



Investment Committee

Item Number 7 – Open Session

Subject: Net Zero Strategy – Annual Branch Wide Updates

Presenter(s): Christopher Ailman, Scott Chan, Kirsty Jenkinson and Brian Rice

Item Type: Information

Date & Time: May 1, 2024 – 30 minutes

Attachment(s): Attachment 1 – Public Market Emissions Measurement Process

Attachment 2 – Private Equity Manager Survey Results

Attachment 3 – Net Zero Transition Tracker Update

PowerPoint(s): Net Zero Strategy – Annual Branch Wide Updates

Item Purpose

The purpose of this item is to provide Investment Committee members with additional information on progress that has occurred since the [May 2023 Investment Committee](#) meeting to advance the CalSTRS pledge to achieve net zero portfolio emissions by 2050 or sooner.

Executive Summary

As highlighted in the [May 2023 Investment Committee](#) meeting, staff is implementing three core strategies for the CalSTRS net zero portfolio emissions pledge: (1) measuring and reducing portfolio emissions, (2) increasing exposure to low-carbon investments that meet our risk-return goals, and (3) using our influence to accelerate the integration of net zero considerations across global financial markets. This item provides updates on staff activities, across the Investments Branch, supporting these three strategies.

(1) Measuring and Reducing Portfolio Emissions

- The Global Equity team continues to implement an emissions reduction strategy by allocating 20% of the Total Public Equity portfolio to a low-carbon index, approved at the [September 2022 Investment Committee meeting](#). As of February 29, 2024, approximately \$17.5 billion or 12.8% of the portfolio is being managed internally against the low-carbon index. Staff estimates this has yielded portfolio emissions reductions of approximately 9.4%.

- The Fixed Income team is implementing an emissions reduction strategy through a 15% low-carbon credit-related index optimization strategy, approved at the [May 2023 Investment Committee meeting](#). The indices are optimized each month to reduce emissions incrementally while maintaining parent index metrics and minimizing additional active risk. As of February 29, 2024, the strategy has enabled the team to reduce Fixed Income portfolio emissions by approximately 11% while maintaining active risk within modeled expected levels.
- The public markets units (Global Equity, Fixed Income, Sustainable Investment and Stewardship Strategies – (SISS)) refined their annual portfolio emissions measurement process by changing measurement platforms and implementing a one-year reporting lag to improve data integrity. Real Estate also conducted its second measurement of a portion of portfolio emissions.
- Staff is measuring absolute emissions rather than using other measures such as emissions intensity because reducing absolute emissions is the goal of the CalSTRS net zero pledge.

(2) Increasing Exposure to Low-Carbon Investments

- The SISS Private Portfolio, which was approved by the Investment Committee in 2021 to create a systematic platform to expand investments in low-carbon solutions, has deployed over \$2 billion to date across a broad risk-return spectrum.
- The private asset classes (Real Estate, Inflation Sensitive and Private Equity) have been increasing exposure to low-carbon solutions. Several examples of significant investments are included in this update.

(3) Using Our Influence to Accelerate the Net Zero Transition

- The SISS team provided a detailed update during the [January 2024 Investment Committee meeting](#) on CalSTRS' stewardship activities, the primary means through which CalSTRS seeks to influence meaningful corporate and market activities to accelerate the global transition to a net zero economy. Additional details around these activities are provided in this update.
- Staff is also using CalSTRS' influence with partners and the broader financial markets to enable CalSTRS to fulfill our net zero pledge. The Risk Mitigating Strategies, Inflation Sensitive and Private Equity teams have been engaging external managers to increase the understanding of net zero data and considerations in their portfolios.

This item also provides brief updates on two additional activities supporting these three priorities:

- ***Tracking the transition*** to better understand the degree to which the broader, global net zero transition is occurring and how CalSTRS can best respond.

- ***Training and skill building*** to ensure staff are apprised of the investment implications of the net zero transition.

Background: (1) Measuring and Reducing Portfolio Emissions

Public Markets Emissions Reductions Highlights

Recognizing the uncertain pace of global decarbonization and staff's fiduciary duty to CalSTRS members and beneficiaries, prior to making recommendations to the Investment Committee, staff considered carbon reduction strategies of established indexes that controlled risk and offered the largest level of decarbonization per unit of active risk. In September 2022, the Investment Committee approved staff's recommendation to target an allocation of 20% of Total Public Equity exposure to the MSCI ACWI Low-Carbon Target Index (LCT). Subsequently, in May 2023, the Investment Committee approved an emissions reduction strategy whereby the Fixed Income unit would adopt an optimized low-carbon index for its corporate credit exposure (Investment Grade, High Yield and Aggregate). As these two asset classes both use risk budgeting as a method of controlling risk, staff is able to consider emissions reductions per unit of active risk.

