CALSTRS

Addressing Climate-Related Financial Risk Report

2022

Triennial report in response to California Senate Bill 964 (Allen) from 2018

GLOBAL STEWARDSHIP AT WORK

Addressing Climate-Related Financial Risk Report

December 2022

Contents

INTRODUCTION

This report is provided in response to California Senate Bill 964 (Allen) from 2018, which mandates the California State Teachers' Retirement System report to the California Legislature every three years on our efforts to measure and manage climate risk in our public market investment portfolio. Since we last reported pursuant to SB 964 in December 2019, we continue to evolve and enhance the management of climate risks within the CalSTRS Investment Portfolio.

In this report, we focus on our investment-related activities addressing climate risk across the fund, including proxy voting, corporate engagement and investment in climate solutions. We also analyze our Public Equity and Corporate Credit portfolios' alignment with the goals of the Paris Climate Agreement.

Progress

As directed by the Teachers' Retirement Board, in fiscal years 2019–20 and 2020–21, we conducted a comprehensive study on how the transition to a low-carbon economy impacts companies and investment portfolios by creating risks and opportunities. Over 18 months, we analyzed scientific and academic research relating to the impact of climate change on financial markets and how participants were integrating low-carbon considerations into their decision-making processes. Our study confirmed global economies were accelerating the movement toward reducing and eliminating carbon emissions with many governments, subnational actors, companies and investors committing to net zero emissions.

In September 2021, the board approved a staff recommendation and pledged to achieve net zero portfolio emissions by 2050 or sooner. This pledge is built on three pillars: managing and reducing portfolio emissions, using our influence to accelerate the global shift to a net zero emissions economy, and increasing investments in low-carbon solutions.

Net zero CalSTRS Investment Portfolio emissions by 2050 or sooner

Manage and reduce portfolio emissions

Influence global shift to net zero economy

Increase investments in low-carbon solutions

To achieve our pledge, we developed a robust governance structure that guides our investment decisions, measured the carbon emissions of our public market securities, developed a framework to identify and expand our low-carbon investments, and escalated our climate-focused stewardship efforts.

In August 2022, the board approved a staff recommendation to set an interim, science-based portfolio emissions reduction goal of 50% by 2030, target a 20% allocation within our passive public equity exposure to a low-carbon index, and integrate climate scenarios into our Asset Liability Modeling Study, which guides our asset allocation.

CalSTRS and California climate goals align

As the largest educator-only pension fund in the world and the second largest pension fund in the United States, our mission is to secure the financial future of California's 1 million working and retired public educators and their beneficiaries. Our actions on climate change are rooted in this mission.

Our net zero emissions pledge by 2050 or sooner is grounded in the goals of the Paris Climate Agreement and aligns with the broad climate goals of the State of California. In August 2022, Governor Gavin Newsom presented ambitious climate proposals to the California Legislature, including a goal for the state to achieve carbon neutrality as soon as possible, and no later than 2045.

Our science-based interim emissions reduction goal of 50% by 2030 is consistent with the latest findings of the United Nations' Intergovernmental Panel on Climate Change. Similarly, Governor Newsom proposed the state adopt a more aggressive 2030 greenhouse gas emissions reduction target—increasing a previously announced reduction effort of 40% to 55% below the state's 1990 emissions level.

We continue to seek clean energy and energy storage investment opportunities that support reduced carbon emissions. Investment in these types of technologies aligns with Governor Newsom's proposals to establish a pathway to the state's clean energy by creating clean energy targets of 90% by 2035, 95% by 2040 and 100% by 2045, as well as advancing technologies that remove carbon from the atmosphere.

We provided input to the California Climate Investment Framework released by Governor Newsom in 2020. We recommended practical and comprehensive climate risk disclosure standards and increased investments in low-carbon indexes and sustainable assets by the state's three largest pension funds: CalPERS, CalSTRS and the University of California.

We participated in a follow-up workgroup to support the California Climate Investment Framework that released the *Developing Climate Risk Disclosure Practices for the State of California* report in 2021, which offered more than 45 recommendations to help California better account for climate risks and opportunities impacting its general operating budget and state pension fund investments.

