



# Investment Committee

## Item Number 3 – Open Session

**Subject:** Net Zero Strategy – Progress and Planning Update

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

**Item Type:** Information

**Date & Time:** May 5, 2022 – 45 minutes

---

**Attachment(s):** Attachment 1 – CalSTRS Net Zero Pledge Background  
Attachment 2 – CalSTRS Net Zero Portfolio Emissions Pledge  
Attachment 3 – Recent Net Zero Communications Activity

**PowerPoint(s):** CalSTRS Net Zero Pledge Update May 5, 2022

---

### **POLICY**

The development of the Investment Committee Work Plan and setting annual objectives/projects is covered by the [Board Governance and Administration Policy](#), Teachers' Retirement Board Policy Manual, Section 500, page 17. CalSTRS net zero emissions pledge by 2050 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.*

### **PURPOSE**

During the January 2022 Investment Committee, staff presented an update on progress towards the year one goals associated with CalSTRS net zero portfolio emissions pledge. Staff discussed the development of a multi-team governance structure for making key decisions, highlighted the results from staff's outreach to trusted investment partners to assess the market landscape around Net Zero, discussed a strategic climate integration assessment conducted in collaboration with the World Economic Forum and Mercer, and talked about progress towards establishing baseline measurements on portfolio emissions and investment in low-carbon solutions.

The purpose of this item is to provide Committee members with a further update on progress towards year one goals that has occurred since the January 2022 Investment Committee update.

## **NET ZERO PLAN - PROGRESS TO DATE**

Staff has been focused on the following initiatives to advance progress on our net zero pledge. For ease of reading, we have created six distinct sections within this item that provide an update on each:

- (1) Refining our net zero **governance structures** to ensure we make prudent decisions
- (2) Learning how other asset owners and asset managers are integrating net zero commitments through **frameworks and methodologies**
- (3) **Measuring carbon emissions** in public markets portfolios
- (4) Researching possible **methods to reduce emissions** in line with the Fund's risk-return goals
- (5) Researching methods to establish and define baseline measurements around CalSTRS **low-carbon investments** across diverse asset classes
- (6) **Communicating** our strategy and intentions to a broad range of audiences.

**(1) Governance Structures: *Status: Established***

Staff developed a multi-team governance structure to direct and support the implementation of the net zero pledge. The Net Zero Leadership Team, consisting of Investment Directors and the CIO/DCIO sets the pledge strategy and provides oversight to the Net Zero Green Team, which is comprised of Portfolio Managers and additional asset class experts, who implement the strategic direction provided by leadership. A Net Zero Communications Team was also created to ensure that progress towards implementing the pledge is strategically communicated both internally and externally.

Since the January 2022 Investment Committee, we have further enhanced the governance structure to be more efficient in the design and implementation of the pledge. With so much initial focus on the public markets, we created a Public Markets Working Group to bring together leadership and implementation team members from public market asset classes to work more closely so that all facets of our emissions measurement, measurement of low-carbon investments and possible pathways to emissions reductions are being consistently discussed across public market asset classes. These working group meetings are chaired by the CIO and DCIO and supported by the SISS team. The Public Markets Working Group has approved public markets portfolio emissions measurement and discussed possible methods to reduce public markets emissions.

We have also recently created a Private Markets Working Group to function in a fashion similar to the Public Markets Working Group focused on estimating portfolio carbon emissions and defining and identifying low-carbon investments. As carbon-related data and analysis is less mature and private market investment structures are often complex, we believe that different approaches are required to those in the public markets.

**(2) Net Zero Frameworks and Methodologies; Status: Learnings Ongoing**

Staff continues to research net zero frameworks and methodologies, and speak with strategic partners across asset classes, to identify appropriate platforms and initiatives that will support CalSTRS goals of reducing portfolio carbon emissions and identifying appropriate low-carbon investments that meet our risk-return goals. Two new important developments include:

*Membership of GRESB*

Formerly known as the Global Real Estate Sustainability Benchmark, GRESB is a global, investor-driven organization that helps benchmark the sustainability performance of real assets, including their greenhouse gas emissions. Originally focused on real estate assets, GRESB has since broadened its scope to include infrastructure assets.

The CalSTRS Real Estate unit became an investor member of GRESB during the first quarter of 2022. One of the primary reasons for joining GRESB was to show our support of the organization to help positively influence other investors to join GRESB and implement net zero goals. Another major benefit of GRESB membership is access to the GRESB portal that allows the user to collect and organize ESG data, including carbon emissions data, that members have provided. Real Estate is asking its investment partners to provide carbon emissions data on CalSTRS properties to GRESB which will allow staff to begin measuring the carbon emissions of the Real Estate portfolio.

*Appointment of External Consultant*

Despite the significant internal resources that have been directed towards supporting the net zero pledge, staff recognized that the total resources required to properly integrate a project of such complexity and importance would require external assistance. Utilizing the consultants available in the Investment Consultant Pool, staff requested bids from consultants that we felt had sufficient expertise and experience advising investors on integrating climate considerations into portfolio management.

