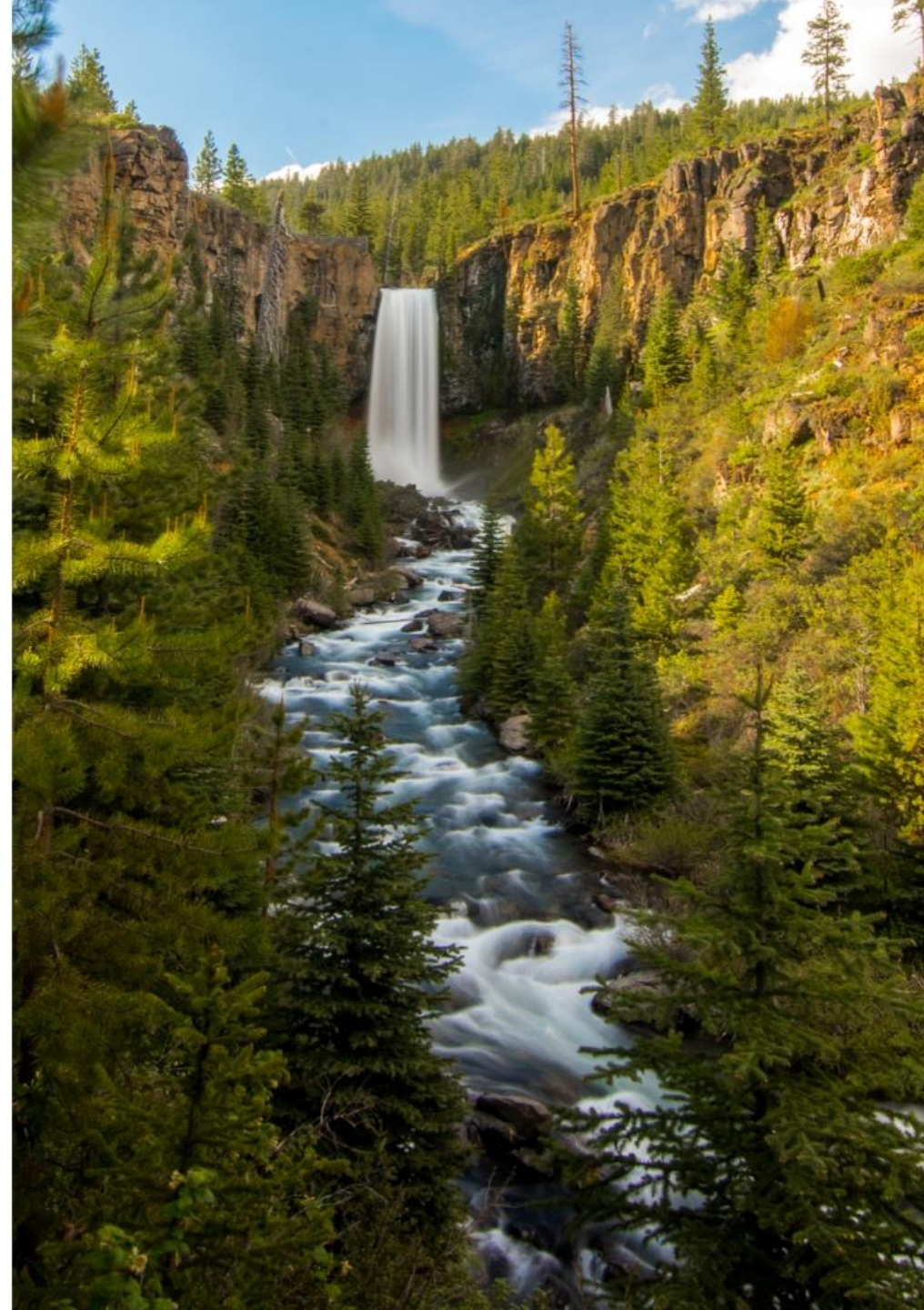
14. New York State Teachers' Retirement System, "Update to the Legislature Regarding NYSTRS' Deliberative Process to Address Climate Risk and Opportunities: Retirement Board Adopts Initial Climate Change Action Plan", December 2021, <https://www.nystrs.org/NYSTRS/media/PDF/ClimateUpdate.pdf>
15. Thomas P. DiNapoli, "Progress Report on the New York State Common Retirement Fund's Climate Action Plan", July 2022, <https://www.osc.ny.gov/files/reports/special-topics/pdf/progress-report-climate-action-plan-2022.pdf>
16. Glass Lewis, "Oregon State Treasury", <https://viewpoint.glasslewis.com/wd/?siteId=OIC%20Main>
17. Glass Lewis, "2023 Policy Guidelines", 2023, <https://www.glasslewis.com/wp-content/uploads/2022/11/ESG-Initiatives-Voting-Guidelines-2023-GL.pdf>
18. Glass Lewis, "Glass Lewis Proxy Voting Policies", last accessed January 2024, <https://www.glasslewis.com/proxy-voting-policy-options/>
19. As You Sow, "Road to Zero Emissions", 2022, <https://www.asyousow.org/report-page/2022/road-to-zero-emissions>
20. U.S. Securities and Exchange Commission, "Climate-Related Disclosures/ ESG Investing", last modified September 2023, <https://www.sec.gov/securities-topics/climate-esg>
21. EUR-Lex: Access to European Union law, "Directive (EU 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting", December 2022, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022L2464&qid=1706206621842>
22. State of Oregon Newsroom, "Oregon Public Employees Retirement Fund Recognized for Top Performance in 2022", March 1, 2023, <https://www.oregon.gov/newsroom/Pages/NewsDetail.aspx?newsid=205777>
23. Oregon Laws: Online Oregon Law Library, "ORS 293.726 Standard of judgment and care in investments", last accessed January 2024, https://oregon.public.law/statutes/ors_293.726#:~:text=The%20standard%20stated%20in%20subsection,which%20should%20incorporate%20risk%20and
24. UNEP, "Is natural gas really the bridge fuel the world needs?", January 2023, <https://www.unep.org/news-and-stories/story/natural-gas-really-bridge-fuel-world-needs#:~:text=Methane%20is%20a%20powerful%20greenhouse,word%20to%20describe%20natural%20gas>.
25. The Guardian, "Lego abandons effort to make bricks from recycled plastic bottles", *The Guardian*, September 24, 2023, <https://www.theguardian.com/lifeandstyle/2023/sep/24/lego-abandons-effort-to-make-bricks-from-recycled-plastic-bottles>
26. Jennifer Hahn, "We're taking CO2 out of the system' says carbon-capturing concrete maker Carbicrete", *dezeen*, June 15, 2021, <https://www.dezeen.com/2021/06/15/carbon-capturing-concrete-carbicrete>

A Pathway to Net Zero: Positioning OPERF For A Net Zero Carbon Future Overview

February 2024



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“Climate change is real. Planning and acting now to address the investment risks – and opportunities – of the climate crisis is a critical next step in making sure the pension fund will produce strong returns for public employees for generations to come.”

