INTERIM REPORT FOR PERIOD ENDING DECEMBER 31, 2021

GREEN INITIATIVE TASK FORCE

Path to net zero edition

GLOBAL STEWARDSHIP AT WORK

GREEN INITIATIVE TASK FORCE

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PURPOSE

The CalSTRS Green Initiative Task Force is focused on managing sustainability-related risks, including climate risks, and taking advantage of appropriate sustainability-themed investments, while providing thorough disclosure to CalSTRS members and our strategic partners around our efforts and initiatives. Since 2004, we've integrated climate considerations into our investment beliefs, policies, processes and portfolios.

As required by California Senate Bill 964 (Allen), we will author in-depth reports every three years detailing how we're mitigating climate-related financial risks, in addition to focused interim updates like this one, highlighting additional important programs and efforts. We will also continue to publish regular updates on our climate and environmentally oriented activities on our **Value of Engagements webpage**.

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INTRODUCTION

The California State Teachers' Retirement System has been managing climate-related risks and taking advantage of appropriate climate-oriented investments, including those that support the transition to a net zero economy, for more than 15 years. Climate change presents a material and existential risk to society, the economy and to the CalSTRS Investment Portfolio, which helps fund the benefits of California's kindergarten through community college public school educators and their beneficiaries.

Today, we invest billions of dollars in climate-focused solutions across most of our asset classes. We focus our stewardship program on developing and implementing effective engagement and advocacy strategies that promote alignment with the transition to a net zero economy. We are committed to influencing public policies and regulators, and engaging with companies and investors to be more vigilant in their integration of climate risk management considerations.

This interim report outlines our recent climate risk management initiatives, our low-carbon economy transition and our path to a net zero portfolio.

LOW-CARBON TRANSITION WORK PLAN

CalSTRS' Low-Carbon Transition Work Plan was designed to reduce climate-related investment risk and identify opportunities to advance climate solutions while simultaneously advancing the retirement security of our members. This multiyear work plan focused our approach to managing the impacts of climate change across our portfolio.

Our work plan identified three key priorities to understanding how economies and societies are responding to climate change and how global financial markets are transitioning to a low-carbon future:

- Establish a low-carbon **investment belief** related to the low-carbon economy transition.
- Deepen the understanding of low-carbon transition-related risks, both physical and transitional, across different asset classes.
- Expand investments in low-carbon solutions that will contribute to the goals of the total CalSTRS fund.

To support the key priorities, we implemented five workstreams:

- Build Teachers' Retirement Board[1] and Investment staff consensus on how the low-carbon transition impacts our portfolio.
- Evaluate the transition readiness of each distinct portfolio.
- Expand investments in new climate-related solutions.
- Enhance stewardship activities.
- Communicate our strategies.

These priorities and workstreams are important because accelerating physical risks of increased temperatures, wildfires and flooding, together with limited access to resources such as water, plus shifting public policies and emerging new technologies, are driving the global transition to a lower-carbon economy.

1 The Teachers' Retirement Board sets CalSTRS' policies and is responsible for ensuring CalSTRS pays benefits in accordance with law.

Our low-carbon transition progress

As a prudent fiduciary and diversified global investor, we strive to understand how accelerating physical and transition risks may impact companies, industries and countries. We use this knowledge to determine actions to mitigate risk and identify investment-related opportunities. In 2021, we made significant progress toward implementing our low-carbon transition objectives.

We expanded investment opportunities in private markets

The Teachers' Retirement Board unanimously approved changes to our Sustainable Investment and Stewardship Strategies (SISS)[1] investment policy, which allowed us to expand our total fund's sustainable and low-carbon investments in private asset classes. Through this expansion, we're creating a systematic platform to grow sustainable investment opportunities in private equity, infrastructure and real estate, while complementing existing efforts across the portfolio.

Over the coming years, we anticipate investing an additional $1 billion to $2 billion in sustainability-focused private market investment opportunities. We will initially focus on affordable housing opportunities and low-carbon solutions related to energy, technology-enabled resource efficiency, water and waste management, land and agriculture management, and food security.

We gained insight into public markets

We invested $1 billion in two innovative low-carbon transition readiness equity exchange-traded funds (ETFs) launched by BlackRock. These funds strategically invest in companies better positioned for the low-carbon transition, which allow us to gain insight into how climate risk is being priced or mispriced in public equity markets.

We escalated engagement at carbon-intensive companies

Our company engagements traditionally include voting proxies at annual meetings, authoring letters, attending meetings and collaborating with other investors. If these engagement measures are ineffective, we may then employ an escalated engagement strategy we pioneered called activist stewardship.