After a competitive process, we selected Cambridge Associates for an “extension of staff” agreement. We have designed this partnership to provide support to any unit in the Investments Branch which needs additional support on a defined project basis. Staff may use the investment consultant to provide climate-risk-related education, additional net zero investor practice research, facilitate emissions data gathering, develop emissions estimation methodologies, or any number of other potential projects. We anticipate this support to enable staff to focus on the strategic issues and decisions that will inevitably surface as we implement CalSTRS net zero pledge.

**(3) Portfolio Emissions Measurement: Status: Completed for Public Markets**

Having committed to achieving net zero portfolio emissions by 2050 or sooner, a critical first step in managing CalSTRS carbon emissions exposure is establishing a baseline measurement of the carbon emissions currently financed by our investment portfolio. All of the peers and partners we engaged were unanimous in their belief that to properly implement a net zero pledge, we first need to understand what our overall emissions are, where they come from and what is driving them.

*What to Measure*

**Initial focus on public markets:** CalSTRS public markets investments represent the majority of the assets in the CalSTRS Investment Portfolio. Due to our long-standing engagement efforts to encourage company disclosure on carbon emissions, many public markets companies have been providing climate-oriented data to investors for many years and multiple data service providers have developed corporate carbon footprint models that allow for a reasonably accurate assessment of public company emissions<sup>1</sup>. Unfortunately, this is not the case in many private market segments, particularly within infrastructure and private equity/credit asset classes, as data on emissions in these asset classes is not widely available and existing data analysis lacks consistency and accuracy. For these reasons, staff decided to proceed with measuring our public markets emissions exposure while we look to collaborate with our investment partners to design and develop better methods to measure carbon emissions where needed in the private markets.

**Emissions scopes:** Staff considered which carbon emissions scopes to measure. Measuring scope 1 emissions (direct emissions) and scope 2 emissions (energy use) of underlying company investments were obvious choices. Our review of other net zero portfolio commitments showed that most investors that have made a net zero pledge have committed to measuring and managing only scope 1 and scope 2 emissions in their portfolio. Most investors are currently not measuring scope 3 emissions (supply chain and end-use emissions) of their investments. The current market consensus is that the methods of accounting for scope 3 emissions are still under debate, and any emissions data produced would likely not be reliable or useful for decision making. Because of this, staff concluded that measuring scope 3 emissions would not presently add value to our pledge implementation efforts. However, as methods for accounting for scope 3 emissions evolve, and the usefulness of the emissions data improves, staff will reconsider the decision regarding scope 3 emissions measurement.

*How to Measure*

**Data providers:** Staff assessed potential methods of measuring our investment portfolio emissions and recognized the need for external resources. The choice of possible partners came down to either working directly with a broad data service provider or working with a more boutique organization that specialized in carbon measurement. After consulting peers and partners who had

---

<sup>1</sup> There is still more progress to be made in ensuring global companies are required to provide comparable and decision-useful climate disclosures in an efficient manner to investors – hence our ongoing engagement with regulators to mandate these disclosures. Most notably, on 21 March, the SEC gave initial approval for a new climate disclosure rule which is an extremely welcome and encouraging development.

recently measured their portfolio emissions, and weighing the costs and benefits of different options, staff concluded to use an existing data service provider and their carbon emissions platform to conduct portfolio measurements in-house.

**Partner selection:** Staff identified and analyzed the top three emissions measurement data providers in the market and spoke with representatives from each of them about their ability to footprint a multi-asset investment portfolio. Staff reviewed and considered each organization's platform functionality and conducted reference calls with peers and partners. Staff selected MSCI as the preferred carbon measurement platform as: (i) they have been providing climate-related data to CalSTRS for many years, (ii) they are a recognized leader in the delivery and support of investment data, and (iii) their carbon measurement methodology, platform and coverage of the CalSTRS Investment Portfolio was superior to the other two data providers considered.

#### MSCI Carbon Portfolio Analytics

**Company emissions calculations:** The MSCI carbon measurement platform searches all sources of publicly disclosed corporate greenhouse gas emissions data for approximately 8,500 publicly traded companies to populate a database that calculates a company's total carbon emissions. About 60 percent of global companies disclose their scope 1 and scope 2 greenhouse gas emissions, so this data is more easily gathered and entered into MSCI's database. However, for the approximately 40 percent of publicly traded companies that do not disclose their emissions data, or only partially disclose their emissions, MSCI estimates a company's emissions based on known emissions from similar companies or known emissions from companies with similar businesses. It is through this direct reporting and estimation that MSCI is able to provide coverage for approximately 95 percent of the public markets securities in our portfolio.