MANAGING AND REDUCING PORTFOLIO EMISSIONS

The first pillar of our net zero strategy is managing and reducing portfolio emissions. We believe effective emissions risk management includes using climate scenario analysis to better understand portfolio emissions exposure. This practice aligns with SB 964, which specifies that our climate-related risk disclosure include an analysis of how our public market portfolio aligns with the Paris Climate Agreement.

Our public markets investments represent the majority of 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 existing corporate carbon footprint models allow for a reasonably accurate assessment of public company emissions.

We use MSCI's Climate Value-at-Risk Service[1] to help measure and manage our net zero public market emissions exposure and reduction efforts. The platform also has a climate scenario alignment tool that allows users to compare portfolio emissions exposure against one or more user-chosen climate scenarios, which are plausible representations of Earth's future climate based on Earth's current observed state and varying greenhouse gas emission developments.

1 This disclosure was developed using information from MSCI ESG Research LLC or its affiliates or information providers. Although CalSTRS' information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the "ESG Parties"), obtain information (the "Information") from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and they expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for informational purposes, may not be reproduced or redisseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Further, none of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages."

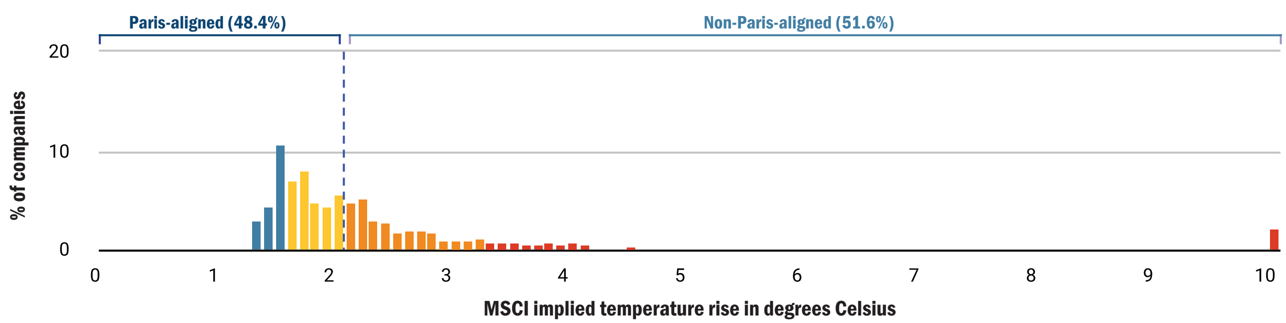
Using the MSCI Value-at-Risk platform, we evaluated the alignment of CalSTRS public markets portfolios (Public Equity and Corporate Credit) with the Paris Climate Agreement using a 2-degrees scenario and a 1.5-degrees scenario as a proxy for alignment with the agreement, which has a goal of limiting global warming to between 1.5 and 2 degrees Celsius.

The MSCI Value-at-Risk scenario analysis tool looks at each company in a portfolio and determines whether a company, through its policies, goals, commitments and actions to reduce emissions, is aligned with a chosen climate scenario. The tool then analyzes the weighting of each company in the portfolio that is, and is not, aligned with a chosen scenario to determine the overall portfolio alignment.

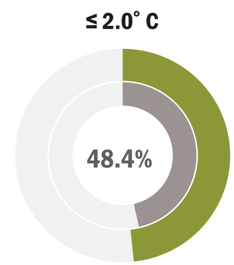
As seen below, 48.4% of companies in our Public Equity Portfolio are aligned with a 2-degrees scenario, and 18.3% of the companies are aligned with a 1.5-degrees scenario. These percentages are slightly more favorable than those of our public equity benchmark, the MSCI ACWI IMI Index, which has 46.5% of its constituents aligned with a 2-degrees scenario and 15.7% of its constituents aligned with a 1.5-degrees scenario.