Global Equity Emissions Reduction Strategy

During the second half of 2023, Global Equity staff began transitioning assets to the ACWI LCT Index portfolio. Staff has made significant progress in its emissions reduction strategy implementation, and, as of February 29, 2024, approximately \$17.5 billion or 12.8% of Total Public Equity was invested in this index.

Staff has been closely monitoring the implementation, performance, and active risk of the ACWI LCT Index portfolio. So far, the return and active risk have been as expected, although the portfolio has been managed for only five months. From July 31, 2023, through December 31, 2023, the LCT Index portfolio return was 3.72%, in line with the ACWI index return of 3.69%.

Historically, the LCT Index has about 65-80% less emissions than the parent MSCI ACWI Index, and staff expects that this allocation will significantly lower portfolio emissions in alignment with CalSTRS' net zero goals. Given 9.6% of Total Public Equity was invested in the LCT Index as of December 31, 2023, staff expects to see reductions when 2023 emissions measurements become available.

Fixed Income Emissions Reduction Strategy

Fixed Income's optimization strategy looks to lower the financed emissions of the benchmark at a measured pace while keeping a tight tracking error to the parent benchmark.

Fixed Income successfully implemented the new optimized benchmarks at the end of September 2023. To date, the index optimization has enabled Fixed Income’s credit-related portfolios to reduce emissions by approximately 11% from October 1, 2023, to February 29, 2024, while maintaining its active enhanced indexing management strategy. Although still in the early stages, Fixed Income’s portfolio emission reductions are expected to progress as modeled, and Bloomberg’s index optimization is expected to reflect parent index metrics while seeking to minimize additional active risk to CalSTRS’ Fixed Income portfolio.

Next Steps: Public Markets Emissions Reduction Strategies

Global Equity and Fixed Income will continue to implement the board-approved reductions strategies and report annually to the Investment Committee on emissions reduction progress.

Public Markets Emissions Measurement Methodology

On an annual basis, staff measures the emissions financed by the CalSTRS investment portfolio as a means of understanding overall emissions and what is driving them. Staff conducted a pilot set of public markets measurements in 2021 and presented them at the May 2022 Investment Committee meeting. While conducting 2022 emissions measurement, staff discovered significant data and calculation issues that raised questions about the integrity of the data. Staff began lengthy discussions on the issue with global investment peers and partners and actively worked with data providers to address the issue. Staff subsequently refined our measurement process and, using this updated methodology, calculated public market emissions for calendar years 2021 and 2022. An in-depth discussion on the emissions measurement process is provided in Attachment 1.

Public Markets Emissions Measurement Overview

Table 1 shows the total emissions exposure for CalSTRS’ public markets securities in Global Equity, Fixed Income and SISS, excluding derivatives and sovereign debt, as of December 31, 2021, and December 31, 2022. The table also provides year-over-year changes in emissions for each unit and compares each unit’s emissions to their respective benchmark’s emissions.

Table 1: CalSTRS’ Total Public Market Emissions (in tons of CO2e)

CalSTRS Business Unit	2022 Total Portfolio Emissions	2021 Total Portfolio Emissions	Total Portfolio Year Over Year Change	2022 Total Benchmark Emissions	2021 Total Benchmark Emissions	Benchmark Year Over Year Change
Global Equity	7,063,758	7,331,658	-3.70%	6,640,571	7,206,697	-7.90%
SISS	211,955	223,107	-5.00%	536,666	551,063	-2.60%
Fixed Income	601,819	640,855	-6.09%	523,406	571,519	-8.42%

Global Equity & SISS Benchmark: MSCI ACWI IMI

Fixed Income Benchmark: BBG US Agg 95% / BBG US HY Cash Pay 2% cap 5%

Global Equity (GE) Emissions Attribution

- As of December 31, 2022, the GE portfolio had total emissions of 7.06M tons of CO2e, representing a 3.7% decrease compared to the prior year. This year-over-year decline is not unexpected as GE was a net seller during 2022. Securities were sold to raise cash for benefit payments and other total fund cash needs, which lowered CalSTRS’ ownership percentage and reduced portfolio emissions.
- GE reduced emissions across most sectors compared to the prior year. About 79% of public equity emissions come from the materials, utilities, and energy sectors. Across industries, the largest decrease in emissions from 2021 to 2022 came from the utilities sector where investors such as CalSTRS are actively engaging portfolio companies (refer to CalSTRS Stewardship activities on pages 14 to 16). Additionally, since utility companies are high emitters, small changes in positioning can have a material impact on CalSTRS’ emission totals.
- Relative to the benchmark, as of December 31, 2022, the GE portfolio had 0.42M more tons of emissions. This increase in emissions relative to the benchmark was mostly due to the materials and energy positioning of active managers.
- This emissions attribution does not reflect investment in the LCT Index as GE did not have any allocation to the LCT Index as of December 31, 2022, when emissions measurements were made. December 31, 2023 emissions measurements are expected to show considerable reduction versus the benchmark as nearly 10% of Total Public Equity will be invested in the LCT Index as of that date.