– Treasurer Tobias Read

Agenda

- **Treasury’s Role As A Responsible Investor**
- **Net Zero Pledge & Plan Development**
- **Core Components of Net Zero Plan & Key Data**
- **What’s Next**



Treasury's Role As A Responsible Investor



A Partner In Oregon's Pension System,
Treasury Manages Pension Investments Prudently
And In Accordance With ORS 293.721

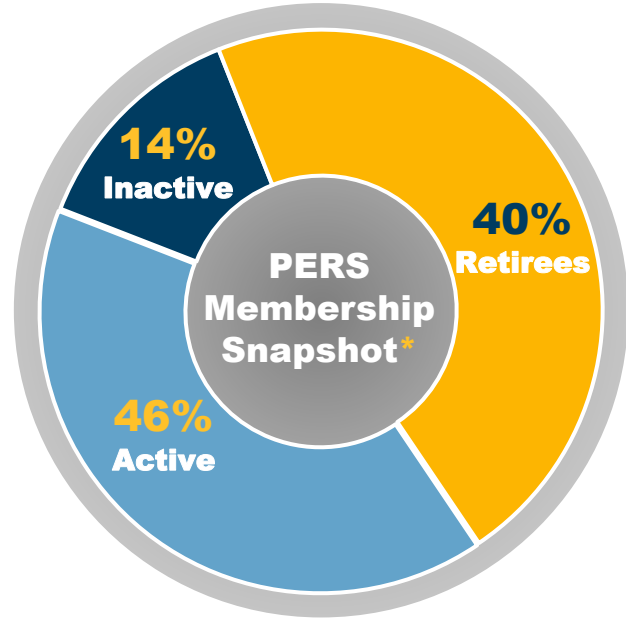
The **Oregon Investment Council**
Establishes Investment Policies, Asset Allocation,
Risk Levels, And Targeted Returns

The Oregon Public Employees Retirement Fund (OPERF)
Is Invested And Managed To Deliver A Secure Retirement
To Public Employees Today And In The Future



Invested For Oregon

OPERF Funds Are Invested To Perform In Various Market Conditions While Supporting \$435M In Monthly Benefit Payments And Future Retirement Obligations



Where PERS Payments Come From*



Investment Earnings

Contributions: Public Employers

Contributions: Public Employees

*Data Provided By 2023 PERS by the Numbers



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Timeline Of Noteworthy Actions

2018

Treasury Hires ESG And Sustainability Investment Officer Responsible For Assembling & Analyzing ESG Data

2021

Treasury's Climate Consultants Complete Initial Portfolio Analysis And Provide Findings To OIC

2015

Treasury Sets Goal To Double Renewable Energy Holdings By 2020. Reaching Goal By 2018

2020

OIC Formalizes Importance Of ESG To Treasury's Investment Decisions

2022

In November, Treasurer Read Announces Intent To Decarbonize OPERF By 2050 And Provide A Report To OIC Outlining Potential Pathways

Development Of Net Zero Plan

Net Zero Defined:

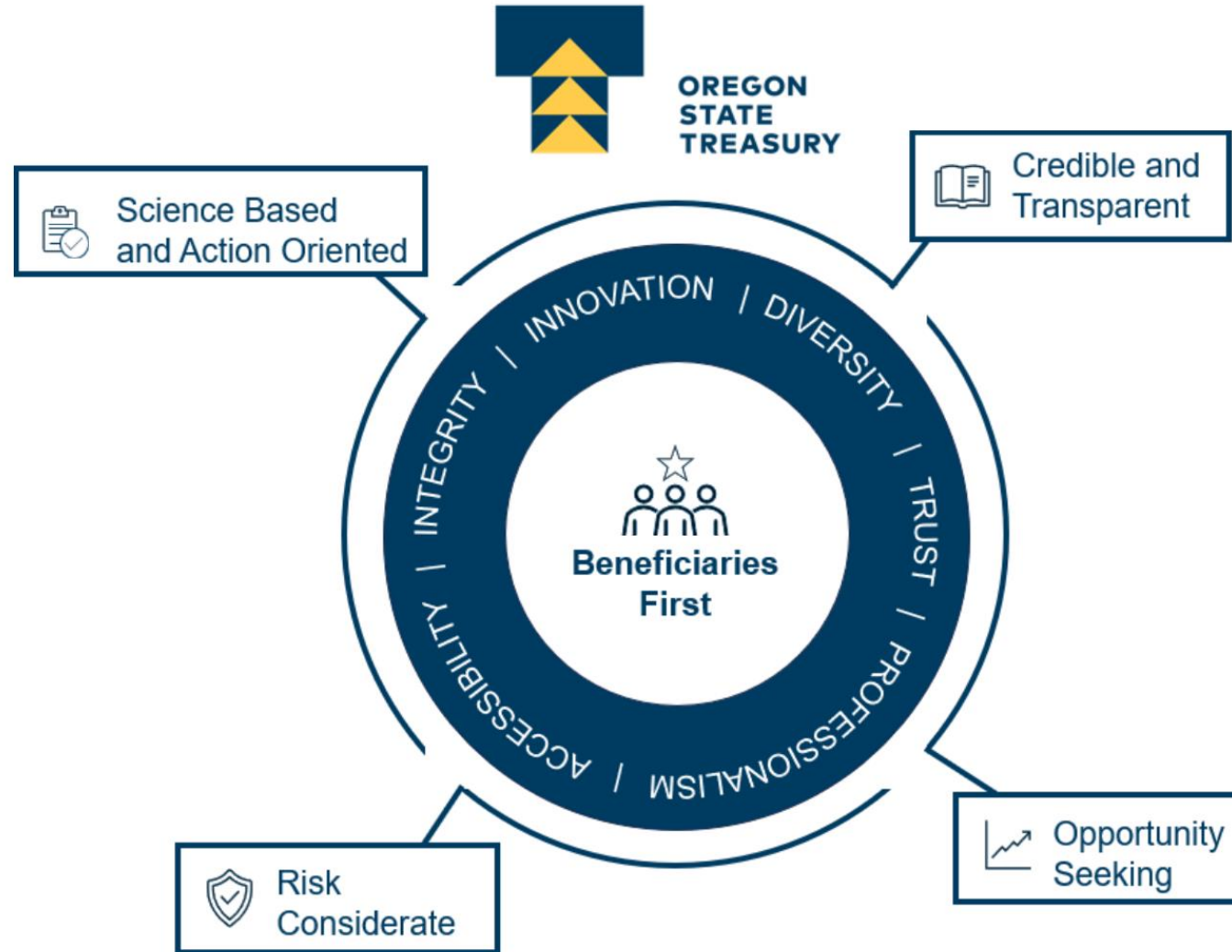
A State In Which The Greenhouse Gasses Going Into The Atmosphere Are Balanced By Removal Out Of The Atmosphere, Achieved Through A Combination Of Emission Reduction And Emission Removal