Alignment of the CalSTRS Public Equity Portfolio with 2-degrees and 1.5-degrees scenarios

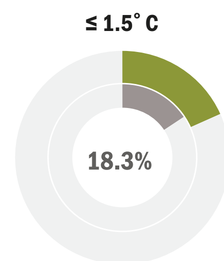
The issuers in the portfolio are distributed according to their implied temperature rise showing the number who are aligned with the Paris Climate Agreement and the more ambitious 1.5 degrees Celsius temperature goal.



Implied temperature rise categories		% of companies in category
1.5˚C aligned	<= 1.5˚C	18.3%
2˚C aligned	> 1.5˚C – 2˚C	30.1%
Misaligned	>2.0 – 3.2˚C	27.9%
Strongly misaligned	>3.2˚C	15.2%



48.4% of companies within the portfolio (vs. 46.5% for the benchmark) align with the goal of limiting temperature increase to below 2 degrees Celsius.



18.3% of companies within the portfolio (vs. 15.7% for the benchmark) align with the goal of limiting temperature increase to below 1.5 degrees Celsius.

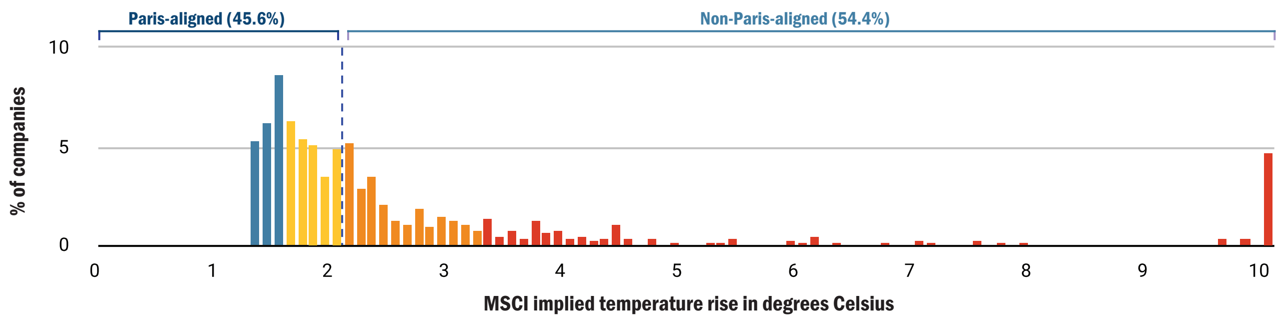
Portfolio Benchmark

Source: MSCI Climate Value-at-Risk and CalSTRS Investment Portfolio. Data as of June 30, 2022.

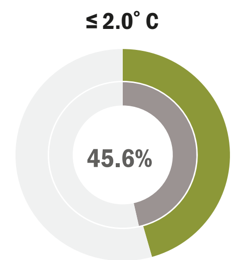
The analysis of our Corporate Credit Portfolio shows slightly different results. As seen below, 45.6% of holdings in this portfolio are 2-degrees aligned, and 20.3% of holdings are aligned with a 1.5-degrees scenario. In comparison, 46.5% of the benchmark holdings are aligned with a 2-degrees scenario, which is slightly more favorable than the CalSTRS Investment Portfolio, and 15.7% of the benchmark holdings are aligned with a 1.5-degrees scenario, which is slightly less than our Corporate Credit Portfolio.

Alignment of the CalSTRS Corporate Credit Portfolio with 2-degrees and 1.5-degrees scenarios

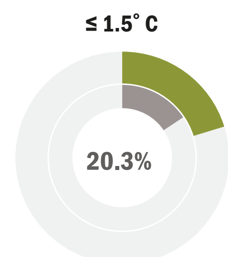
The issuers in the portfolio are distributed according to their implied temperature rise showing the number who are aligned with the Paris Climate Agreement and the more ambitious 1.5 degrees Celsius temperature goal.