An example of this approach was our support of activist hedge fund Engine No. 1's effort to replace several seats on the ExxonMobil board. The goal was to add new board directors who would focus on enhancing long-term shareholder returns by actively addressing the effects of climate change and ExxonMobil's own greenhouse gas (GHG) emissions. At ExxonMobil's annual shareholder meeting in May 2021, shareholders voted to elect three of the four directors nominated by Engine No. 1 and supported by us, which represented a refreshment of one quarter of the board. This is the first time in history that shareholders voted to elect directors who were not supported by ExxonMobil management.

We analyzed physical climate risk

Physical climate risks—such as temperature, precipitation, sea-level rise, floods, hurricanes and wildfires—will have an acute economic impact on real assets. To help us gauge these risks, we selected the Rhodium Group[2] to provide us with independent research, data and analysis on the economic risks of climate change to our Real Estate Portfolio.

The Rhodium Group reviewed a sample portion of our core Real Estate Portfolio that represented $11.6 billion in property we own. Some highlights of their key findings are:

- The sample portion is projected to see tangible, though modest, negative economic impacts from changes in the climate.
- Combined climate impacts are estimated to be between $7 million to $10 million in 2040 and are projected to increase to about $14 million and $35 million by the end of the century. Relative to building value, these impacts are estimated to represent 0.06% to 0.08% of the sample portion of the Real Estate Portfolio in 2040, and 0.12% to 0.31% in 2090.
- Climate risk is geographically concentrated. Temperatures and hurricane activity drive significant economic impacts but in different ways across various regions, such as the range of electricity usage for air conditioning due to hot weather.
- Physical risks are climate hazard inputs that may materially affect specific economic impact sectors. Changes in energy demand, energy costs, insurance premiums, unemployment, population migration, property value and violent crime rates are significant factors that may impact value due to physical risk exposure.

While the initial economic impact findings were modest, the Rhodium Group analysis features a multiyear review, involving a larger percentage of the portfolio, so future risk findings on the remaining properties in the Real Estate Portfolio could be more pronounced.

1 The SISS team has three pillars: 1) Portfolio management; 2) Stewardship; and 3) Strategic relations.

2 Rhodium Group is an independent research firm that combines economic data and policy insight to analyze global trends for clients in both the public and private sectors.

CLIMATE CHANGE MANAGEMENT EVOLUTION

Aligning the CalSTRS Investment Portfolio with the long-term trajectory of governments, societies and companies places our portfolio in the optimal position for long-term success. We continue to grow our understanding of how these entities are responding to the need for cleaner energy sources at large, and we're finding the direction is toward net zero emissions by 2050.

According to the United Nations and the Energy and Climate Intelligence Unit, growth in net zero commitments has accelerated since 2019. The number of commitments to reach net zero emissions from local governments and companies nearly doubled in 2020, while national net zero pledges increased to cover approximately 87% of global greenhouse gas emissions, 68% of GDP and 56% of the global population.

Race to net zero

In June 2020, the United Nations launched its Race to Zero campaign, calling on cities, regions, countries, companies, investors and civil society to commit to achieving net zero emissions by 2050. Since the campaign's launch, commitments have increased considerably.

According to the **Race to Zero website**, the initiative had mobilized a coalition of net zero initiatives representing 31 regions, 173 of the biggest global investors, 622 higher education institutions and 733 cities as of November 2021.

Net zero pledge

In September 2021, the Teachers' Retirement Board adopted a pledge to achieve net zero GHG emissions in the CalSTRS Investment Portfolio by 2050 or sooner. Net zero emissions are accomplished when there is a balance between the GHG emissions produced and the GHG emissions removed from the atmosphere. For us, this will be achieved when the residual emissions in our portfolio are offset through actions that increase carbon dioxide absorption. This could be through natural solutions, such as trees, or employing technologies that either capture carbon before it's released into the air or remove it from the air.

Evolving our Low-Carbon Transition Work Plan toward a net zero portfolio is an effective way for us to continue mitigating risk associated with climate change and the transition to a low-carbon economy. The adoption of our net zero pledge means we're aligning our portfolio with the Paris Agreement's goal of limiting global warming to well below 2 degrees Celsius, preferably 1.5 degrees, compared to preindustrial levels.

Our net zero pledge is a natural progression based on our long history of managing and mitigating portfolio risks associated with climate change. The acceleration of government policy, advances in technology, increases in corporate awareness and changes in consumer preferences that have occurred since the Paris

Agreement helped inspire the board's decision to make this pledge. While not an investment decision, the pledge functions as a "North Star" guide and will help us manage systemic climate risks, recognize the critical role of policy in achieving net zero goals and identify new investment opportunities.