Plan Development Priorities:

- Stakeholder Engagement
- Analysis Of OPERF To Establish Baseline Emissions Data
- Review Industry-Best Practices To Identify Emission Reduction Strategies



Net Zero Plan Guiding Principles



Stakeholder Engagement

Survey Of PERS Members On Their Preferences For How Their Retirement Funds Are Invested

Total Responses

5,823

Key Response Data

89%

Preferred Retirement Funds Are Managed To “Generate The Highest Return On Investments” Or “Manage Risks To Deliver Sustainable Returns”

67%

Preferred Treasury Encourages Companies It Invests In To Consider Effects Of Climate Change

85%

Expressed A Desire To Engage And Learn More About How Treasury Manages Their Retirement Funds

Baseline Emissions Data

Calculations Based On OPERF Data From 12/31/2022*

Asset Class	Share Of OPERF Emissions (%)	Emissions Intensity	Absolute Emissions
Public Equity	47%	93	1,818,638
Real Assets	30%	128	1,141,429
Private Equity	16%	27	598,157
Real Estate	5%	15	183,062
Fixed Income (Corporates)	3%	72	134,646
OPERF Total		60	3,876,933

*Excludes Cash, Diversifying Strategies, Risk Parity, Overlay, Asset-Backed Securities, Short-Positions, And Sovereigns
 Emissions Intensity = Total CO2 Emissions / \$ Of Assets Under Management
 Absolute Emissions = tCO2



Establishing Baseline Emissions Data

Treasury's Portfolio Emissions Baseline Covers 80% Of Total Assets Under Management (AUM), The Highest Share Of AUM Reported Among North American Pension Funds That Have Published Portfolio Emissions

Criteria Considered To Determine Data Inclusion In Emissions Baseline



Climate Relevance
And Influence



Availability Of
Measuring Methods



Asset Context



Pension Fund Practices

Treasury's Net-Zero Commitment

Ambition

Achieve **Net-Zero Portfolio Emissions By No Later Than 2050** Across OPERF

Interim Target(s)

Target A **60% Reduction In Portfolio Emissions Intensity By 2035**, Relative To 2022 Baseline^{*}

Major Actions

- **Triple investments in Real Assets and Private Equity** Over Our Existing \$2 Billion Of Climate-Positive Holdings, And **Ensure 10% Of Active And 30% Of Passive Public Equities Investments Are Climate- Or Transition-Aligned** And Will Contribute To A Clean Energy Transition By 2035
- **Exclude New Investments In Private Market Funds** That Have A Stated Intention To Invest Primarily In Fossil Fuels
- **Conduct A Review Of Carbon-Intensive Fossil Fuel Investments In Public Markets By February 2025** To Ensure They Meet Treasury's Minimum Standards For Clean Energy Transition Readiness
- **Use Our Leverage As Limited Partners To Push For Credible Transition Plans From Private Market Investments** That Derive >20% Revenue From Carbon-Intensive Fossil Fuel Activities
- **Increase Share Of Portfolio Emissions Covered By Credible Net-Zero Transition Plans By 2035**, Including 90% of Real Estate Emissions, And 65% Of Emissions Across Both Real Assets And Private Equity
- **Expand Engagement Activities**, Including Partnerships, To Support Company Transitions, Clean Energy Investments, And Incorporation Of Just Transition Principles.

^{*}Excludes Cash, Diversifying Strategies, Risk Parity, Overlay, Asset-Backed Securities, Short-Positions And Sovereigns



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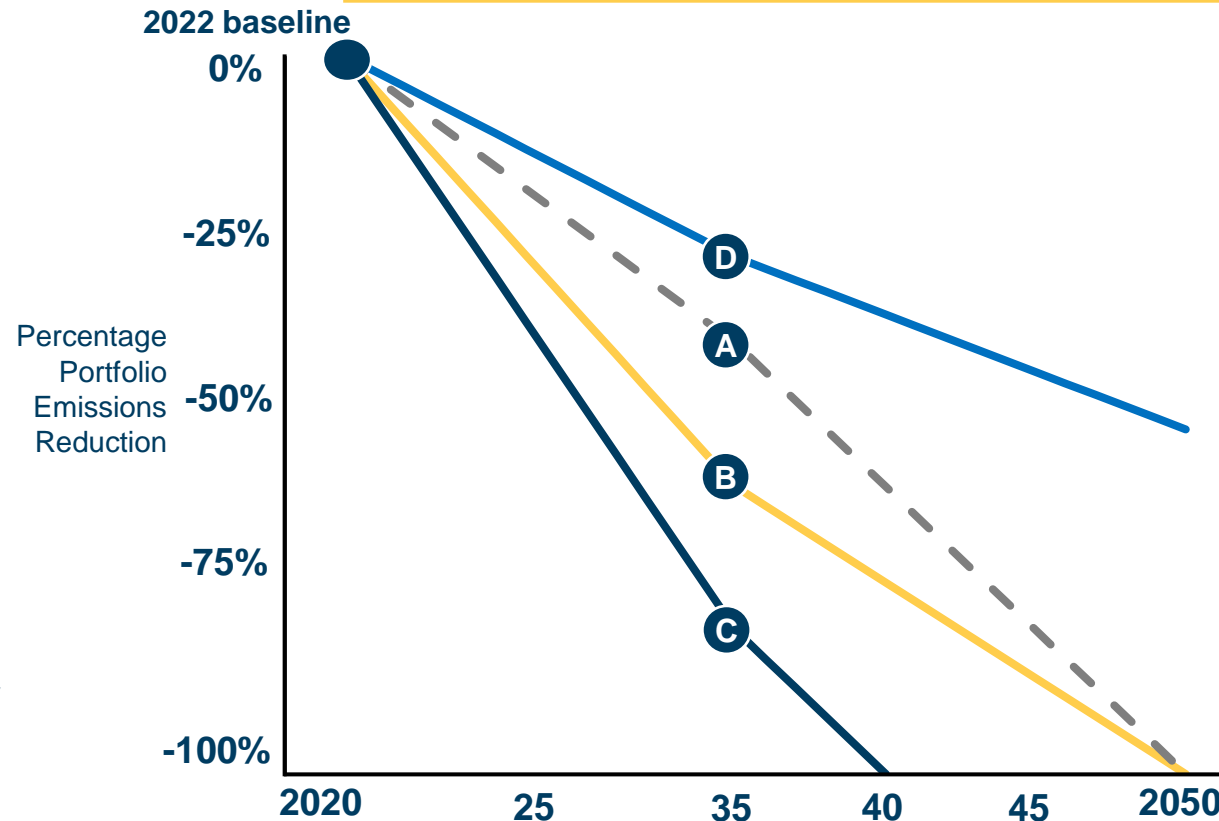
Identifying The Right Approach For OPERF