Implied temperature rise categories		% of companies in category
1.5˚C aligned	<= 1.5˚C	20.3%
2˚C aligned	> 1.5˚C – 2˚C	25.3%
Misaligned	>2.0 – 3.2˚C	23.8%
Strongly misaligned	>3.2˚C	20.3%



45.6% of companies within the portfolio (vs. 46.5% for the benchmark) align with the goal of limiting temperature increase to below 2 degrees Celsius.



20.3% of companies within the portfolio (vs. 15.7% for the benchmark) align with the goal of limiting temperature increase to below 1.5 degrees Celsius.

Portfolio   Benchmark

Source: MSCI Climate Value-at-Risk and CalSTRS Investment Portfolio. Data as of June 30, 2022.

Portfolio emissions summary

Both our Public Equity and Corporate Credit portfolios are about 50% aligned with a 2-degrees scenario and about 20% aligned with a 1.5-degrees scenario. The levels of alignment with each scenario considered are largely in line with the scenario alignment seen in our public markets portfolio benchmarks.

Recognizing we need companies to shift toward net zero operations, and as part of managing our portfolio emissions to achieve our net zero pledge, we will annually update our public market emissions exposure and track our alignment with both 2-degrees and 1.5-degrees scenarios. We believe our decision to allocate significant capital to a low-carbon index will positively impact our public market portfolio alignment with the Paris Climate Agreement. As explained in the next section, we will also continue to accelerate our stewardship and engagement efforts which will influence emissions reductions in our public market portfolios.

ACCELERATING THE NET ZERO TRANSITION

The second pillar of our net zero strategy uses our influence as a large global investor to accelerate the global shift to a net zero emissions economy. We leverage our extensive stewardship experience—in proxy voting, shareholder proposal filing, corporate engagement, and public policy and regulatory advocacy—to engage market participants to recognize and respond to the risks and opportunities associated with the net zero transition to support the long-term value of our investments.

Proxy voting

While we cannot control the pace at which the overall global economy decarbonizes, we can use our proxy votes as a lever to reduce portfolio emissions and speed up the integration of net zero considerations across the public securities markets we invest in. We treat proxy votes as plan assets and vote all proxies internally, both domestic and international, in alignment with our Corporate Governance Principles, which the Teachers' Retirement Board periodically reviews and approves.

We consider each ballot item put forward by company management on its own merits and support or oppose each one based on rigorous analysis of its long-term value implications. In addition to the company management ballot items shareholders regularly consider, many corporate proxies also include shareholder-sponsored proposals that call on companies to better manage risk or improve public disclosure on issues such as environmental impact and climate change.

Shareholder proposals

Over the past three years, we've considered 290 environmental-focused shareholder proposals as well as 139 proposals focused on climate risk management. We supported slightly less than 50% of all shareholder proposals categorized as environmentally focused, as shown in the following table.

Environmental shareholder proposals voted
(July 1, 2019–June 30, 2022)

Fiscal year considered	Total proposals considered	Percentage of votes for	Percentage of votes against
2019–20	79	47%	53%
2020–21	87	47%	53%
2021–22	124	49%	51%

When considering whether to support a proposal, we must believe the company's shareholders would benefit from what the proposal seeks. If we believe a proposal would not benefit the long-term interests of shareholders or is too involved in directing the day-to-day business of the company and seeks to supplant the judgement of company executives, we generally will not support the proposal.

When analyzing climate-specific shareholder proposals over the past three years, as shown in the following table, we supported nearly 68% of the proposals. We will continue to vote for shareholder proposals that are aligned with long-term value creation and support our pledge to achieve net zero portfolio emissions by 2050 or sooner.

Climate risk management shareholder proposals voted
(July 1, 2019–June 30, 2022)

Fiscal year considered	Total proposals considered	Percentage of votes for	Percentage of votes against
2019–20	25	64%	36%
2020–21	43	70%	30%
2021–22	71	68%	32%

Climate disclosures

In 2022, to further accelerate the integration of net zero considerations at our portfolio companies, we publicly announced we would vote against directors of:

- The largest global 1,900 companies if they have not published a report on climate change that aligns with the recommendations of the Task Force on Climate-Related Financial Disclosures.
- Companies if they have not disclosed scope 1 or scope 2 emissions.
- The highest global emitters if they have not published a TCFD-aligned report, disclosed scope 1 and scope 2 emissions, and set appropriate targets to reduce greenhouse gas emissions.

