California Climate Investment Framework

Department of Finance

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Executive Summary

Climate change is an urgent and growing risk for the State of California, with wide-ranging implications across the state. In order to mitigate the current and future effects of climate change, California has set ambitious commitments to lower carbon emissions to 40 percent below 1990 levels by 2030, to develop a zero-carbon energy grid, and to achieve carbon neutrality by 2045. Reducing the harmful effects of climate change will necessitate a global transition to a low-carbon economy, as well as an increased focus on evaluating immediate and future physical climate impacts on assets and investments.

California is already a leader in this transition, and will continue to capitalize upon the opportunities created by growing low-carbon industries. In addition, while other investors are only just beginning to price in future policies to achieve carbon neutrality, California is committed to fulfilling its fiduciary duties by actively recognizing climate risks and aligning investment allocations with a sustainable economy. It is inconsistent for the state to spend scarce resources to mitigate and adapt to climate change while simultaneously exacerbating these risks through its asset management and investment allocation. Governor Newsom’s Executive Order N-19-19, issued in September 2019, emphasizes that how the state manages its assets and investments is a critical component of not only the Governor’s climate agenda but his commitment to effective government as a whole. The occurrence of two of the largest wildfires in the state’s history in August 2020, and the lives and property lost as a result, serves as a stark reminder of what is at stake if prompt action is not taken to slow climate change and mitigate its effects.

California takes these steps in alignment with action at a global level, where 197 countries have signed on to the United Nations “Paris Agreement,” requiring countries to work toward policies and actions that will prevent global temperatures from increasing more than 2 degrees Celsius. These commitments are based not only on environmental and moral ideals, but on the clear impact that unchecked climate change has and will continue to have on the global economy. The G20 has acknowledged the impact climate change has on global financial markets, with most countries citing climate change as one of the “downside risks to global health” at the most recent G20 meeting in Saudi Arabia. At the same time, the private sector has begun to recognize the physical climate risks faced by asset owners and investors; the transition risks from policy, technology, and public opinion changes associated with a net zero transition; and the opportunities for new innovation and economic growth inherent in the transition to a carbon-neutral economy.

As a major asset owner and investor, California is in a position to lead in climate finance, much as the state has led on climate policy. As owners of over $700 billion in investment assets, the California Public Employees’ Retirement System, the California

State Teachers' Retirement System, and the University of California Retirement Plan are demonstrating fiduciary leadership in managing the risks from climate change while investing in new, sustainable technologies, shifting away from assets that underprice climate risk, and looking for investment returns that do not exacerbate existing state revenue risks. Each of the state's pension funds has an established history of managing the substantial risks to their portfolios posed by climate change through sustainable investment practices. Executive Order N-19-19 calls for the creation of this Climate Investment Framework, which provides an investment strategy for the state's pension funds to leverage their assets and develop goals to act upon in the areas of disclosure and engagement that will result in investment decisions that properly recognize climate risk.

The Framework will contextualize these efforts within the state's economy as a whole, including the Administration's initiatives to lead a progressive and equitable transition to a carbon neutral economy. After consultation with the state pension funds, the Governor's Office of Planning and Research, and the California Department of Human Resources, the Department of Finance recommends the following goals for climate risk and sustainable investment: 1) Improve Industry Disclosure and Reporting Practices, and 2) Engage in Climate-Conscious Investments.

These goals, which may be applied to both public and private investors across the globe, represent only the beginning of a much broader effort that will be necessary not only for pension funds to meet their fiduciary duty in the face of current climate impacts, but also to reduce the threat posed by climate change in the future. Unified action is necessary to address these issues head-on to meet the needs of pension members and invest in a more sustainable economy.

Introduction

California faces severe and prolonged threats from the effects of climate change, from rising sea levels along the coast, to wildfire and extreme heat effects farther inland, to the droughts and floods that affect every corner of the state. In 2015, after a prolonged drought, the state's agriculture industry alone lost $2.7 billion in profits and 21,000 jobs.[1] The 2018 fire season cost the state approximately $24 billion in home and infrastructure destruction along with firefighting costs and the 2020 fire season is on track to be the most devastating on record in terms of the number of acres burned.[2] By 2050, the state could face up to $18 billion in damage to coastal buildings caused by sea level rise.[3] At a time when California must act quickly to combat the COVID-19 pandemic and the largest wildfires in state history, the urgency of climate change only grows. It is imperative the state actively work to reduce climate risk and build resilience in order to lower these costs over the long term. At the same time, state, local, and private sector entities must actively participate in reducing greenhouse gas emissions through policies and carbon-neutral technology investments, in order to mitigate the effects of climate change upon the state and upon the world.