**Portfolio emissions calculations:** To measure emissions in an investment portfolio, MSCI assigns a portion of emissions for each company in a portfolio based on the percentage of the company owned in that portfolio. The MSCI emissions measurement platform allows users to choose whether they want to base ownership on a company's equity market value or on a company's enterprise value. Staff decided to use enterprise value as the basis for apportioning company emissions because it is the sum of a company's total debt, equity and cash and prevents double counting of emissions where we own both the debt (bonds) and the equity of a company. The following table provides a simplified example of how carbon emissions are calculated in a portfolio using the MSCI platform.

**Calculating Portfolio Carbon Emissions**

Company in Portfolio	Enterprise Value of Company	Company Total Scope 1 and 2 Emissions	Amount of Company Held in Portfolio	Company Emissions Assigned to Portfolio	
ABC	\$5 Billion	250,000 tons CO <sub>2</sub> e	\$100M	$(\$100M/\$5B) \times 250,000$ tons	5000 tons CO <sub>2</sub> e
DEF	\$7.5 Billion	400,000 tons CO <sub>2</sub> e	\$175M	$(\$175M/\$7.5B) \times 400,000$ tons	9333 tons CO <sub>2</sub> e
GHI	\$6 Billion	500,000 tons CO <sub>2</sub> e	\$80M	$(\$80M/\$6B) \times 500,000$ tons	6667 tons CO <sub>2</sub> e
JKL	\$10 Billion	200,000 tons CO <sub>2</sub> e	\$200M	$(\$200M/\$10B) \times 200,000$ tons	4000 tons CO <sub>2</sub> e
MNO	\$4 Billion	150,000 tons CO <sub>2</sub> e	\$125M	$(\$125M/\$4B) \times 150,000$ tons	4688 tons CO <sub>2</sub> e
<b>Total Portfolio Value</b>			<b>\$680M</b>	<b>Total Portfolio Carbon Emissions</b>	<b>29,688 tons CO<sub>2</sub>e</b>

As shown above, company ABC is determined to have 250,000 total tons of scope 1 and scope 2 carbon emissions and has an enterprise value of \$5 billion. An investor holds \$100M worth of company ABC in its portfolio, which represents 2 percent ( $\$100M/\$5B$ ) of the company’s enterprise value. The amount of carbon emissions attributable to the investment portfolio, from its partial ownership of company ABC, is therefore 5000 tons of CO<sub>2</sub>e (250,000 tons x 2 percent). This process is repeated for the other companies in the portfolio to determine those percentage contributions of total carbon emissions. Finally, the individual company contributions are added up to get a total portfolio emissions accounting, which in this simplified example is 29,688 tons of CO<sub>2</sub>e.

While 29,688 tons represent the total or absolute emissions attributable to the portfolio, the normalized emissions, or ‘carbon footprint’ of the portfolio, is calculated by dividing the total or absolute emissions of the portfolio by the portfolio’s value, with that value being expressed in how many millions of dollars are invested. For the above example, the carbon footprint of the portfolio is 29,688 tons CO<sub>2</sub>e / \$680M or 43.66 tons CO<sub>2</sub>e/\$M invested.

*The Process of Measuring CalSTRS Carbon Emissions*

**Public market asset classes:** To determine CalSTRS total public markets carbon emissions exposure, all asset classes with measurable public market holdings gained access to the MSCI platform so they could measure their unit’s emissions exposure. These asset classes were Global Equity (GE), Fixed Income, SISS and RMS. Some public markets exposure is also in the Real Estate portfolio (Real Estate Investment Trusts or REITs) and this exposure was included in the total public markets exposure, as was the CalSTRS Liquidity portfolios.

**Security coverage:** Prior to each asset class conducting their respective carbon emissions measurements, staff collectively determined which securities to include in the process and which emissions metrics to use:

- **Derivatives:** Staff felt it was most reasonable to focus on long-only securities, where the emissions exposure is easiest to determine and understand. Staff decided not to include

derivative-type securities where the accounting for emissions is still very unclear and without established standards or best practices.

- **Sovereign debt:** Staff determined that sovereign debt should be excluded from the aggregate public markets carbon measurement. Though this is a significant part of the Investment Portfolio, and CalSTRS public market exposure, the methodology to measure emissions in sovereign debt is still being debated and no widely accepted means of determining how to allocate a country’s carbon emissions, based on its debt issuance, currently exists. However, staff measured this exposure separately utilizing MSCI’s existing methodology and provides those results later.

**Metrics:** Staff determined that for the purposes of this initial emissions measurement, calculating a total portfolio emissions number and a relative emissions number would be appropriate. The total portfolio emissions metric is the focus of the CalSTRS net zero pledge. It is the level of emissions we need to reduce over time. The normalized emissions metric (emissions per unit of investment) allows for the comparison of portfolios of different sizes and lets investors gauge whether or not carbon emissions changes are due to changes in portfolio size. Staff considered other carbon emissions metrics, including, by way of example, intensity metrics such as emissions per unit of sales or revenue; however, staff determined that such metrics are more appropriate for the granular analysis to be conducted later in the implementation plan when staff begins doing sector and security level analysis.