Steps to net zero

Our net zero pledge includes the same four important steps outlined in the Race to Zero global framework—Pledge, Plan, Proceed and Publish—and sets us on a path toward net zero by 2050 or sooner.

Pledge

The first piece of CalSTRS' net zero framework, the pledge functions as a leading reference for the Teachers' Retirement Board and our Investments staff.

> *"CalSTRS recognizes the risks and opportunities presented by the foreseeable transition to a low-carbon economy, as well as the global acceleration toward alignment with the science-based emissions targets of the Paris Climate Agreement. In order to provide sustainable benefits to California's educators, CalSTRS is committed to achieving a net zero investment portfolio by 2050 or sooner."*

Plan

The second step in setting our path toward net zero is developing an action plan for our portfolio. Our plan has three core components: Risk, Return and Influence.

Risk

- Build on the low-carbon transition readiness assessments already underway in several asset classes to estimate current portfolio emissions, which will establish a baseline for interim emissions reduction goals to 2050 or sooner.

Return

- Expand investments in low-carbon solutions that benefit from the transition to net zero and meet our risk-return objectives.

Influence

- Continue and escalate our stewardship activities to challenge and engage policymakers and companies, in collaboration with global investor peers, to take actions to achieve a net zero economy by 2050 or sooner.

Proceed

The third step is establishing a set of near-term actions focused on five key areas:

Create effective internal governance structures

- Allow for informed decision-making and oversight leveraging existing teams and structures across the Investments Branch.

Assess net zero methodologies and frameworks

- Review existing methodologies and frameworks to inform the optimal strategies across asset classes.
- Determine external resource requirements, including identifying, procuring and hiring expert external consultants as needed, to guide strategy.

Measure portfolio emissions

- Estimate current portfolio emissions and, where possible within the year, establish a baseline for our internal interim goals.

Establish interim goals

- Set clear interim goals that support our action plan and align with our policies and objectives.

Communicate with multiple audiences

- Create a communication plan to effectively educate and inform stakeholders about our path to net zero.

Publish

The fourth step will provide and encourage regular reporting on our progress toward a net zero portfolio:

- Leverage existing reporting mechanisms—including our *Green Initiative Task Force Report* and our Value of Engagements webpage—to communicate our progress toward implementing a net zero climate action plan.
- Continue to advocate for improved corporate climate-related reporting and disclosure in alignment with the recommendations of the Task Force on Climate-Related Financial Disclosures and the metrics and targets of the Sustainability Accounting Standards Board and other global regulators.

NET ZERO CLIMATE ACTION PLAN

As we develop our Net Zero Climate Action Plan, we're looking through three lenses—Risk, Return and Influence—to build out workstreams that align with our commitment priorities. This approach will ensure we properly manage carbon emissions exposure, grow our investments in climate solutions in an appropriate risk-adjusted manner, and effectively leverage our stewardship expertise to support a net zero transition.

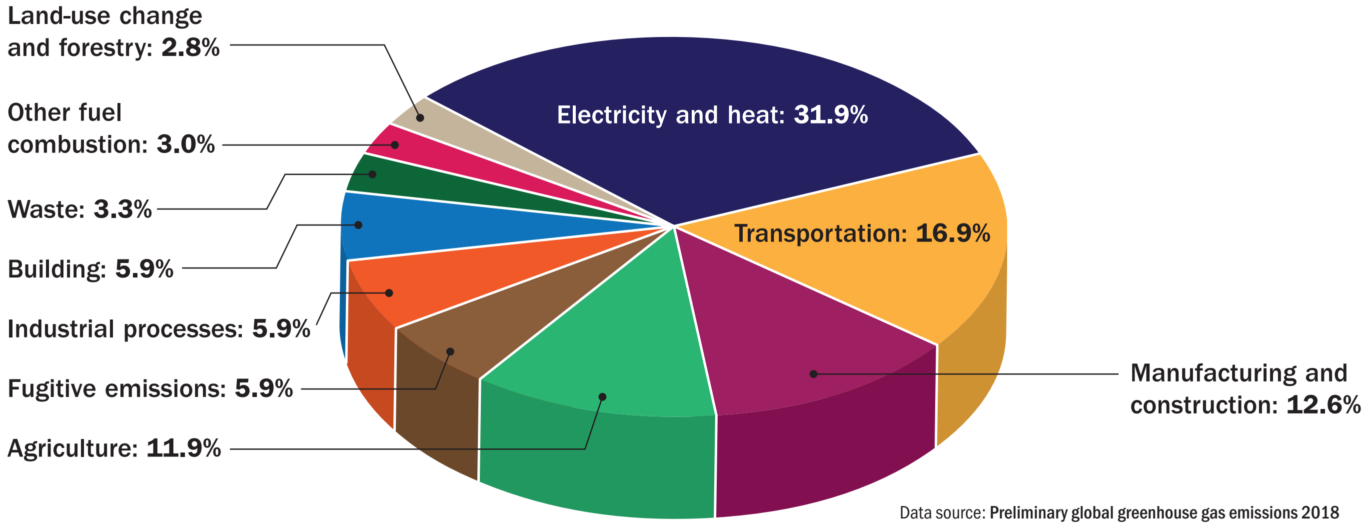
Risk: Measuring and reducing carbon emissions