California has already shown tremendous leadership on reducing greenhouse gas emissions. In 2018, the state met its ambitious goal to reduce statewide greenhouse gas emissions to below 1990 levels; the Legislature has set a new target to reduce emissions to 40 percent below 1990 levels by 2030. California has also established goals for 60 percent of the state's energy to come from renewable sources by 2030, and 100 percent of the state energy grid to be powered by zero-carbon energy before 2045. In order to achieve these goals, California has implemented a Cap and Trade Expenditure Program, which encourages the reduction of greenhouse gas emissions among California's largest emitters and funds programs that reduce emissions and strengthen climate resiliency across the state.[4] In 2018 alone, the Cap and Trade Expenditure Program is projected to have induced significant reductions in the emissions of carbon dioxide, along with nitrous oxide and particulate matter, in addition to promoting the efficient use of water, restoring natural and working lands, and planting millions of new trees. In recent years, the state has also released its Forest Carbon Plan to restore California's forests, pursued a Zero-Emission Vehicle Investment Initiative to support the usage of zero-emission vehicles across the state, and continued to develop adaptation strategies to mitigate the effects of climate change. Through its Sustainable Communities Strategy, the state has also supported regional and local policies to reduce "vehicle miles traveled," and provide alternatives to single-occupant car trips, which are a major source of transportation emissions.

These actions and more are necessary for California to reduce the threat posed by climate change on every front, from rising seas to increased risk of wildfires. In order for California to meet these goals, and continue to model sustainable practices for the world to follow, Governor Newsom issued Executive Order N-19-19, which calls for the state's investments and assets to be better aligned with the state's climate commitments and the impact of climate change on the economy into which the pension funds invest. State agencies with major assets, such as the California State Transportation Agency and the California Department of General Services, are actively working on strategies to better align decisions on purchasing and leasing with the state's climate commitments. On the investment side, the Executive Order directs the Administration to create a Climate Investment Framework (Framework) that provides an investment strategy for the state's pension funds to leverage their assets to advance California's climate leadership.

With a combined $700 billion in investment assets that equal nearly a quarter of the state's total annual Gross Domestic Product (GDP), California Public Employees' Retirement System (CalPERS), California State Teachers' Retirement System (CalSTRS), and the University of California Retirement Plan (UCRP) number among the state's largest investment vehicles. Pursuant to Article XVI, Section 17 of the California Constitution, the primary responsibility of state pension entities is a fiduciary duty to their beneficiaries.[5] The Constitution charges members of the board of a public pension or retirement system with ensuring the long-term stability and economic well-being of the pension fund above all else. This responsibility to current and retired state employees is legally required to "take precedence over any other duty." As a result, any action taken by the state's pension funds must be taken first and foremost to benefit the current and retired state employees to whom the state has made a lasting commitment.

CalPERS, CalSTRS, and the University of California (UC) all face substantial risks to their investment portfolios associated with the direct impacts of climate change and the potential economic changes that will result from movement towards a low-carbon economy. In order to reduce the risk posed to their portfolios, and subsequently to their beneficiaries, the state's pension funds have engaged in a variety of activities to better understand and mitigate climate-related risks. Each pension fund has a long history of incorporating environmental, social, and corporate governance principles into their investment practices, and have already taken independent steps to mitigate the risks that climate change poses to their investment portfolios and to engage in the creation of a carbon-neutral economy.

The Framework will review the individual actions and overall strategies of each pension fund as they pertain to the issue of climate risk, and offer goals to lift up, amplify, and integrate these strategies into a comprehensive statewide approach to sustainable investment going forward.