Sustainable Investment & Stewardship Strategies (SISS) Emissions Attribution

- As of December 31, 2022, the SISS Public Portfolio had total emissions of 211,955 tons of CO2e representing a 5% decrease from the prior year. The year-over-year emissions decline relative to the benchmark is not surprising as the SISS portfolio’s integration of sustainability

factors into investment decisions causes the portfolio to tilt towards lower carbon intensive industries, such as Information Technology (IT) and Healthcare, relative to the benchmark.

- By comparison, MSCI ACWI IMI benchmark emissions decreased by 2.6% over the same period. As a result, from December 31, 2021, to December 31, 2022, SISS total portfolio emissions declined approximately twice as much as the benchmark.

Fixed Income Emissions Attribution

- As of December 31, 2022, the Fixed Income portfolio had total portfolio emissions of 601,819 tons CO₂e, a 6.1% decrease compared to December 31, 2021. Several factors led to this material reduction in portfolio emissions. During the 2022 calendar year, Fixed Income’s corporate bond exposure, which accounts for about 90% of emissions exposure, was reduced through asset reallocation, leading to an overall reduction in emissions. Fixed Income also lowered portfolio exposure marginally in the energy and basics industry sectors, two of the largest carbon emitting corporate bond sectors, via rotation into other sectors, which helped with overall emissions reductions.
- As of December 31, 2022, the Fixed Income portfolio had about 78,000 more tons of emissions than the benchmark because, despite reducing exposure to sectors such as energy and basics industry, the portfolio still had an overweight exposure to sectors with higher emission intensities (e.g., energy, basics, transportation).
- This emissions attribution does not reflect the implementation of the low-carbon optimization strategy, which Fixed Income began implementing after December 31, 2022.

Real Estate Emissions Measurement

Real Estate holds the majority of its portfolio through “control” investment vehicles. In these situations, staff can exercise control over major decision rights, including the right to have its advisors and managers collect emissions measurement data for individual investments.

Findings: Preliminary scope 1 and scope 2 emissions for calendar year 2022 were 158,992 metric tons of CO₂e. This results in an estimated emissions intensity of 6.2 tons per million dollars of net asset value. The results were an improvement over prior year estimated emissions measurements as estimated emissions for calendar year 2021 were 157,150 metric tons, with a calculated emissions intensity of 6.7 tons per million dollars of net asset value.¹

Background and methodology: In 2022, staff determined that the most efficient way to obtain Real Estate carbon emissions data was by partnering with [GRESB](#), a leading provider of ESG performance data and peer benchmarks. Over 150 institutional real estate investors, like CalSTRS, are Investor Members and can use the GRESB framework to help assess climate

¹ The Real Estate portfolio is actively managed, with many assets being either sold or acquired each year. Thus, the composition of properties held during calendar year 2022 differs from those held during 2021.

change risks and opportunities. Real Estate’s 2022 measurement process relied on data from approximately fifteen separate account/joint venture managers, who submitted emissions-related property data to GRESB for full year 2021.

This exercise was repeated in 2023, adding in new managers and accounts, and adjusting for changes in the portfolio for full year 2022. The resulting data was compiled and analyzed through a joint effort between staff and an external environmental consultant. The 2022 data set covers approximately 400 assets with a combined gross net asset value of \$25.5 billion, representing 50% of the total Real Estate portfolio value.²

The following assumptions were made when measuring the emissions of total portfolio operating assets:

- 338 properties were submitted to GRESB with asset-level emissions measurement data. Actual property-level data for scope 1 and scope 2 emissions was used for these assets.
- Emission intensities for each asset were calculated based upon intensity per square foot.
- The average ‘per square foot’ intensities for each property sector, such as office or apartments was calculated.
- For properties that did not have asset-level emissions data, emissions were estimated by applying the average ‘per square foot’ intensities for the corresponding property sector.

Inflation Sensitive Emissions Measurement

While GRESB began as a platform for Real Estate peer benchmarking, it now provides similar services to infrastructure investors and managers, and Inflation Sensitive staff are also currently reviewing GRESB information that is available from infrastructure account managers. As of December 31, 2023, approximately \$3.14 billion of infrastructure account and direct investments, representing approximately 30% of CalSTRS infrastructure investments, have received GRESB scores. Staff anticipates using GRESB reports and scores going forward for more granular emissions measurement and to identify potential future reporting opportunities.