In alignment with these standards, we voted against all directors at 29 portfolio companies. Since corporate directors are keenly aware of the vote support they receive from shareholders, engagement efforts that center on withholding director support can be particularly effective. Going forward, we will continue to evaluate whether companies are appropriately measuring, managing and disclosing climate risk management efforts and vote against directors where climate risk management is not evident.

CalSTRS-led shareholder proposal campaigns

We use our right to file proxy proposals for shareholder consideration at annual meetings when company management has not sufficiently addressed the concerns we've raised with them. Since our 2019 report, we've led multiple shareholder proposal campaigns at high-emitting companies in the oil and gas and utility sectors.

Phillips 66: In 2020, we filed a shareholder proposal at Phillips 66 that called on the company to issue a climate lobbying report. The proposal received majority support of shareholders. Following the vote, Phillips 66 produced the requested report highlighting the company's climate-related policy goals and explaining how the goals align with the Paris Climate Agreement. Following this report, Phillips 66 became the first U.S.-based oil refiner to commit to lowering its scope 3 emissions intensity.

ExxonMobil: In 2021, three directors supported by CalSTRS were elected to ExxonMobil's board with the goal of driving systemic change within the company and aligning the company with the ongoing global energy transition. We played a key role in the success of this ground-breaking collaborative engagement. We were the first investor to publicly announce support for the alternative slate of directors proposed by activist hedge fund Engine No. 1. We then worked closely with Engine No. 1 developing and implementing shareholder outreach strategies designed to maximize support for Engine No. 1 candidates. In 2022, ExxonMobil announced its net zero pledge.

Dominion Energy and Duke Energy: In 2022, we filed shareholder proposals at two large U.S.-based utility companies: Dominion Energy and Duke Energy. Our proposal at Dominion Energy asked the company to produce a report on how its lobbying efforts align with its climate goals. Our proposal at Duke Energy asked the company to report on how a reduction in fossil fuel use would impact the company's financial position. After extensive negotiations with these two companies, we were able to withdraw both proposals as the companies agreed to the requested reporting.

Net zero corporate engagement

To achieve our net zero goals, we need the companies in our portfolio—particularly the highest emitting companies—to accelerate emissions reduction efforts. Climate Action 100+, a collaborative engagement involving more than 700 global investors working to mitigate investment exposure to climate risk, is an effective vehicle to achieve the needed emissions reductions. Launched in 2017, this climate-focused collaboration is responsible for securing net zero commitments from more than 119 of the highest emitting companies in the world.

Having secured emission reduction commitments, Climate Action 100+ participants are pushing focus companies to accelerate their emissions reduction actions. During the past three years, we've led successful engagement outcomes at eight focus companies, including:

- **Dominion Energy** expanded its commitment to achieve net zero emissions by 2050 to include emissions outside of the company's direct operations.
- **Southern Company** issued its first net zero *Just Transition Report*.
- **Nippon Steel** set a goal to reduce the emissions intensity of its operations 30% by 2030.
- **Phillips 66** set a target to reduce the emissions intensity of its operations 30% by 2030 and to begin the process of converting a refinery in Northern California to a renewable diesel plant, which will have the emissions reduction impact of taking 1.4 million cars off the road.

Public policy and regulatory advocacy

We have control over some actions that help align our portfolio with our net zero pledge, such as investment policy, risk and benchmark decisions. Yet, to achieve our pledge, we must actively influence and engage companies, policy makers, regulators and standards setters on the importance of stable climate policies to investors, such as us, charged with delivering retirement security to beneficiaries. We've specifically focused our activities on pressing for better climate-related disclosure standards from the companies we invest in.