Treasury Explored The Feasibility of Different Pathways To Decarbonize The Portfolio

Potential Pathways

- A** Incremental Near-Term Reductions, Reaching Net-Zero By 2050 In The Long-Term
- B** Net-Zero By 2050 With A 60% Intensity Target By 2035
- C** Net-Zero By 2040 With A -80% Intensity Target By 2035
- D** Momentum Glidepath Path Based On Public Policies Currently In Place To Reduce Emissions

Potential OPERF Net-Zero Target Pathway



Interim Target Considerations

Primary Interim Target

60% Reduction In Portfolio Emissions Intensity By 2035

Multiple Target-Setting Approaches



Portfolio Emissions



Portfolio Coverage



Climate And
Transition Financing

Example Metrics

Absolute (CO₂e)
Economic Intensity (CO₂e/\$)
Physical Intensity
(CO₂e/tonnes)
Implied Temperature Rise
Score (x degrees)

Share Of AUM Or
Emissions With Net-Zero
Commitments Or Targets (%)

Graduated Maturity Scale
(Ranking And %) Of Above

Amount Invested (\$)
Green Or Transition Asset Ratio (%)





Emissions Reduction Strategies For Asset Classes

- Public Equity
- Private Equity
- Real Assets
- Real Estate

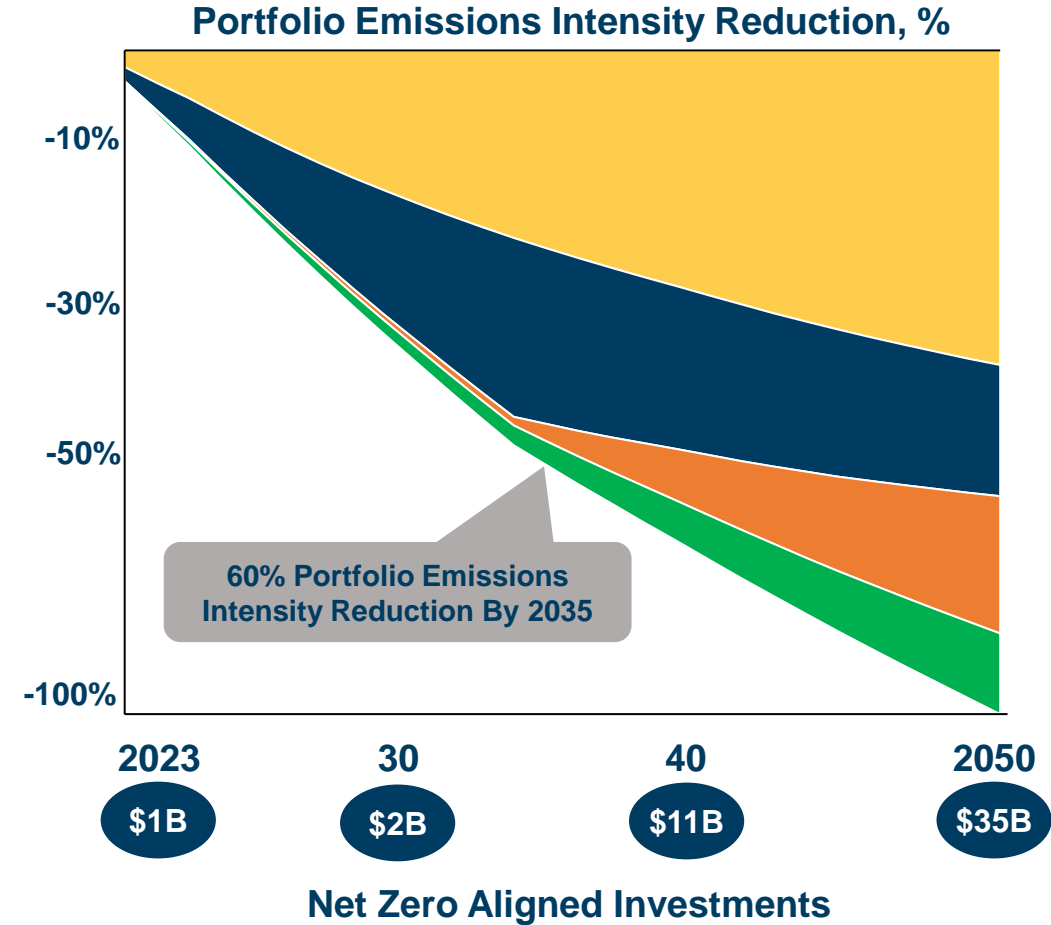
Each Asset Class Will Contribute Differently To Portfolio-Wide Decarbonization



Public Equity Strategy

Key Actions & Examples Of Supporting Activities

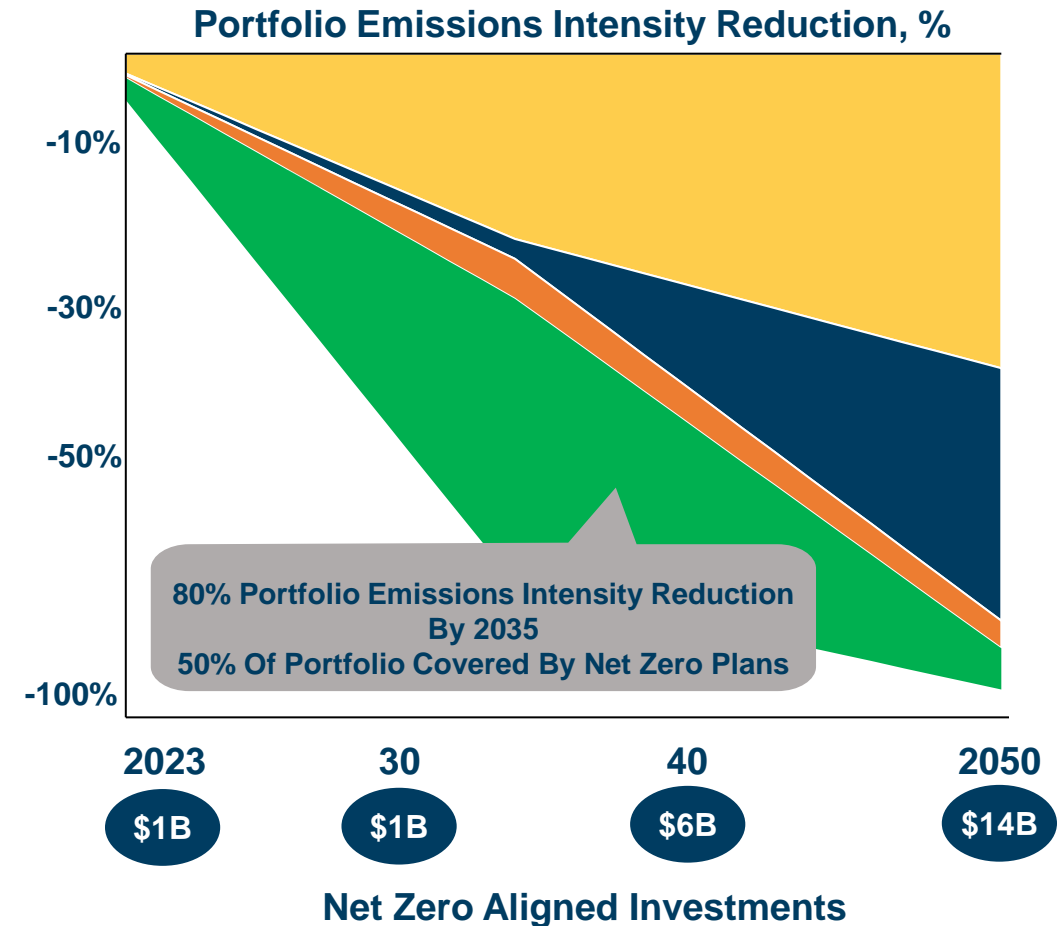
- A Bring Active Portfolio Emissions Intensity In Line With Benchmark**
Given The High Emissions Intensity Of Active Investments Today, Most Of 2035 Portfolio Emissions Reductions Could Be Achieved By Bringing The Intensity In-Line With Market Average
- B Increase Investments In Climate-Focused Products**
Develop And Monitor Pipeline Of Potential Strategies That Focus On Investments In Climate Solutions
- C Transition Passive Investments To Climate-Aligned Indexes**
Engage With Index Providers To Learn About Various Products Available And Extent To Which They Can Be Customized For OST's Purposes
- Momentum Portfolio Emissions Reductions**