Chapter 1 – Incorporation of Environmental, Social, and Corporate Governance Principles

Prior to the tangible investment decisions that each pension entity has made in acknowledgement of the threats and opportunities created by climate change, CalPERS, CalSTRS, and UC have all made a broader commitment to addressing the set of issues commonly referred to as Environmental, Social, and Corporate Governance (ESG) issues. Investors that adopt ESG principles into their decision-making process evaluate the risk that ESG factors will have a material, long-term impact on investment returns. Issues under the umbrella of ESG can range from climate change and the preservation of natural resources to improving the structures of corporate governance and promoting the development of human capital, but collectively, the idea of ESG serves as a base set of concepts for investors to consider when making investment decisions. Each of the California pension funds has committed consistently to utilizing ESG considerations in its investment practices.

California Public Employees' Retirement System

In 2013, CalPERS adopted Investment Beliefs that specifically highlighted the impact of climate change on risks and returns, noting the need for effective management and response. Beginning in 2015, CalPERS began to develop a five-year strategic plan to incorporate ESG principles into the entity's investment operations. Approved by the CalPERS Board of Administration (Board) in 2016, the final plan included goals and action items for investment staff to pursue, including meeting globally accepted reporting standards, creating the Sustainable Investment Research Initiative, and beginning to assess the total carbon footprint of the CalPERS investment portfolio on a regular basis. Following the adoption of this five-year plan, CalPERS investment staff assigned to each asset class were tasked with developing a set of Sustainable Investment Practice Guidelines, which reflected the newly adopted ESG principles. In 2018, the CalPERS Board adopted official revisions to the Total Fund Policy to include language regarding environmental sustainability and climate change to the investment beliefs that guide the entity's investment strategy.

California State Teachers' Retirement System

CalSTRS was the first of the three pension entities to officially express support for ESG principles, adopting an Investment Policy for Mitigating ESG Risks in 2008. This policy acknowledged the importance of ESG issues to CalSTRS and its portfolio, and represented a high-level commitment to considering these factors from an investment perspective. Prior to this policy's adoption, the Teachers' Retirement Board instructed staff in 2004 to develop a program based around the following parameters:

1. Structure an environmentally focused public equity program
2. Demand environmental accountability and disclosure
3. Target private investment in clean technologies
4. Focus on efficiency in real estate portfolios

This directive resulted in the creation of the CalSTRS Green Team, a cross-asset class investment team, which carries out these instructions and produces annual reports on CalSTRS' efforts to promote environmental sustainability. In addition to the original ESG Investment Policy, the Teachers' Retirement Board adopted a revision to the CalSTRS Investment Beliefs in 2019, which explicitly names climate change as a threat to the CalSTRS investment portfolio. This revision added language calling for an investment strategy which takes advantage of the opportunities that will be created through a transition to a low-carbon economy, and supports the creation of a carbon pricing framework.

University of California

UC first expressed support for ESG principles in 2014, and one year later released a Framework for Sustainable Investing, which outlined eight core areas of ESG that warranted specific attention in future investment decisions, including climate change. In 2018, a new Investment Policy Statement was proposed by the UC Chief Investment Officer and adopted by the Board of Regents, which specifically listed the support of environmental sustainability as an objective to be evaluated in the consideration of investment decisions.

Global Partnerships

In addition to these internal commitments, CalPERS, CalSTRS, and UC have all been actively engaged with global organizations that promote transparent and sustainable investment practices. The state's pension entities are also engaged with a wide variety of organizations that advocate on issues of sustainable investment, including Ceres, the Carbon Disclosure Project, and the UN-Convened Net-Zero Asset Owner Alliance. One such organization is the United Nations Principles for Responsible Investment (PRI). The PRI sets out the following core investment principles for its signatories:

1. We will incorporate ESG issues into investment analysis and decision-making processes.
2. We will be active owners and incorporate ESG issues into our ownership policies and practices.
3. We will seek appropriate disclosure on ESG issues by the entities in which we invest.
4. We will promote acceptance and implementation of the Principles within the investment industry.

5. We will work together to enhance our effectiveness in implementing the Principles.
6. We will each report on our activities and progress towards implementing the Principles.