**Timing:** Staff needed to choose an annual point in time to measure our portfolio emissions and decided that December 31 is most appropriate.

CalSTRS Public Market Carbon Emissions Measurement

Table 1 shows the total carbon emissions exposure for CalSTRS public markets securities, excluding sovereign debt, held as of December 31, 2021. Based on public markets portfolio investments of approximately \$183 billion, CalSTRS has approximately 9.25M tons of total carbon emissions as well as normalized emissions of 50.5 tons of carbon exposure per every \$1M invested. In terms of data coverage, over 93 percent of the securities that CalSTRS sought to footprint had data provided by MSCI.

**Table 1: Total CalSTRS Public Markets Emissions**

CalSTRS Portfolio Measured	Total Assets Measured	Total Emissions (Tons CO2)	Normalized Emissions (Tons CO2/\$M)	Coverage
Public Markets ex Sovereigns	\$183,228,630,150	9,252,516 tons	50.5 tons/\$M	93.6%

Table 2 shows individual unit’s carbon exposure versus their respective benchmarks as of December 31, 2021. Each unit determined its total emissions and normalized emissions using the methodologies previously provided. Each asset class then calculated the level of total emissions



and normalized emissions for a portfolio of equal value invested in their respective unit’s benchmark index. Finally, the two carbon footprints were compared. In the case of RMS emissions exposure, no benchmark data was available so no comparison could be made.

**Table 2: Emissions by Business Unit<sup>2</sup>**

Unit	Total Portfolio Emissions (Tons CO2e)	Total Benchmark Emissions (Tons CO2e)	Normalized Portfolio Emissions (Tons CO2e / \$M)	Normalized Benchmark Emissions (Tons CO2e / \$M)	Portfolio Coverage
Global Equities	8,026,895	8,105,368	56.1	56.7	97.50%
Fixed Income (Credit)	771,134	709,916	70	65.9	90.40%
SISS	284,799	703,966	23.2	57.4	99.50%
RMS	92,709	N/A	74.9	N/A	99.40%

As can be seen in Table 2, as of December 31, 2021, CalSTRS GE Portfolio had total emissions of just over 8M tons, slightly less than the 8.1M ton emissions of the CalSTRS Custom ACWI, the portfolio’s benchmark index. The GE Portfolio’s normalized emissions were also slightly lower than the portfolio benchmark emissions. GE’s normalized emissions were 56.1 tons CO2 per \$1M invested compared to the benchmark emissions of 56.7 tons per \$1M invested. The proximity of these total and normalized measurements to the underlying benchmark is to be expected from a strategy that largely seeks to mimic a large broad-market index. The same inference could be made from the Fixed Income measurement results. Both the total and normalized emissions of the portfolio are relatively close to the benchmark which would be expected from a portfolio that seeks to track a benchmark return.

The SISS Portfolio has different, but not unexpected, emissions measurement results. As Table 2 shows, as of December 31, 2021, the SISS Public Portfolio has total emissions of nearly 285,000 tons, with normalized emissions of 23.2 tons CO2 per \$1M invested. These numbers are significantly lower than the SISS portfolio index, the CalSTRS Custom ACWI IMI, which recorded total emissions of just over 700,000 tons and normalized emissions of 57.4 tons for each \$1M invested. The variance of these numbers is not surprising as the majority of SISS public market investment strategies intentionally integrate climate considerations into their construction.

---

<sup>2</sup> GE benchmark index used for analysis: MSCI ACWI IMI  
 SISS benchmark index used for analysis: CalSTRS Custom ACWI IMI  
 FI benchmark index used for analysis: FI Custom 95/5

**Table 3: Sovereign Debt Analysis**

Unit	Portfolio Emissions Intensity (Tons CO2E / \$M GDP)	Benchmark Emissions Intensity (Tons CO2e / \$M GDP)	Portfolio Coverage
Fixed Income (Sovereign)	292.2	277.7	100.00%
RMS (Sovereign)	286.2	N/A	91.50%

As discussed, CalSTRS’s sovereign debt emissions had to be measured separately from CalSTRS other public market securities due to differences in measurement methodology and the metrics utilized. Calculating the emissions associated with country rather than company-related investments is naturally different. MSCI’s sovereign debt emissions measurement is based on a methodology that incorporates a country’s total carbon emissions, its GDP (Gross Domestic Product) and the percentage of country debt in a portfolio to deliver an intensity metric that rises as exposure to high emitting countries rises. Table 3 illustrates that while slightly higher than the benchmark, the Fixed Income sovereign emissions exposure is in line with the exposure of the benchmark. Benchmark limitations would not allow a similar comparison to the RMS sovereign emissions measurement, but those emissions are largely in line with those of Fixed Income. As mentioned earlier, there is still considerable on-going debate as to the how country emissions should be apportioned to investment portfolios.