Private Equity Strategy

Key Actions & Examples Of Supporting Activities

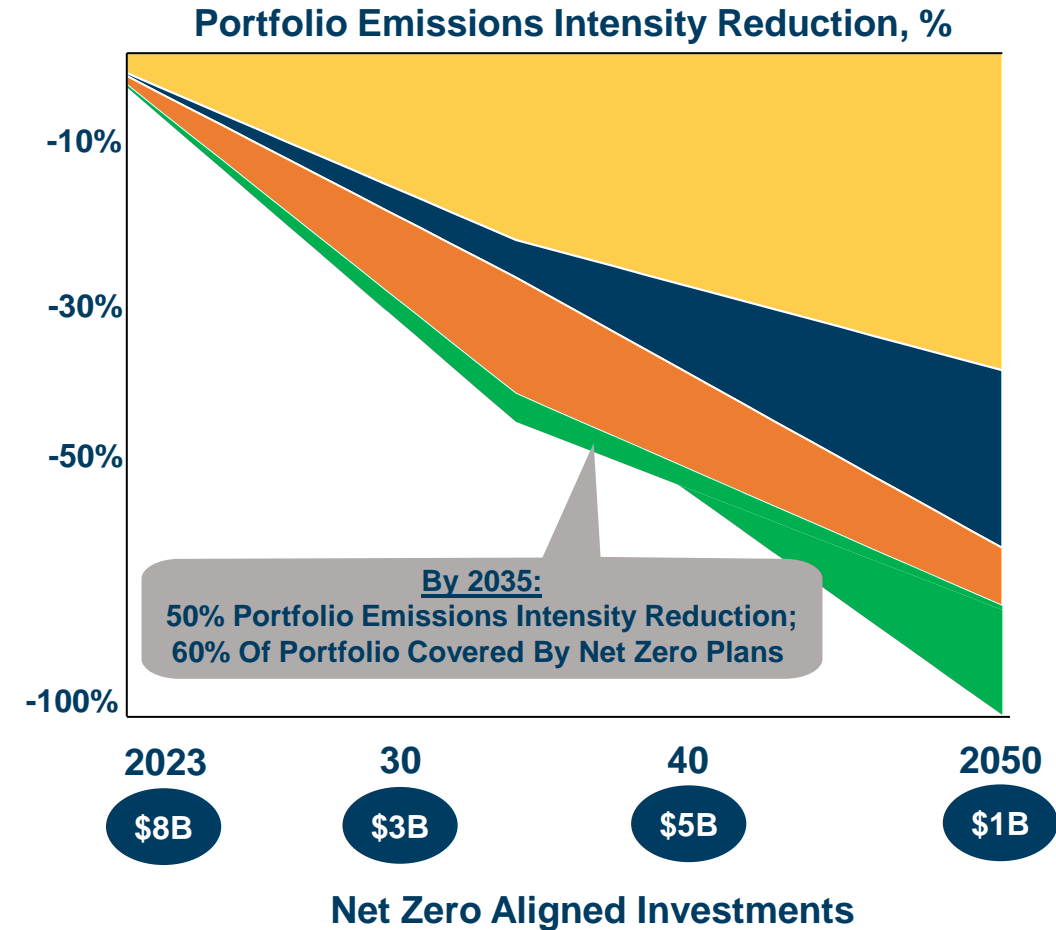
- A Increase Share Of Portfolio Covered By Net Zero Plans**
Encourage GPs To Set Net Zero Targets And Plans In Their Own Portfolio
- B Increase Climate Investments**
Develop And Monitor Pipeline Of Managers That Are Fundraising For Climate And Climate-positive And Related Funds
- C Evolve Portfolio Composition To Lower Intensity Sectors**
Integrate Data On Emissions Intensity In Manager And Fund Selection Process To Better Understand Impact On Targets And Potential Transition Risks
- Momentum Portfolio Emissions Reductions**