In association with thousands of other asset owners, investment managers, and service providers, CalPERS, CalSTRS, and UC are all signatories to the PRI.[6] In committing to these principles, the pension funds commit not only to supporting ESG in theory, but carrying it out in practice by publicly reporting on their progress towards ESG goals, making sustainable investment decisions, and engaging other entities to do the same. These principles underlay the efforts already taken by each of California's pension funds to address climate risk through investment practices over the past two decades, and continue to guide those efforts into their next phases.

Chapter 2 – Reporting and Engagement

Sustainability Disclosure and Reporting

Companies must be answerable, and hold themselves accountable, to the financial risk they are taking if they ignore the physical and transition risks associated with climate change--as well as the social and environmental impact of these choices. Disclosure and reporting are key tools in achieving this accountability. Reporting may take many forms, ranging from focusing on the carbon footprint of an investor's portfolio, to the immediate and long-term physical risks posed to their investments by climate change, to the transition risk inherent in likely policy and technology responses to climate change. There is a growing body of knowledge and resources for companies and investors to utilize in developing their reporting and disclosure policies.

A leading industry standard for climate-related reporting is a framework produced by the Task Force on Climate-Related Financial Disclosures (TCFD). Released in 2017, the TCFD framework contains a set of voluntary reporting questions intended to create a single global reporting framework for entities seeking to be transparent regarding the climate-related impacts to the company. The framework includes recommended subjects of disclosure within four broad categories: governance, strategy, risk management, and metrics and targets. Users are instructed to report upon individual areas within these categories that are most relevant to their organization, with the intent of providing a complete image of how their entity approaches the issue of climate change both institutionally and strategically, as well as their risk management considerations. The graphic below, displayed in the official report produced by the TCFD, provides additional context for each disclosure category.[7] Within these categories, the TCFD framework provides opportunities for disclosure on the financial risks associated with investing in assets that may experience reduced demand as the global economy shifts away from a reliance on certain goods, and thus are negatively impacted by the changing climate.

As of February 2020, the TCFD framework has been utilized by 1,027 organizations, representing over $12 trillion in assets, including CalPERS, CalSTRS, and UC.[8] The TCFD framework was incorporated into an annual reporting framework provided to PRI signatories in 2018 on a voluntary basis, and selected criteria from the TCFD recommendations will become a mandatory part of the PRI reporting framework beginning in 2020. Incorporation of TCFD recommendations into the annual PRI questionnaire will further increase the usage of these questions. When TFCD-aligned questions were provided to PRI signatories on a voluntary basis in 2018, over 480 investors representing $42 trillion opted to submit responses. [9]

CalPERS and CalSTRS have both been actively engaged with the Sustainability Accounting Standards Board (SASB), which provides industry-specific guidance for disclosure by companies. SASB has developed individualized standards for 77 industries to help companies identify, manage and report on the sustainability topics that are the most financially material to investors. SASB recognizes that companies may disclose a great deal of information about sustainability issues, but that not all of it is of equal importance to investors in their decision-making process. Subsequently, SASB has identified 26 sustainability-related business issues and assessed which are of greatest importance to each industry. By enlisting support for their standards from investors, SASB encourages companies to enhance disclosure of material risks to assist investors in better evaluating those risks.

California Public Employees' Retirement System

Chapter 731, Statutes of 2018 (SB 964) requires CalPERS to submit a report to the Legislature every three years, with the first report due by January 1, 2020, on the organization's climate-related financial risks and alignments with the state's climate policy goals. CalPERS released the report in December 2019, marking the organization's first-ever public report on the risks posed by climate change to the CalPERS portfolio. In addition to reviewing the ways CalPERS engages with companies it invests in and otherwise advocates for environmental sustainability, the CalPERS report contains an analysis of the physical and transition-based risks to their public market portfolio. The analysis includes a summary of threatened areas and the risks posed to them, as well as the estimated carbon footprint of the Global Equity and Global Fixed Income portfolios. Currently CalPERS is "assessing how financial indicators in specific geographies can be tied to climate science to inform spatial finance strategies."[10] Measuring the carbon footprint of an investment portfolio allows fund managers to directly evaluate the impact of their investments and to set benchmarks for change.