**Measurement context:** Staff attempted to analyze CalSTRS carbon emissions measurement results relative to other funds, but this proved to be a difficult task. Unfortunately, there is currently no obligation for investors who have made net zero pledges to publicly disclose their portfolio carbon emissions, nor is there an accepted standard amongst those who have disclosed emissions measurement results. Staff found that some investors only disclose absolute emissions, some investors only disclose normalized emissions, and some investors only disclose the variance between their emissions and the emissions of a benchmark. Adding to the challenge of comparison across peers is that investors also differ in how they group assets when they measure emissions. Some consider all public exposure combined, others only provide public equity emissions, and still others combine public and private equity exposure into one measurement. Staff will continue to monitor peer practices and revisit this analysis in the event that standardization makes it possible for meaningful comparison.

**Baseline measurement purpose:** Despite the identified challenges around comparing measurement results against our peers, there is some important information that can be gleaned from these baseline measurements. Recognizing that these carbon emissions measurement results are portfolio level numbers, they do tell us what current public markets, and the underlying asset class, total carbon emissions and relative carbon emissions are and how these measurements vary from our benchmark indexes. These are the “big picture” numbers that will be used to gauge the

impact of staff's future decisions. What these portfolio level results do not provide are more granular details, such as our industry, sector, or security level carbon exposure. These kinds of emissions details will be measured and analyzed to support options for reducing portfolio carbon emissions that staff are currently considering and will discuss at future Investment Committee meetings.

### Future Carbon Emissions Measurement

**Intervals:** Going forward, staff believes it prudent to conduct follow up portfolio emissions measurements at least annually. As our net zero pledge is a long-term goal that we are implementing in stages on a year-by-year basis, it seems appropriate for the emissions profile update to follow this cadence. An annual emissions measurement update would allow staff to observe and monitor changes to the investment portfolio emissions profile and allow us to measure progress towards our net zero goals. Regular emissions measurement and analysis would also inform investment decisions that would impact the net zero strategy.

**Technology platform:** The lessons learned from the process of initial measurement helped staff identify opportunities for greater efficiency and improvement. To be more efficient in our carbon emissions measurement, staff has decided to centralize portfolio carbon emissions measurement utilizing the total portfolio functionality of the BlackRock Aladdin risk management platform. For this initial portfolio measurement (currently described), each asset class conducted their own individual portfolio emissions measurement using MSCI data on the MSCI platform. The asset class emissions were combined to get the total public markets carbon exposure. This method was resource intensive. Going forward, the Investment Strategy and Risk team will coordinate all public market emissions measurement using MSCI data on the Aladdin risk platform. This methodology will be less resource intensive and allow for centralized oversight similar to how we manage total portfolio risk.

**Private markets:** Staff continues to consider potential methodologies for measuring portfolio emissions in the private markets where established methodologies do not exist. Unfortunately, the level of data capture and modeling in many private markets is not nearly as mature as in the public markets and those carbon foot printing tools that do exist, incorporate a high level of assumption and estimation when modeling carbon emissions. Staff continues to speak with peers and investment partners, and discuss internally, possible methods to expand appropriate baseline measurement of our private markets emissions. Staff will continue to update the board to the extent there is any progress around private market portfolio emissions measurement.

**(4) Portfolio Emissions Reductions Analysis and Options: Status: On-going**

Over the past six months, staff has been researching how other large asset owners are integrating net zero commitments into portfolio management practices. Staff has also been speaking with dozens of strategic partners, to understand the meaningful and often complex decisions other investors are making. From this study, staff believes that there are two principal mechanisms that CalSTRS can utilize in order to reduce portfolio emissions: (1) we can make active investment decisions that seek to reduce total portfolio emissions and (2) we can use our influence as a large global investor to seek more meaningful integration of net zero considerations across the global financial markets so that the entities in which we invest reduce their emissions.

**Portfolio Decisions to Reduce Emissions:**

Investment decisions, as they relate to the net zero pledge, take many forms and ideally would be phased in and open to adjustment over time. These decisions could include revising indexes, changing tracking error/active risk budgets, changing performance targets, restricting certain securities, and choosing to partner with more thematic external managers. Staff is currently assessing the range of investment decisions that we could make, which of these decisions we realistically want to consider further, what would be the financial and emissions reductions impact of these decisions, and what policy changes would be required to accommodate any proposed investment decision.

*Exploring Increased Exposure to Low-Carbon Indexes*

One of the portfolio decisions that the Public Markets Working Group is currently analyzing is the option to increasingly integrate – in phases – a low-carbon index into our passive public equity exposure. We think exploring this initial reduction option is warranted as our passive exposure is internally managed which would allow for a cost-effective integration that could be done in increments over time. Staff also believes that because passive equity is such a large part of the CalSTRS Investment Portfolio, any emissions reductions achieved through this option will be meaningful from a total fund perspective. Additionally, as low-carbon index strategies have been employed for many years, including within the CalSTRS portfolio, there is significant data and analytics that can be used to support a measured, risk-controlled introduction of this strategy.