Real Assets Strategy

Key Actions & Examples Of Supporting Activities

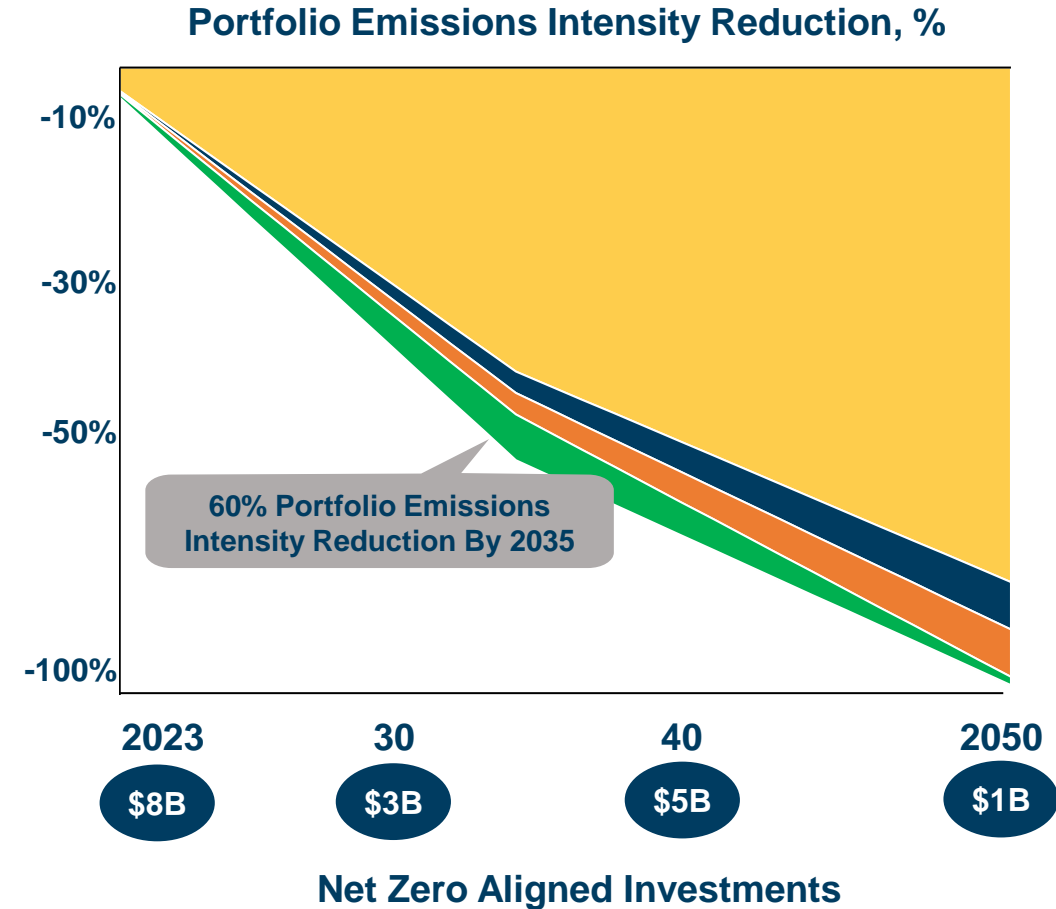
- A Increase Share Of Portfolio Covered By Net Zero Plans**
Encourage GPs To Set Net Zero Targets And Plans On Their Own Portfolio
- B Increase Climate-Positive Investments**
Consider Transition-enabling Assets To Support Economy-wide Decarbonization
- C Evolve Portfolio Composition Toward Lower-intensity Sectors**
Integrate Data On Emissions Intensity In Manager And Fund Selection Process To Better Understand Impact On Targets And Potential Transition Risks
- Momentum Portfolio Emissions Reductions**



Real Estate Strategy

Key Actions & Examples Of Supporting Activities

- A Work With Property Managers To Identify Profitable Decarbonization Opportunities**
Ask Property Managers To Submit Net Zero Transition Plans For All Properties That Have Not Achieved LEED Certification. Review The Plans To Identify And Invest In Profitable Decarbonization Opportunities
- B Increase Share Of Co-mingled Real Estate Investments Covered By Net Zero Plans**
Engage With Property Managers To Identify Profitable Decarbonization Opportunities Or Achieve LEED Or Similar Certifications
- C Increase Share Of Separate Accounts In Portfolio Composition**
Continue To Track The Emissions Intensity Of Separate Accounts Vs Other Types Of Funds And Understand What May Be Driving These Differences
- Momentum Portfolio Emissions Reductions**



Upcoming Task: Review Public Holdings Of Thermal Coal, Oil Sands, And Shale O&G By February 2025

Preparation Activities¹



Select Sectors For Review



Create Internal Guidelines & Policies



Conduct Review For Each Sector¹



Conduct Deck-Based Transition Assessment



Announce Results From Review



Engage With Companies And Managers In Sections



Make Decisions Based On Result Of Engagements

1. Based on practices observed at other investors



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What's Next

2023: Enable

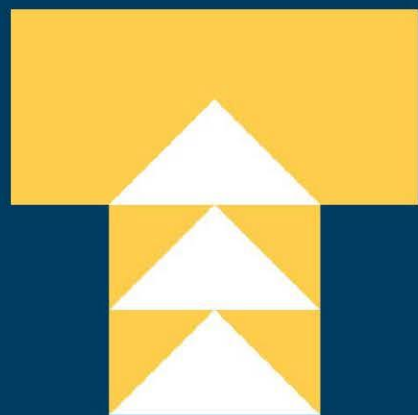
2024-2028: Action

2028+: Scale

2024

- Present Net-Zero Plan To OIC; OIC begins review of return and policy implications
- OST Reviews Carbon Intensive Assets in Public Equity
- OST Identifies Additional Organizational Capacity To Accomplish Transition
- OST begins work with managers to develop a pipeline of climate-positive investments





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TAB 2

DATA & PROCESS

OST Net Zero Analysis

February 6, 2024



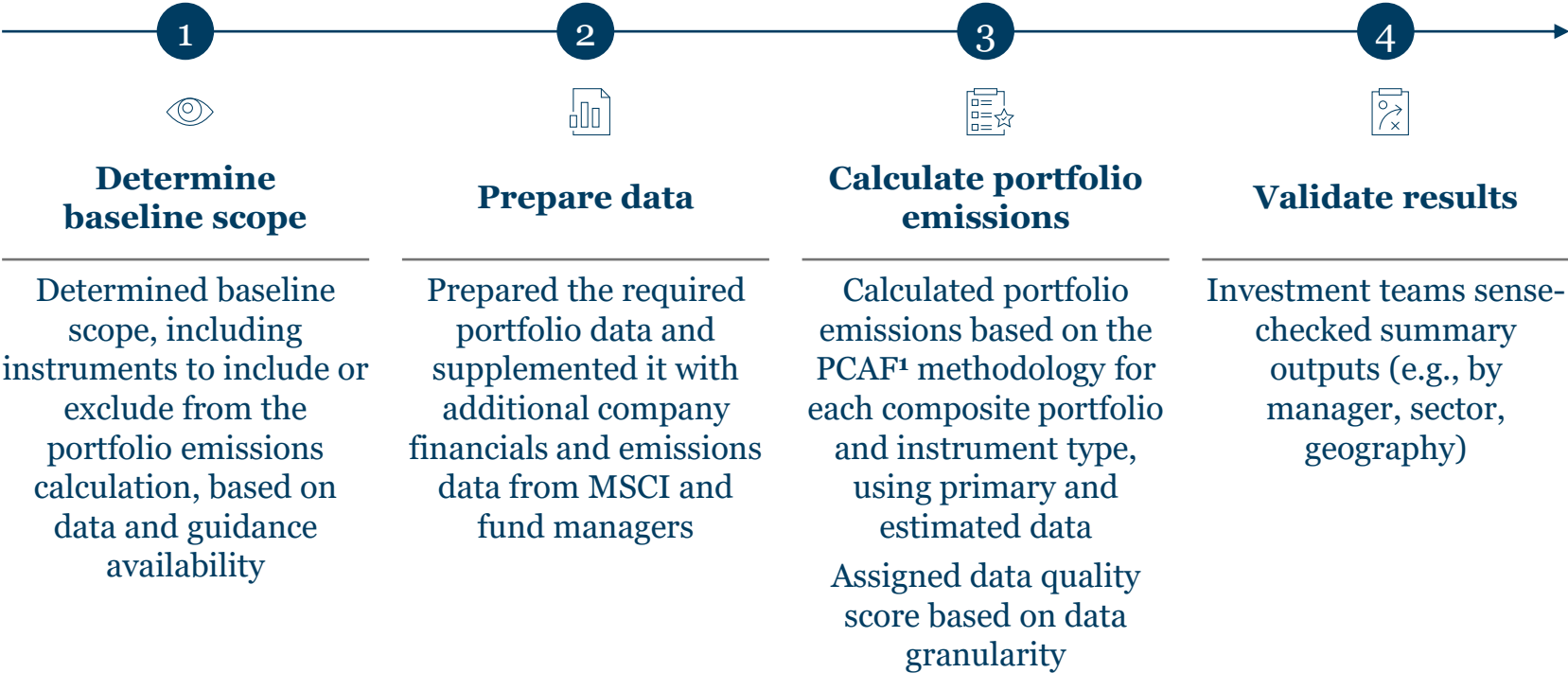
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OST estimated its baseline portfolio emissions using the PCAF¹ methodology