U.S. Securities and Exchange Commission: In 2022, the SEC proposed new rules that would require companies to include certain climate-related disclosure in their periodic reports. During the open comment period, we sent a letter supporting the SEC's proposed rules, specifying that scope 3 emissions be added as a reporting requirement, that attestation of greenhouse gas emissions for nonaccelerated filers and small companies be included, and that the International Sustainability Standards Board's Climate Standard be adopted as the basis for the commission's rule making and jurisdictional considerations.

International Sustainability Standards Board: In 2022, the ISSB released a draft of its Climate-Related Disclosure framework. This draft framework was developed in response to requests from users of financial reporting for more consistent, complete and comparable information on climate-related matters. We provided comments to the ISSB supporting the need for a heightened global standard around climate-related matters that materially impact our portfolio companies. We are a primary user of the data related to climate issues, and these disclosures are crucial components of our risk management work. Ensuring our feedback is included in ISSB discussions is paramount as we continue to try to influence, measure and progress toward a net zero economy.

INCREASING INVESTMENTS IN CLIMATE SOLUTIONS

The third pillar of our net zero strategy focuses on increasing investment in low-carbon solutions that meet our risk-return requirements across our portfolio. Increased investment in climate solutions allows us to lower the overall emissions profile while also helping to drive and scale the development and adoption of technologies needed to achieve net zero emissions by 2050 or sooner.

Low-carbon solutions

We've been investing in low-carbon solutions for nearly 20 years and to date have more than $20 billion invested in climate-oriented securities, partnerships and projects that both lower our portfolio emissions exposure and take advantage of the significant investment opportunities that will enable the global transition to a low-carbon economy. These assets are managed across our portfolio's asset classes and allow us to take advantage of low-carbon opportunities at scale.

Public markets

In the public markets, we have over $5 billion invested in multiple low-carbon strategies that support our portfolio emissions reductions efforts. These investments include:

- **A low-carbon index** that reduces passive public equity carbon emissions exposure while maintaining established risk and return parameters.
- **A low-carbon transition readiness strategy** that provides greater exposure to transition-aligned public companies and lowers public market portfolio emissions in a risk-controlled manner.
- **An actively managed sustainability-focused Public Equity Portfolio** that invests in companies directly supporting the transition to a net zero economy.
- **Green bond investments** that yield competitive returns and provide capital to net zero-aligned projects.

We are increasing our investments in these types of low-carbon public market strategies now that the Teachers' Retirement Board decided to target a 20% allocation of our public equity exposure into a low-carbon index strategy in the years ahead.

Private assets

In March 2021, the Teachers' Retirement Board approved the creation of the Sustainable Investment and Stewardship Strategies Private Portfolio. This portfolio leverages partners to source and invest in opportunities that improve the risk and return characteristics of our portfolio while also advancing the goals of our net zero pledge.

The SISS Private Portfolio provides a systematic platform to expand investment opportunities across our private asset classes (Private Equity, Real Estate, Inflation Sensitive) that are additive to the total fund and can demonstrate and measure their positive contributions to the global transition to a net zero economy. The portfolio consists of two categories of investments: those that leverage an existing CalSTRS partnership in our Private Equity, Real Estate or Inflation Sensitive asset classes, and those that allow staff to develop new investment partnerships that may be a difficult fit due to benchmark or other considerations but are still additive to the total fund.

The SISS Private Portfolio also expands our understanding of how specific investments demonstrate positive contributions to a lower-carbon global economy. As this is an evolving, fast-moving element of the global investment industry, we're able to expand expertise in the intersection between risk-adjusted returns and climate change drivers and outcomes for the benefit of California's public school educators.

CONCLUSION

The Teachers' Retirement Board is focused on overseeing the continued implementation of our net zero pledge. We regularly report to the board on progress relating to the three pillars of our net zero strategy: managing and reducing portfolio emissions, influencing the acceleration of the global shift to a net zero emissions economy, and increasing investments in low-carbon solutions. To learn more about our investment beliefs and the steps we're taking to address climate change, visit our path to net zero webpage.

As required by Senate Bill 964, we will issue our next report to the California Legislature in December 2025 with an update of our ongoing efforts and accomplishments to manage climate risk as part of our comprehensive net zero strategy.