Next Steps: Emissions Measurement

Public markets and Real Estate emissions measurements will continue as detailed in this item with staff providing annual emissions updates to the Investment Committee. Inflation Sensitive will continue to explore using GRESB as a platform to report portfolio emissions.

Background: (2) Increasing Exposure to Low-Carbon Investments

CalSTRS has a long history of investing in strategies that align with the Fund’s belief that sustainable investing supports our fiduciary duty to maximize investment returns and manage

² The Real Estate portfolio consists of existing and substantially occupied “operating assets” (approximately 50% of the portfolio) as well as properties that are under development and non-control investments such as commingled funds.

financial risks in a changing world. Staff is actively seeking opportunities, particularly within the private markets, that are additive to our risk and return goals and provide climate solutions to the global economy.

SISS Private Portfolio

The SISS Private Portfolio was approved in 2021 to provide a systematic platform to serve as a source of long-term capital appreciation and opportunistically increase CalSTRS' exposure to low-carbon solutions that are additive to the Total Fund. The portfolio is structured to invest across three broad risk and return profiles to enable CalSTRS to take advantage of new (and emerging) climate solutions across private markets. The three broad risk and return profiles include:

- Opportunistic Climate Infrastructure investments
- Hybrid/Innovative Climate investments
- Venture Capital and Growth Equity investments

To date, the SISS Private Portfolio has committed over \$2 billion with inaugural investments across each of the three broad risk and return profiles. Examples of the types of investments include:

Investment case study 1: (Opportunistic Climate Infrastructure investment): A \$350 million investment that established a strategic partnership with a sustainable infrastructure company that provides permanent capital (both debt and equity) to finance sustainable power generation, carbon free mobility (e.g., school bus electrification), and water and waste facilities across the U.S.

Investment case study 2: (Hybrid/Innovative Climate investment): A \$400 million commitment to establish a platform partnership focused on climate solutions that dramatically reduce or remove emissions through industrial climate solutions (e.g., first-of-a-kind green steel plant to produce steel with hydrogen and 95% lower carbon intensity) and natural climate solutions that staff believes to be the newest frontier for climate-focused investors, such as regenerative agriculture practices, forest restoration and conservation, carbon measurement, and durable carbon removals.

Investment case study 3: (Venture Capital and Growth Equity investments): A \$60 million commitment to a venture investment strategy focused on disruptive technology that significantly reduces emissions with superior unit economics versus current business solutions. For example, a battery recycling and manufacturing business where nearly all the materials are recycled, the battery costs one-third less to produce, and with the added benefit of significantly less emissions released throughout the manufacturing process.

Next Steps: Meketa will continue to provide the Investment Committee with enhanced monitoring as staff expands the SISS Private Portfolio allocation to a target of 1% of the CalSTRS Total Fund by 2026.

Private Equity

Private Equity currently has exposure to multiple energy transition/low-carbon investments within its portfolio (typically on an indirect basis and in some instances on both an indirect and a direct basis, i.e., including co-investments). In addition to exposure via Private Equity's investment partners, staff is actively focused on sourcing direct low-carbon co-investment opportunities as part of the Collaborative Model and in co-ordination with the SISS Private Portfolio. Private Equity and SISS have evaluated numerous opportunities together and have completed co-investments including:

Investment case study 1: \$50 million in a 339-mile transmission line that will deliver up to 1,250 MW of renewable power from Québec to New York City, representing approximately 20% of New York City's total daily power consumption and estimated to reduce CO2 emissions by 3.9 million tons annually, or roughly equivalent to removing 44% of New York City's vehicles.

Investment case study 2: €20 million in a company enabling the energy transition by providing essential hardware (e.g., smart meters and other smart-grid devices), software and services to electricity infrastructure operators.

Investment case study 3: \$20 million in a software-as-a-service (SaaS) provider of renewable energy asset performance management software to over 200 utility-scale owners, operators and independent power producers and global energy majors, primarily in North America and Europe. The company's software monitors over 110 gigawatts of wind, solar and energy storage assets worldwide.

Next steps: Staff has been actively communicating CalSTRS' desire to co-invest in energy transition/low-carbon opportunities. As a result, staff is receiving an increasing number of inbound calls on co-investment opportunities where decarbonization is a key investment theme or part of the general partner's value creation plan.