The Partnership for Carbon Accounting Financials created the first and leading emissions accounting standard for financial institutions across seven asset classes,² based on Greenhouse Gas Protocol principles

Four steps OST used to calculate its portfolio emissions baseline:



1. [Partnership for Carbon Accounting Financials](#)
 2. [Listed equity and corporate bonds; Business loans and unlisted equity; Project finance; Commercial real estate; Mortgages; Motor vehicle loans; Sovereign debt](#)

OST considered four criteria to determine what to include in the baseline



Climate relevance/ influence



Methods availability



Asset context



Pension fund practices

Context

The Net Zero Asset Owners Alliance (NZAOA)'s commitment emphasizes GHG reductions in the real economy – focusing on company engagement

PCAF is currently the global standard for measuring financed emissions - with >400 global financial institutions as signatories

Some asset classes are more complex and standards still evolving, increasing the difficulty of measuring emissions consistently and accurately over time

Given constraints (e.g., availability of methods, data, and asset context) financial institutions are not yet baselining 100% of portfolios' emissions

Guiding criteria

Climate relevance:

Financed activities are significant to total anticipated financed emissions (PCAF does not cite a specific threshold)

Climate influence:

Potential influence over the activity being financed

PCAF methodologies¹ currently exist for:

- Listed equity & corporate bonds
- Sovereign bonds
- Business loans and unlisted equity
- Project finance
- Commercial real estate
- Mortgages
- Auto loans

PCAF guidance does not currently cover the following:

- Assets held for short durations and designated for sale (e.g., trading positions)
- Short positions
- Where information on individual holdings / underlying is unavailable

NZAOA suggests there may be a “sequence” in which specific portfolio segments are addressed – guided by prioritization of the most material sectors GHG emissions wise








1. PCAF is a recent initiative and not yet comprehensive, some industry groups (ICI, UNPRI) have recently complimented PCAF with guidance on private equity assets

Source: PCAF Guidance, UNEPFI (Net Zero Asset Owners Alliance FAQ)

80% of OST's 2022 reported balance was included in the portfolio emissions baseline

PRELIMINARY – DRAFT AS OF 10/17/2023
 BASED ON DATA SHARED BY 8/31/2023

Asset class ¹	Reported balance, \$B	Balance assessed, \$B	Excluded from the baseline	Rationale for exclusion
 Public Equities¹	20.9	19.6	Short-positions REITs	<i>Climate relevance/influence:</i> OST can only influence positive emissions
 Fixed Income	15.9	10.4	Asset backed securities	<i>Methods availability:</i> no PCAF standard <i>Asset context:</i> data availability
 Private Equity	26.1	21.9	Investments classified as 'other'	<i>Asset context:</i> data availability
 Real Assets	8.9	8.9	Investments classified as 'other'	<i>Asset context:</i> data availability
 Real Estate	13.7	12.3	Investments classified as 'other'	<i>Asset context:</i> data availability
Total	91.9	73.2 (80%)	NA	NA

OST's portfolio emissions baseline covers **80% of total AuM**, which is the **highest share of AuM reported among North American pension funds** that have published portfolio emissions



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1. Excludes Cash due to lack of climate relevance/influence, Risk Parity due to expected changes to the portfolio, Risk Overlay and Diversifying Strategies due to the asset context (short-term nature of the portfolios)

Source: Emissions calculations based on OPERF portfolio data (as of December 31, 2022) and emissions data from MSCI and ISS

Pensions have selected portfolio and/or asset class target-setting approaches among three categories

PRELIMINARY – DRAFT AS OF 10/17/2023



Portfolio emissions



Portfolio coverage



Climate and transition financing

Description

Set emissions reduction targets for the portfolio

Target an increase in share of portfolio investments with net-zero commitments or transition plans

Commitment to climate- and/or transition finance

Example metrics

Absolute (CO₂e)

Economic intensity (CO₂e/\$)

Physical intensity (CO₂e/tonnes)

Implied temperature rise score (x degrees)

Share of AuM or emissions with net-zero commitments or targets (%)

Graduated maturity scale (ranking and %) of above

Amount invested (\$)

Green or transition asset ratio (%)

OST considered two portfolio-level emissions target types: absolute and emissions intensity

NON-EXHAUSTIVE

Target type	Metric (unit)	Description
Portfolio emissions	Absolute emissions (CO ₂ e)	Absolute emissions targets aim to reduce an entities' emissions by a set amount (e.g., X CO ₂ e) without normalizing for size or growth expectations
	Emissions intensity (CO ₂ e/\$M)	An intensity target aims to reduce an entities' emissions relative to a financial (e.g., AuM) or operational metric to account for size and growth



Intensity targets are commonly used to set interim targets among net-zero pensions benchmarked¹