Climate change presents a systemic risk to the entire economy, which consequently presents a risk to the CalSTRS Investment Portfolio because our portfolio is globally diversified and covers all financial markets.

In the past, we've taken actions with consideration for environmental risks to the portfolio. For example, we effectively removed U.S. thermal coal companies from our portfolio when we implemented thermal coal exclusions in 2017. Today, every plan for tackling climate risk must be wide-ranging since achieving net zero means making adjustments across a variety of sectors.

As shown in the graphic below, world greenhouse gas emissions can be segmented into sectors. The sector with the most global GHG emissions is electricity and heat with 31.9%, while transportation is responsible for 16.9%, and manufacturing and construction account for 12.6%.

World greenhouse gas emissions by sector



Data source: **Preliminary global greenhouse gas emissions 2018 excluding land-use change and forestry (LUCF) from Climate Watch.**

By measuring, and estimating where necessary, the current portfolio emissions of our entire fund, we seek to manage risks associated with our exposure to carbon emissions. We expect an increase in carbon risk in our portfolio as GHG emissions become more restricted. Once we understand the GHG emissions exposure in our portfolio, we will begin to work on reducing exposure in the riskier sectors that will be most negatively affected by climate change.

We recognize carbon emissions data is more developed in the public asset markets than the private asset markets. As a result, we believe we will be able to complete a carbon "foot printing"—an analysis of our carbon emissions exposure—of our public market investments in the first half of 2022 while we develop methods to evaluate our private-market investments.

To achieve this analysis, we secured a climate data measurement tool provider to evaluate carbon emissions in our public portfolio and began measuring our public-market carbon exposure. We also engage with peers, asset owners and organizations to learn more about processes they have developed to estimate emissions within their portfolios. Through this engagement, we're learning more about available tools and data sources, enabling staff to begin developing the framework for carbon foot printing exposure for private portfolio investments and consequently, the total fund.

Return: Increasing returns through investing in solutions

For more than 15 years, we've been actively integrating climate-oriented investments or climate solutions into our portfolio. Since the Paris Agreement in 2015, our climate change-related investment activities have included the following important milestones:

- **2016:** Invested in a new low-carbon public equities index with significantly lower exposure to carbon emissions.
- **2018:** Selected eight sustainability-focused asset managers with an emphasis on low carbon.
- **2021:** Invested $1 billion into two innovative low-carbon transition readiness ETFs launched by BlackRock. These ETFs integrate market risks and opportunities associated with the global transition to a low-carbon economy into our portfolio, while also closely tracking the performance of the broad equity market.

Significant investments in industry-standard, low-carbon solutions currently exist across our portfolio, including[1]:

- **$294 million:** Green bonds in our Fixed Income Portfolio.
- **$14.2 billion:** Leadership in Energy and Environmental Design (LEED)-certified buildings in our Real Estate Portfolio.
- **$4.2 billion:** Dedicated low-carbon strategies in our Public Equities Portfolio.
- **$1.4 billion:** Renewable power, agriculture, timberland and LEED-certified structure investments in our Inflation Sensitive Portfolio.

Historically, we've made a commitment to investing in climate-related solutions, which has accelerated as more asset classes have found investment opportunities. Green bond growth, an expansion of an ownership stake in LEED-certified buildings, a dedicated low-carbon strategy, and infrastructure opportunities have increased the total amount invested in low-carbon solutions to more than **$20 billion** as of October 2021.

Where there is risk and disruption, as is currently being witnessed through the ongoing transition to a low-carbon economy and net zero commitments, there are also solutions and opportunities for investments. Having the ability to capture these opportunities plays a key role in fulfilling our mission of securing the financial future of California's public school educators.