Inflation Sensitive

Investment case study: Arevon

CalSTRS owns 33.3% of Arevon Energy (alongside fellow asset owners APG, in the Netherlands and ADIA in Abu Dhabi), which is a fast-growing renewable energy company that develops, builds, owns, and operates solar energy and energy storage projects in diversified power markets across the U.S. Arevon ranks as the fourth largest solar operating company in the U.S. and its solar and storage businesses positively contribute to the energy transition and climate change mitigation efforts. Arevon is a preeminent developer and holder of renewable energy assets that oversees approximately 160 clean energy projects totaling more than 3GW

(1GW is equivalent to one billion watts and is estimated to power 750,000 homes per year) with an additional 7GW in its development pipeline. The company is committed to advancing its greenfield development program and to expanding the operating assets that provide solar renewable power to over 840,000 homes annually.

Arevon represents about 7% (or \$781 million) of the total CalSTRS infrastructure portfolio net asset value (NAV) as of December 31, 2023, and is the first direct investment into a renewables platform company for the CalSTRS infrastructure program. Arevon is an excellent mechanism for ongoing investment into renewables power generation infrastructure. The direct investment into Arevon will help achieve the program's risk and return targets while also maintaining low costs and providing increased control. Arevon also exemplifies the Collaborative Model in action while directly contributing to CalSTRS' net zero goals.

Next steps: carbon capture opportunities: Inflation Sensitive staff is seeking to identify potential investment opportunities involving carbon capture through discussions with external managers and is also conducting due diligence on potential projects from the American Carbon Registry (ACR) and the California Air Resources Board (CARB). These projects are in the pre-approval stage but represent potential value-add opportunities for the Inflation Sensitive Portfolio.

Real Estate

Investment case study: decarbonization via geothermal heating and cooling

CalSTRS and strategic partner, LCOR, a multifamily developer focused on the Northeastern U.S., are finishing construction on a two-tower, 400+ unit waterfront residential complex in South Brooklyn (Coney Island), New York. The Coney Island development epitomizes a broader shift toward greener and more environmentally conscious development.

The project will be 100 percent electric and features New York City's largest geothermal system, providing heating, cooling, and domestic hot water to the project. The project's geothermal system will reduce carbon emissions by over 60 percent relative to other residential buildings equipped with conventional heating and cooling systems and will result in lower energy bills for its residents.

The system will also future proof the property against New York City legislation (Local Law 97) that imposes financial penalties on commercial buildings that exceed stated carbon emissions caps. Beginning in May 2025, and annually thereafter, compliance reports will become due that detail the building's emissions in the prior year and whether the law's requirements were met. To meet these requirements, building owners will need to lower carbon directly through energy efficiency or by obtaining renewable energy credits (RECs) or greenhouse gas offsets.

Next steps: solar energy strategy: Establishing a solar strategy and action plan is one component of a larger emissions reduction plan for the Real Estate portfolio. CalSTRS' Real Estate staff recently engaged a global sustainability consultant to develop a comprehensive solar strategy for the portfolio. The project's scope includes working alongside staff to create an action plan to

implement solar opportunities across the portfolio. The consultant will provide a perspective on various business models, as well as potential opportunities to explore collaborations with solar partners, provide context on the solar landscape from both a policy and technology perspective, and provide lessons learned from how global peers have approached solar at the portfolio level.

Establishing a Low-Carbon Investment Framework

Recognizing the on-going challenges around identifying and quantifying carbon exposure in private markets, staff continues to develop a taxonomy for understanding (i) if an investment is currently aligned with the net zero transition, (ii) if an investment will align with the net zero transition over time, or (iii) if an investment is not aligned or where data is not available.

Staff's introduced an initial taxonomy at the [September 2022 Investment Committee](#) meeting as CalSTRS' 'Green-Olive-Gray (GOG) Framework' with the following definitions:

- “Green”: an investment considered to be low-carbon
- “Olive”: an investment considered to be transitioning, or capable of transitioning to low-carbon
- “Grey”: an investment considered as not aligned, or where data is not available

Staff initially anticipated applying the GOG Framework to assets within external manager portfolios and to co-investments. However, staff felt that initially leveraging this framework to evaluate external manager alignment with the net zero transition was a more appropriate use. This application of the GOG Framework is explored further in the next section.

Staff continues to consider definitions and methodologies for identifying and aggregating both low-carbon and transition assets across the Investment Branch, in alignment with CalSTRS' 2022-25 Strategic Plan. Staff will focus on this initiative in fiscal year 2024-2025 and report progress during the May 2025 net pledge implementation update.

Background: (3) Using Our Influence to Accelerate the Net Zero Transition

CalSTRS recognizes that meaningful progress towards our net zero goals will not happen unless the global financial markets also demonstrate meaningful progress towards integrating net zero considerations. To influence this shift, CalSTRS engages with many financial market participants including:

- Portfolio companies
- Regulators
- External fund managers/partners

Staff engages with (i) companies, both individually and collaboratively, to promote better climate risk management, (ii) regulators to enhance net zero disclosures, and (iii) external fund managers/partners to integrate net zero considerations into portfolio management.