In 2016, the Investment Committee proactively instructed staff to conduct an analysis on the impact to the CalSTRS GE portfolio if it were to include low-carbon index investments. Low-carbon index strategies seek to achieve broad market exposure and diversification, like a traditional index, while also reducing exposure to carbon emissions by overweighting low-carbon companies and underweighting high-carbon companies. In designing a low-carbon index, investors can choose to build the index around a desired level of carbon emissions or construct the index on a desired active risk target. After considering multiple low-carbon index options, the board approved an investment in the MSCI ACWI Low Carbon Target (LCT) Index, which optimizes carbon emissions exposure around a relatively modest active risk target.

GE staff started managing LCT portfolios across U.S., non-U.S. developed and emerging markets as a Teachers' Retirement Board special mandate investment. These special mandate investments were subsequently transferred into the SISS Public Portfolio with GE continuing to manage the assets on the SISS team's behalf. During this period, the LCT portfolios have performed in-line with staff expectations, providing significant carbon emissions reduction coupled with a low active risk relative to the parent index. As of February 28, 2022, the MSCI ACWI LCT Index's carbon emissions were 80 percent lower than MSCI ACWI, within an optimized 30 basis point active risk constraint.

When considering the feasibility of further integrating a LCT index strategy, beyond the current SISS Public Portfolio, it is important to know that the GE Portfolio is managed within an active risk budget framework (ten to fifty basis points). Due to this constraint, GE staff is selective on where risk is allocated and focuses on areas that exhibit the highest probability of generating excess returns. While the GE Portfolio includes active management strategies, over 75 percent of the assets are passively managed by internal staff. For the GE Portfolio to achieve meaningful carbon emissions reductions versus the current benchmark, CalSTRS would need to consider the most appropriate methods and timing for reallocating a portion of GE's traditional passive assets to a LCT portfolio over time. Allocating current passive assets to a LCT portfolio would increase the active risk of the GE portfolio versus its policy benchmark.

Staff will present a more detailed analysis of the opportunities and challenges associated with taking more active investment decisions, including the idea of increasing exposure to low-carbon indexes, at the September 2022 Investment Committee meeting. This analysis will also incorporate the potential impacts on the upcoming Asset-Liability study, which will be conducted by the Investment Strategy and Risk team.

### **Influencing Financial Markets to Reduce Emissions:**

#### *Expanding policy maker/regulator engagement*

Much of our net zero engagement strategy aims to leverage our influence on portfolio companies and market infrastructure groups as we see these two entities as integral parts of an interconnected system of market participants that need to coordinate and cooperate to accelerate climate risk identification, mitigation, and adaptation.

Our market engagement includes working with corporate disclosure standard setters, securities regulators, environmental and energy agencies, and legislators who can set expectations for corporate behavior and mandate investor-grade climate reporting. We have recently engaged the U.S. Environmental Protection Agency, the U.S. Senate Banking Committee, the U.S. House Committee on Financial Services, and the U.S. Department of Treasury. We regularly speak with the U.S. Securities and Exchange Commission (SEC) to encourage useful corporate disclosure rules that support our net zero pledge, particularly our carbon emissions measurement work. We contribute to market-led climate disclosure efforts including the Institutional Limited Partner Association (ILPA), the CFA Institute, the Sustainability Accounting Standards Board (SASB), and the International Sustainability Standards Board (ISSB). Through meetings, letter sign-on

campaigns, public comments, and other mechanisms, we support the policies and market infrastructure that will enable us to better understand climate risk exposure, impacts across our campaigns, public comments, and other mechanisms, we support the policies and market infrastructure that will enable us to efficiently and cost-effectively understand climate risk exposure across our total portfolio and catalyze an orderly, just, and rapid transition to a net zero economy.