We have multiple levers that allow us to capture key net zero-driven investment opportunities. While many of these levers are already integrated into our current asset class processes, we're also creating new levers to help us accomplish our goals.

In March 2021, the Teachers' Retirement Board Investment Committee approved a new SISS Private Portfolio to create a systematic platform to expand sustainability-focused investment opportunities in private markets, including low-carbon solutions, that meet the fund's risk-return objectives. We intend to deploy about $1 billion to $2 billion per year over the next two years, with a focus on low-carbon solutions and affordable housing.

As of December 31, 2021, this portfolio will supplement the existing $11.1 billion SISS Public Portfolio, which includes $4.5 billion in a low-carbon public equity index, $1.2 billion in low-carbon transition readiness risk-controlled public equity strategies and more than $5.4 billion in ESG-related actively managed equity strategies, including dedicated low-carbon strategies.

1 As of June 30, 2021, for our Real Estate and Inflation Sensitive portfolios and as of October 31, 2021, for our Fixed Income and Public Equities portfolios.

The SISS Private Portfolio changes and enhances the dynamics of internal staff governance for certain investments by enabling a collaborative approach to investment due diligence and recommendations. The portfolio also expands our understanding of how specific investments demonstrate positive contributions to a more sustainable global economy, including mitigating and adapting to climate change. Since this is an evolving and fast-moving element of the global investment industry, this new portfolio will expand our expertise in the intersection between risk-adjusted returns and sustainability drivers and outcomes.

Influence: Creating change through persuasion

We have a long history of stewardship that focuses on collaboration and value creation. As a large global investor, we have the ability to influence policymakers, like-minded investors and companies we invest in because market participants understand our initiatives seek to improve capital markets for all. Specific to our net zero commitment, we use our influence to shape markets that will be resilient in the face of a changing climate and its impact.

As a long-term active owner and steward of capital, we manage the fund with a focus on meeting our future obligations across generations. For many decades, we've used our voice to drive change and enhance the value of our portfolio over the long term. We engage hundreds of companies each year on their governance structures, business strategies and disclosures through direct access to their corporate boards and management. We've demonstrated that engagement can effectively drive change that results in a positive impact on our fund and the companies we engage. In addition, stewardship is a strategy for impacting climate policy and addressing systemic risks that may not be fully avoided through investment diversification.

We are a leader in Climate Action 100+, an investor initiative seeking to ensure the world's largest GHG emitters act on climate change. We've secured significant emission reduction commitments through past engagements we've led, such as those with Duke Energy, one of the largest U.S. utility companies, which now plans a 50% reduction in carbon emissions by 2030 and net zero emissions by 2050; and Southern Company, an American gas and electric utility holding company, which announced a goal to reduce its GHG emissions to net zero by 2050. Additionally, Phillips 66, a global energy manufacturer, recently agreed to a 30% reduction of scope 1 and 2 emissions[1], as well as a 15% reduction of scope 3 emissions by 2030. These corporate commitments demonstrate that investor engagement with companies works.

1 Per the U.S. Environmental Protection Agency, scope 1 emissions are direct GHG emissions that occur from sources that are controlled or owned by an organization. Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat or cooling. Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain.

2022 AND BEYOND

A long-term commitment—such as achieving net zero portfolio emissions by 2050 or sooner—needs to be managed as a series of short-term goals. Collectively, these short-term accomplishments will add up to long-term success. For this reason, we're primarily focused on our one-year goal of developing our Net Zero Climate Action Plan, which we expect to achieve by the fall of 2022.

The steps we will take are:

- Finalize our internal governance structures.
- Complete a peer analysis on the net zero landscape and identify gaps and required external resources; identify appropriate frameworks, alliances and collaborations to support our plan; and secure external resources and partners.
- Provide GHG exposure for public portfolios and preliminary GHG exposure analysis for private portfolios.
- Identify interim public market GHG reduction metrics and targets.
- Determine our exposure to climate-related return-oriented investments.
- Present our annual stewardship plan, including engagement metrics and targets for assessing our progress toward net zero, and tactics for escalating engagement efforts.
- Communicate our Net Zero Climate Action Plan progress to the Teachers' Retirement Board and our stakeholders.

We will continue to build on our long history of climate risk management as we implement our net zero pledge and move the CalSTRS Investment Portfolio toward net zero emissions by 2050 or sooner.

In the near term, we're focused on managing portfolio GHG emissions, driving investment in low-carbon solutions, and expanding our stewardship efforts with companies, regulators and investors. Through these efforts, we will continue to support our mission to provide secure retirement benefits to California's public school educators.