The next section details how staff is influencing (1) external partners to integrate net zero considerations into investment management, and (2) portfolio companies and regulators as part of CalSTRS’ stewardship efforts.

External Manager Engagement

Staff recognizes the importance and opportunity to use CalSTRS’ influence to better align our investment partners with the CalSTRS net zero pledge. To understand external fund managers’ net zero capabilities, multiple units (e.g., Private Equity, Inflation Sensitive and Risk Mitigation Strategies) are surveying their managers as a first step towards identifying how these managers are approaching net zero, how they align with the CalSTRS’ net zero pledge, and how to achieve better alignment with the pledge.

Private Equity

Private Equity continues to engage with CalSTRS’ investment partners to evaluate their net zero capabilities, particularly larger general partners with more resources. Staff engagement is principally through a comprehensive survey that focuses on the following items:

- Overall firm-wide approach to addressing the net zero transition, including whether or not there are dedicated resources to perform analysis.
- Affiliation with any industry organization(s) involved with reporting standards for emissions measurement.
- Efforts to measure and/or reduce emissions (both at the general partner level and at the portfolio company level) as well as disclosure to limited partners.
- Investment strategy and activity around energy transition or decarbonization-related assets.

Recognizing that most private equity managers are in the early stages of dedicating resources to emissions measurement, staff analyzed its portfolio, and evaluated managers based on the degree to which each is engaged in emissions measurement and reporting. Using information gained from the above-mentioned survey, Private Equity applied the GOG framework at the general partner level to determine what percentage of general partners are actively measuring and reporting emissions across their underlying portfolio. GOG definitions used were:

- “Green” was applied when emissions measurement was being performed on all or a meaningful subset of underlying portfolio companies and reporting and disclosure procedures are in place.
- “Olive” was applied when a general partner had committed to measuring emissions and was actively and materially working towards that goal.
- “Grey” was applied when the general partner was not measuring emissions and did not have a plan, or any intention, to begin measuring emissions in the near-term.

The survey was sent to 100 out of 107 active general partner relationships. 95 of these partners responded, representing 97% of total Private Equity Net Asset Value. Staff classified the majority (about 80%) of the partners as “Green” or “Olive”, meaning that most of CalSTRS’

investment partners are actively measuring and reporting emissions on a portion of their portfolios or have plans in place to begin doing so in the near future. Staff believes that between 10% and 20% of total Private Equity Net Asset Value is currently being measured. Of note, many of the respondents classified as “Grey” are venture capital firms, which is unsurprising given they typically take non-control, minority positions in early-stage companies. A more comprehensive analysis of the Private Equity manager survey can be found in Attachment 2.

Next steps:

Staff will continue to work with other like-minded limited partners to encourage and promote progress in emissions measurement. In future iterations of this survey, staff will endeavor to add more specificity and derive more refined estimates on the percentage of Private Equity’s portfolio that is subject to both emissions measurement and disclosure.

Inflation Sensitive

In 2023, Inflation Sensitive applied the GOG framework to external managers that collectively comprise approximately 80% of the total Inflation Sensitive portfolio with the expectation that applying the framework would be helpful in reviewing manager alignment with CalSTRS’ net zero goals across infrastructure, agriculture, timber and commodities sub-asset classes. While this exercise did provide some insight into external manager net zero practices, a more granular method of manager evaluation was needed.

In February 2024, staff began an annual effort to track manager progress in integrating net zero considerations into decision making by sending a detailed survey to external managers. Staff inquired about the firm’s strategies and policies, measurement and reporting practices, internal staffing and affiliations related to climate change and the energy transition. All 25 surveyed managers have provided responses and feedback, which staff is currently reviewing.

As staff works alongside peers and partners to establish a consensus on emissions measurement metrics and determine the most effective approach to navigate the evolving landscape, staff aims to gain insights into managers’ methodologies and an understanding of overall strategies to achieve net zero portfolios.

Next steps: Inflation Sensitive will continue to implement an annual external manager survey and report key findings and actions as part of the annual net zero strategy update.

Risk Mitigating Strategies (RMS)

The RMS portfolio consists of 15 external managers. These managers tend to take both long and short positions in all major asset classes (equities, fixed income, currencies, commodities) using derivatives rather than individual corporate securities. These strategies also tend to be more dynamic in how long they hold positions. In some cases, positions from one week to the next may be different. RMS surveyed a broad universe of global long-short managers and engaged Cambridge Associates (Cambridge) to explore potential pathways to reduce emissions in such a

portfolio. As current emissions measurement methodologies are more suited to long-only, buy and hold corporate debt or equity mandates, there are many challenges, and a well-defined approach has yet to be established.