### Escalating Corporate Engagement

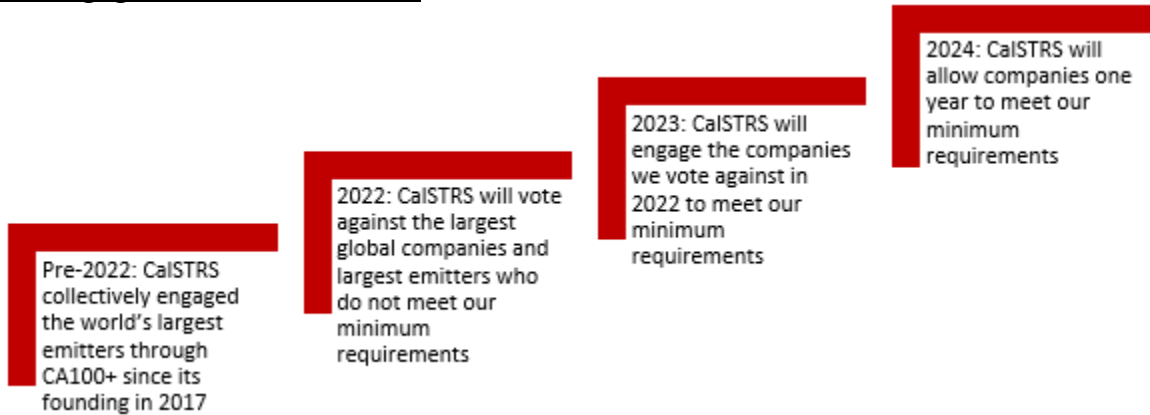
Our aim in engaging portfolio companies is to encourage the practices that would in our view reduce their transition risk. By better managing risks, companies are better positioned to generate sustainable returns. We consider our proxy vote to be an investment decision and our broadest form of engagement, and we have escalated our proxy voting priorities for the 2022 season in accordance with our increased focus on net zero engagement, and as a continuation of our long-running climate-related engagement work.

To further the net zero strategy, we will vote in favor of all shareholder proposals that ask for robust net zero or climate commitments, targets, or reports. This is a change from previous years, when we may not have supported a proposal if we thought the company met the spirit of the resolution, or if the company was planning to meet the spirit. Many current shareholder proposals are asking companies to be more rigorous in their climate strategy and planning, and so we are supporting all of these to send a consistent message that CalSTRS wants strong climate reporting and credible emissions reduction target setting. We will support these proposals even if we are participating in constructive engagement with companies in order to tell companies directly and privately, as well as through our vote, what actions we support.

We expect all companies—and especially the largest global companies and the highest emitting companies--to have climate change strategies in place. At a minimum, these companies should be demonstrating their climate risk management strategies by reporting scope 1 and 2 emissions and by issuing a report aligned with the Task Force on Climate Related Financial Disclosures (TCFD). TCFD-aligned reporting details a company's strategy to operate successfully in a low-carbon economy. Our expectations are higher for the highest emitting companies: we expect them to report scope 1 and 2 emissions, issue a TCFD-aligned report, and to set appropriate targets to reduce future emissions. Specific timelines and targets to reduce emissions helps us determine when the highest emitting companies could achieve net zero emissions. We will vote against all incumbent directors at these two groups of companies who do not demonstrate appropriate oversight of this full-board responsibility.

We are tracking a universe of the 1900 largest global companies in addition to the 167 highest global emitters. We expect that a meaningful number of votes we cast this proxy season will be against all directors at these boards. We will track these companies to engage them post-season to restate our expectations and encourage them to meet these minimum practices. We expect some will require time to develop systems to collect and disclose this information. Regulatory action in the U.S. and abroad is likely to be a tailwind to our efforts and add speed and scale to our campaign.

### Our Engagement Escalation Plan



### Future plans

We believe engagement, including voting, can be an effective tool to shift corporate practice to reduce risks and improve strategic planning and disclosure. We believe our “activist stewardship” approach has demonstrated that even companies which are notoriously shareholder-unfriendly can turn a corner and join the global transition to a net zero economy. Future escalation efforts may include a more resource intensive activist stewardship engagement with a carefully selected company and the right investment partner, or special focus on companies which do not respond to engagement in a timely manner.

### Engaging external managers to amplify our influence

With a significant portion of the CalSTRS Investment Portfolio allocated to external investment management, achieving the goal of net zero portfolio emissions by 2050 or sooner will require us to leverage our existing external manager relationships and their influence in the financial markets.

CalSTRS’ investment policy requires that all external managers consider environment, social, and governance (ESG) risks as part of their financial analysis. This requirement is included in the investment guidelines for each of CalSTRS external managers and has been for many years. Risk due to climate change is explicitly listed as a CalSTRS ESG Risk Factor that managers must consider when making investment decisions. CalSTRS staff has processes in place to monitor compliance with CalSTRS’ ESG policy.

CalSTRS continues to engage with external managers on net zero. Managers have been helpful in understanding topics such as carbon measurement, how net zero is impacting the industry, and the investment implications of net zero. Additionally, CalSTRS is seeing that several managers are already aligning themselves with initiatives designed to facilitate the integration of net zero considerations into portfolio management. These include:

- Signatories of the **Net Zero Asset Managers Initiative** (NZAMI): NZAMI signatories have committed to setting 2030 interim decarbonization goals for assets to be in alignment with net zero. Asset managers are also expected to report transparently on their net zero activities and engage with key actors to ensure products and services are consistent with the aim of achieving net zero.
- **GRESB membership**: Staff believes that we can leverage our membership in GRESB to work with Real Estate investment managers to identify physical improvements that could be made to existing property assets, whether through capital expenditures or through changing building operations and procedures to reduce emissions.