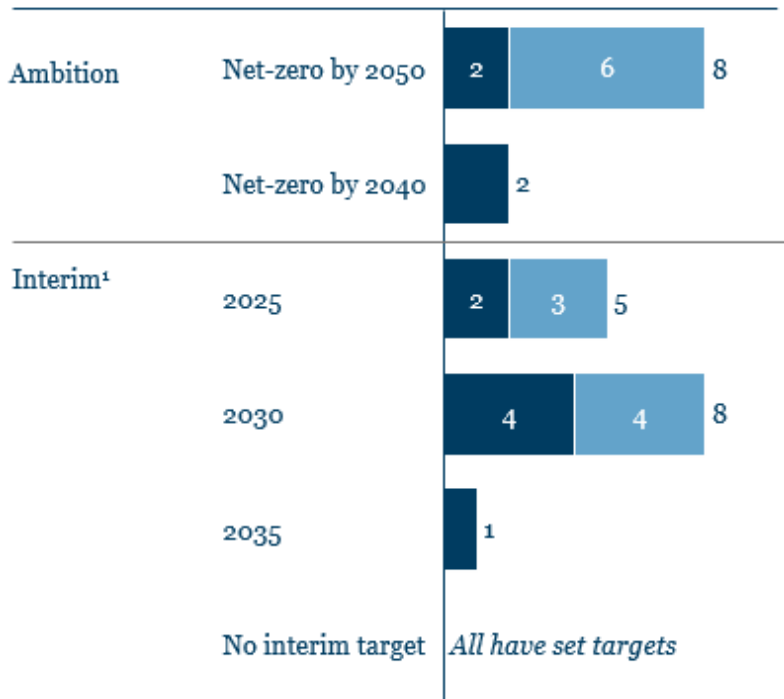
PRELIMINARY – DRAFT AS OF 10/17/2023

■ US
■ International

Benchmark of U.S. and selected international pension funds that have made net-zero commitments

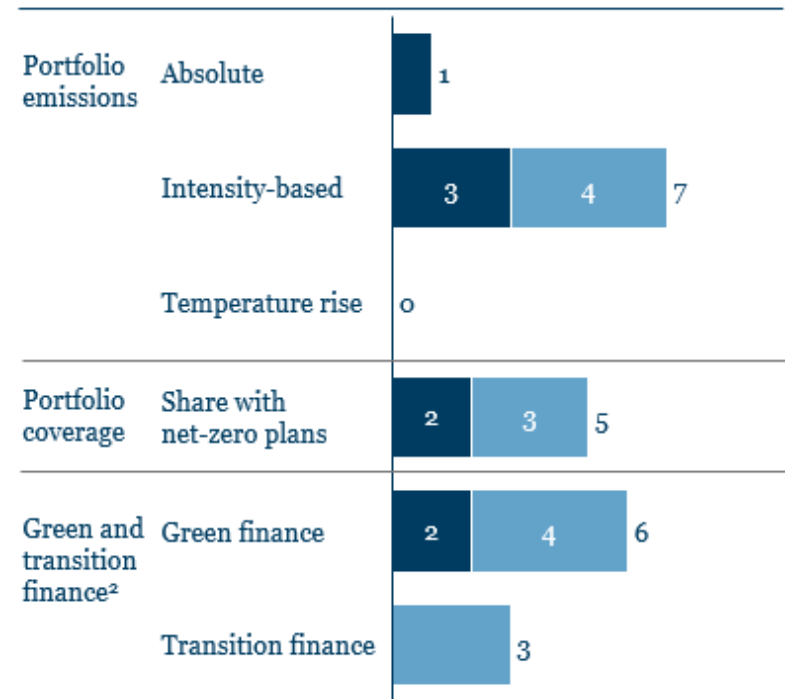
Target dates announced

Number of pensions benchmarked, N=12



Interim target types announced

Number of pensions benchmarked, N=12



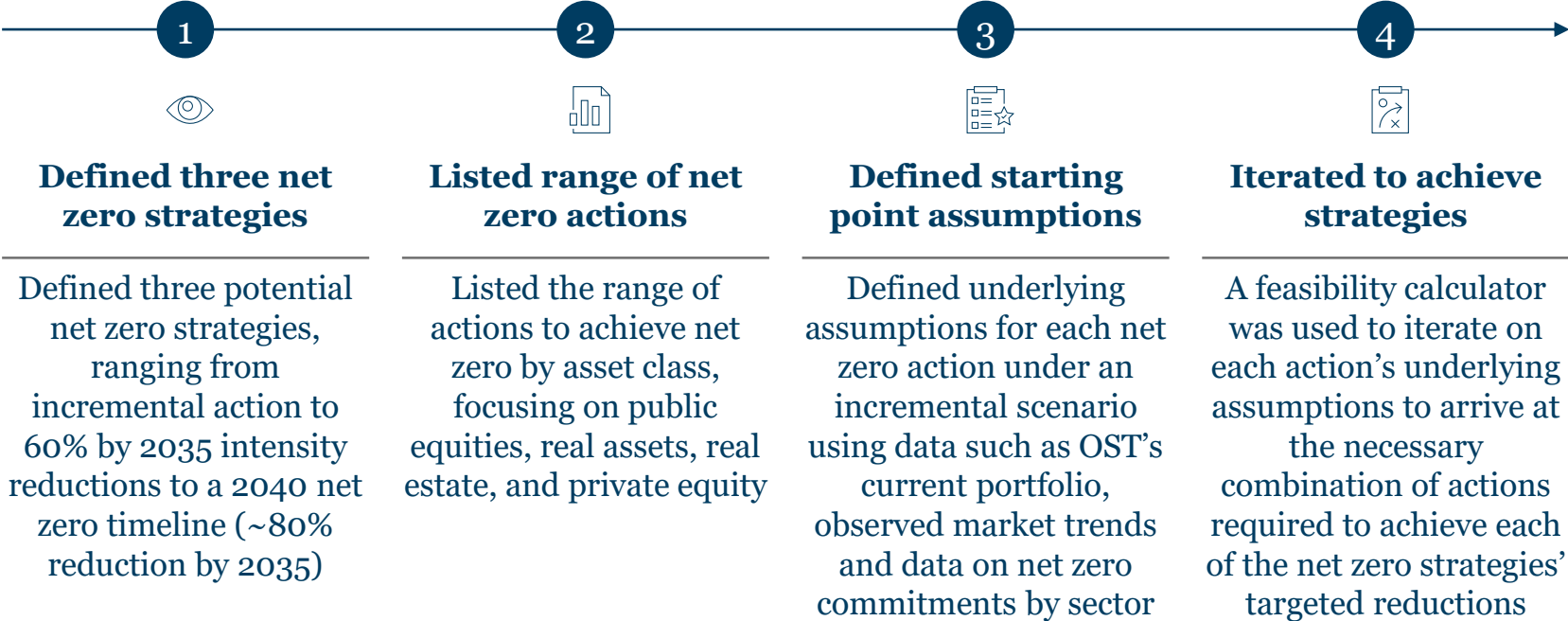
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Source: Pensions benchmarked include **USA** (CalPERS, CalSTRS, NYCERS, NY State Common Retirement Fund, NYC Employees Retirement System, SFERS), **International** (CPPIB, CDPQ, PSP, OTPP, HOOPP, NZ SuperFund)

1. Some pensions have set multiple interim targets
2. Some pensions have decided to combine climate and transition financing targets

OST investment teams explored the feasibility of net zero and interim targets

Four steps OST used to assess the feasibility of three strategies





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TAB 3
OPEN DISCUSSION



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TAB 4
PUBLIC COMMENTS