Regardless, a significant opportunity exists for RMS to produce real-world impact via strategic engagement with investment managers. With Cambridge's guidance, staff developed a survey to monitor and rate RMS managers' net zero efforts and alignment with CalSTRS' goals. The survey focuses on each organization's incorporation of net zero considerations into its firm and/or strategy, policies and reporting, investment and risk management processes, and staffing. Staff has sent this survey to all of RMS's 15 external managers representing approximately \$21 billion in assets under management. While staff is currently reviewing the responses, initial reflections are that some managers are still very early in incorporating net zero considerations, while others have hired climate scientists on staff to develop proprietary data to measure potential climate impacts on investments.

Next steps: Based on survey responses and ongoing engagement, RMS will evaluate managers' progress towards integrating net zero considerations into (i) corporate policies and reporting, (ii) investment and risk management processes, and (iii) human resources capacity. Initial responses will establish a manager baseline for net zero involvement and insights gained through the survey will help to identify areas for improvement and engagement, and help RMS understand its influence on managers' policies and practices.

Net Zero Stewardship Activities

The [CalSTRS Stewardship Priorities](#) (approved in January 2024 by the Investment Committee) guide CalSTRS' use of influence as a significant global investor to promote sustainable business practices and public policies. As a reminder, the Investment Committee approved three priorities:

- Corporate and Market Accountability
- Net Zero Transition
- Workforce and Communities

Investors today have a wide variety of tools to influence public companies, including proxy votes, shareholder proposals, face-to-face meetings with companies and policy makers, and globally coordinated collaborative engagements. Specific to net zero, staff uses a combination of these tools to influence portfolio companies and the broader financial markets.

Proxy Votes

CalSTRS uses its proxy votes to hold directors and companies accountable for proper risk management. During the 2023 proxy season, CalSTRS voted against the boards of directors at 2,035 global companies because they did not provide the climate risk disclosures that investors need to meet net zero commitments. CalSTRS is continuing this voting practice during the 2024

proxy season and is also supporting shareholder submitted proposals that align with our goals and call on companies to better manage risk or improve public disclosure.

Policy Advocacy

CalSTRS engages regulators and policy makers to support actions that provide for well-functioning and efficient markets that support long-term value creation. Through these engagements, CalSTRS is supporting the adoption of the [International Sustainability Standards Board](#) standards as a global baseline for corporate sustainability disclosures, with a focus on climate risk. Consistency and transparency around sustainability-related risks and opportunities impacting companies are necessary to allow investors to make well-informed decisions. CalSTRS is also supporting the Securities and Exchange Commission’s recently issued climate-related disclosure rule which is a crucial step toward more reliable, consistent and comparable information to assess the risk and opportunities to portfolio companies.

Climate Action 100+

CalSTRS continues to be a leader in Climate Action 100+ (CA 100+), the world’s largest collaborative effort to engage the highest carbon emitters to set goals and targets to reduce greenhouse gas emissions and implement tangible climate transition plans. Building on the success of CA 100+ first five years, which included 75% of companies committing to a net zero emissions strategy, CA 100+ is now focused on corporate implementation of climate transition plans and CalSTRS is leading this “new phase” of engagement at ten companies, with a focus on the utility sector.

Methane – OGMP 2.0

Staff is engaging and encouraging portfolio companies to join the [Oil & Gas Methane Partnership 2.0](#) (OGMP 2.0). OGMP 2.0 is a United Nations Environment Program initiative that requires member companies to measure their methane emissions (as opposed to estimating them), and to set emissions reduction targets. Since staff began engaging oil & gas companies on OGMP 2.0 at the beginning of 2023, 15 companies have joined, including Exxon Mobil Corporation and Chevron Corporation, and more than 100 companies in the CalSTRS portfolio are eligible to join.

High emitters – Priority 45

The Priority 45 is a subset of companies that account for approximately 7% of CalSTRS’ global equity emissions and are not covered through CA 100+. Staff is actively engaging management teams and boards from these 45 companies on a variety of net zero aligned best practices, including tying executive compensation to progress against their short and medium-term emissions reduction goals, obtaining audit assurance for their reported emissions, and on their energy consumption. Since launching this initiative in January 2024, staff has communicated

with all 45 companies to express broad expectations on aligning with net zero best practices and will continue to engage with these companies on net zero alignment as indicated.

Next steps: Staff believes proxy voting, policy advocacy, and company engagement, both direct and through collaborative initiatives, are where CalSTRS can continue to achieve meaningful outcomes. Staff will continue to execute on the engagement plans for each initiative to influence portfolio companies and the broader marketplace to align with CalSTRS' net zero pledge.