Staff also believes that combining the respective resources and knowledge of asset owners and asset managers is critical to successfully influencing net zero integration across financial markets. Staff will therefore continue to collaborate with, or otherwise support, external managers who are engaging companies on their transition to net zero and who are working to accelerate the integration of net zero considerations into industry practices and across regulatory frameworks.



**(5) Measuring Low-Carbon Investments: Status: On-going**

Challenges in defining 'Low-Carbon'

Staff's plan to support our net zero pledge includes a commitment to increase the amount of low-carbon assets in our investment portfolio. As we are determining opportunities to reduce portfolio emissions, staff is also developing an appropriate definition of what constitutes a 'low-carbon investment' so that staff can assess (i) current exposure across different asset classes and investment structures and (ii) how best to increase exposure to low-carbon assets that meet our risk-return goals.

As we have been surveying the net zero landscape, talking to peers and partners, we have asked those seeking to grow exposure to low-carbon investments how they define this segment of the investment world. While we have heard many interesting ideas around low-carbon classifications (and recognize that regulatory bodies in the European Union have been grappling with this nomenclature challenge for several years), staff realizes that establishing consensus amongst investors around what defines 'low-carbon' is difficult and our initial expectation that such a definition would be relatively easy to ascertain, was inaccurate.

Driving this difficulty in establishing a broadly accepted definition of low-carbon, is the size and complexity of a global investment portfolios that incorporate a variety of asset classes, strategies and structures in both developed and emerging markets. While this diversification certainly helps investors achieve investment return objectives, it also makes it difficult to establish definitions that can be applied portfolio wide. The low-carbon definition developed for an individual company does not necessarily apply across industries and sectors, and even the creation of a low-carbon definition that applies across equities may not apply to real assets or sovereign debt. Similarly, regional differences can impact definitions too. By example, would a definition of low-carbon for assets based in the United States be reasonable for assets situated in emerging markets?

Despite the complexities and challenges involved, staff believes that developing appropriate definitions of 'low-carbon' for investments that (1) are 'green', (2) investments that are transitioning to green (staff finds the term 'olive' helpful), and (3) investments that work to support the greening of society, are necessary, but will require significant time and effort to be practical and useful for a fund like CalSTRS. These definitions will be applied not only to current investments but will allow staff to identify new investments that meet CalSTRS risk/return profile, are innovative in nature and align with our net zero pledge.

At the September 2022 Investment Committee meeting, staff intends to provide our initial definitions of low-carbon investment, our measurement of portfolio low-carbon investments, and initial recommendations regarding the optimal ways to continue to increase exposure to these strategies.

*SISS Private Portfolio Update*

Despite ‘low-carbon solution’ measurement complexities, the Investment Committee has already taken steps to systematically expand private investments that accelerate a transition to a net-zero global economy. The SISS Private Portfolio exists to leverage CalSTRS’ investment partners to source and invest in opportunities that demonstrate positive contributions towards a more sustainable global economy with a near-term focus on low-carbon solutions. The portfolio does not seek to replicate investments that already exist in other parts of the CalSTRS portfolio. Instead, it provides a platform for staff to collaborate and innovate as CalSTRS expands investment exposure to additive opportunities that align with CalSTRS’ net zero pledge.

To date, the SISS Private Portfolio has executed three inaugural private investments. Of the three initial investments, two provide commercially viable solutions that decarbonize industrial and energy processes. The third portfolio investment provides affordable housing solutions for historically underserved community members.

SISS Private Portfolio commitment pacing continues to be on track and staff anticipates deploying approximately \$1 billion per annum in collaboration with CalSTRS private asset classes. Staff’s near-term focus areas include two distinct opportunity sets that further align with CalSTRS net zero pledge: (i) climate-related solutions for large industrial processes (10 – 15% annualized return profiles) and (ii) commercially viable low-carbon solutions requiring growth equity (+20% annualized return profiles).

**(6) Communications: Status: Ongoing**

CalSTRS is committed to communicating the milestones supporting our portfolio emissions pledge on a regular basis to our diverse audiences.

Investment and Public Affairs staff are collaborating in an Investments Communications Working Group and in coordination with external consultants Lucas Public Affairs and Ground Floor to implement a comprehensive communications plan. Part of the plan involves taking advantage of opportunities to speak to our members and others about our path to net zero. Since the January Investment Committee meeting, CalSTRS staff has participated in several forums to highlight our progress and educate on our goals around the *Path to Net Zero*. These activities are detailed in Attachment 3.

**NEXT STEPS**

Staff intends to update the Investment Committee in September 2022 on progress towards our year one net zero pledge goals approved in September 2021. This update will include:

- Recommendations on strategies to reduce portfolio emissions in a phased manner over time.
- Recommendations on escalating corporate and policy-related engagement activities.
- Proposed definitions of low-carbon investments and opportunities to increase investments that meet our risk-return goals.

Additionally, staff believes that these recommendations will allow for staff and the Investment Committee to discuss interim steps for reducing portfolio carbon emissions and increasing investments in low-carbon investment opportunities.