Background: Additional Supporting Activities

Net Zero 'Transition Tracker'

During the [September 2022 Investment Committee meeting](#), staff recommended, and the Investment Committee approved, the adoption of a net zero investment decision-making process. As a component of this decision-making process, staff recognized the importance of understanding the speed and direction of the broader global net zero transition to inform appropriate actions and pacing. Specifically, staff emphasized the need to map, organize and make relevant, the multiple, disparate data points that currently exist to signal the speed and direction of the transition. Staff referred to this concept internally as a 'Transition Tracker'.

During the [May 2023 Investment Committee meeting](#), staff presented an [initial draft of a 'Transition Tracker' prototype](#) that provided indicators across four net zero themes that staff believe impact and influence the global economy's transition to net zero:

- Physical Risk: e.g., temperature change and extreme weather events
- Policy-related Transition Risk: e.g., country and regional based climate commitments
- Technology-related Transition Risk: e.g., levelized costs of energy and electric vehicle penetration
- Carbon Emissions: e.g., increases and reductions in global emissions

While no comprehensive and publicly available method to track the speed and direction of the net zero transition has been developed specifically for asset owners like CalSTRS, staff believes many platforms and tools currently exist that provide relevant information on how the net zero transition is evolving, and collectively these sources can be leveraged to support strategic and tactical net zero-related investment decisions. Data sources staff has identified include:

- [Net Zero Tracker](#): Provides status on a variety of net zero indicators for multiple entities across different geographic regions.
- [Speed & Scale Tracker](#): Shows how society can cut greenhouse gas emissions and allows monitoring of progress to net zero across 10 critical objectives.
- [MSCI Net Zero Tracker](#): Provides periodic reporting on company progress towards reducing carbon emissions.
- [IMF Climate Change Dashboard](#): Provides a variety of climate change related indicators, including emissions, weather, climate finance, mitigation activities, and scenario analysis.

Staff is leveraging these existing tracking mechanisms and working with our partners and peers to understand the best methods to recognize the speed and direction the net zero transition and integrate this into investment decision-making processes. Additionally, staff is monitoring high-level risk indicators that align with the four net zero themes staff previously identified (refer to Attachment 3).

Next steps: Staff will continue to monitor, assess and leverage existing tracking sources and work with partners around best methods to identify and integrate transition information into decision making. Staff will also continue to monitor and report on the net zero indicators that support the four key net zero themes.

Net Zero Training and Skill Building

The global net zero transition is continuously evolving, and doing so rapidly in many areas. Emissions measurement methodologies, policy responses to climate change, technological advances around clean energy delivery and the physical impacts associated with climate change are both complex and dynamic. Staff recognizes the importance of establishing and maintaining effective ways to help train and support the Investment Branch and the Investment Committee’s understanding of the different facets of the net zero transition.

Net Zero Newsletter

Using the ‘Transition Tracker’ concept as a framework, staff has created a newsletter that is periodically provided to staff to provide timely high-level information around the four net zero risk categories staff is monitoring: physical risk; policy-related transition risk; technology-related transition risk; and carbon emissions.

Leveraging Existing Partners

Staff continues to work with external partners to support skill building and trainings for staff on priority net zero topics. Since the [May 2023 Investment Committee meeting](#), staff has worked with managers, consultants, data service providers and industry associations on multiple sessions covering topics such as carbon foot printing, integrating climate considerations into portfolio management, decarbonization in private markets and understanding climate science.

Next steps: Staff will continue to leverage global peers and partners to support training opportunities. Staff is also partnering with the Enterprise Sustainability team on developing staff training sessions that support Branch and Enterprise net zero objectives.

Strategic Plan Linkage:

One of the five objectives of the current CalSTRS Strategic Plan is to operationalize sustainable investment beliefs to create long-term value. A three-year progress indicator is that CalSTRS defines appropriate portfolio carbon measurements and sets interim emission reduction targets that meet the Fund’s risk-return profile.

Board Policy Linkage:

The development of the Investment Committee Work Plan and setting annual objectives and projects is covered by the [Teachers’ Retirement Board Governance Manual](#), Section 2 Board Governance, item E4, Strategic Planning Policy, page 20. The CalSTRS’ net zero emissions pledge, and the accompanying timeline and activities are part of the Investment Committee Work Plan.

This item is also covered as part of the CalSTRS Low-Carbon Investment Belief:

Investment risks associated with climate change and the related economic transition—physical, policy and technology driven— materially impact the value of CalSTRS’ investment portfolio.

Additional Linkage:

[CalSTRS Path to Net Zero Webpage](#)

[CalSTRS Net Zero Infographic](#)

[CalSTRS Stewardship Priorities](#)

[CalSTRS 2022-2025 Strategic Plan](#)