California State Teachers' Retirement System

CalSTRS is also subject to the requirements of SB 964, but the required report that was released in December 2019 was 14 in a series of annual reports released by the CalSTRS

Green Team dating back to 2007. These reports began as overviews of the various environmental initiatives that CalSTRS had undertaken or supported within the past year, but over time grew to contain profiles of each asset class and information on the risks posed by environmental issues and climate change to the CalSTRS portfolio. The 2019 Green Report contains all of this information, and aligns more closely with the TCFD structure of risk reporting and disclosures. Subsequently, the report includes the estimated carbon footprint of the CalSTRS Public Equity and Fixed Income Corporate Bond portfolios, an overview of the strategic and institutional tools with which CalSTRS is equipped to address climate change, and a comparison of CalSTRS against sustainability objectives within each of the TCFD categories.

In addition to the annual Green Reports, CalSTRS published a climate change risk assessment in 2016, which reviewed the dangers posed by climate change to CalSTRS investments. CalSTRS' long-standing work to promote transparency and report on the impact of its investments preceded and exceed the requirements of the 2018 state law (SB 964).

University of California

While UC was not included in the requirements of SB 964, UC publishes an Annual Report on Sustainable Practices each year, beginning in 2004, which contains information on UC's progress towards meeting their established sustainability goals. Included in this report is information on the system's sustainability initiatives, from investments to on-campus changes, and information on what goals require further effort to achieve. In addition to this report, UC also publishes information about the total carbon footprint of its investments, in compliance with its role as a signatory of the Montreal Carbon Pledge. UC Investments is currently undertaking a climate risk scenario analysis of its portfolio as part of its 2020 assessment for the PRI, which will be published after its completion.

External Engagement Activities

Engagement on sustainable investing, reduced emissions, and transparent disclosures is key to developing a global response to the issue of climate change—not only for environmental accountability, but also for better fiscal decision-making overall.

In addition to practicing sustainable investment and transparent reporting, the state's pension entities have meaningfully engaged with companies they invest in to promote practices that acknowledge and address the companies' exposure to climate risk and to encourage them to operate in a sustainable manner. Utilizing their roles as investors and stakeholders, CalPERS, CalSTRS, and UC have consistently advocated that the companies they invest in fully disclose material climate risks and actively address those risks, both in their long-term strategic pursuits and their short-term operations.

California Public Employees' Retirement System

As an investor, CalPERS holds the ability to vote on shareholder proposals for companies included in its portfolio. CalPERS staff have engaged in proxy voting at over 10,000 companies' annual general meetings, including voting on 81 shareholder proposals relating to environmental issues over the course of 2019.[11] In alignment with the entity's fiscal approach, CalPERS supported 92 percent of proposals calling for companies to engage in environmental risk reporting, but frequently voted against proposals calling for specific board committees to be established to tackle environmental issues, to avoid altering the corporation's governance structure. In addition to proxy voting, CalPERS has introduced ten climate risk proposals since 2016, and run 31 proxy solicitations to request support from other shareholders for potential shareholder proposals. These efforts directly encouraged stakeholders to voice support for environmentally sustainable practices, and pressured corporations to reconsider their current reporting standards.

CalPERS also routinely advocates for better environmental policies in a variety of arenas. CalPERS serves as a member of the U.S. Commodity Futures Trading Commission's Climate-Related Market Risk Subcommittee. This subcommittee adopted a final report in September 2020, which emphasized the importance of carbon pricing and climate risk reporting to the financial industry. CalPERS has also advocated at both the International Financial Reporting Standards Council and the SEC Investor Advisory Committee to call for a wholesale improvement and expansion of climate-related risk reporting across the financial sector. In addition, CalPERS has publicly taken strong stances on issues ranging from sustainability standards in the palm oil sector to the risks posed by deforestation around the world, to promote sustainable and environmentally friendly practices of all types.

California State Teachers' Retirement System

CalSTRS also uses its status as an investor to engage in proxy voting and introduce shareholder proposals. CalSTRS supported the majority of environmental shareholder proposals submitted during the 2018-19 fiscal year, including voting in favor of 62 percent of proposals calling for improved reporting on issues related to climate change or the environment.[12] Since 2008, CalSTRS has filed a total of 53 climate-related shareholder proposals, 40 of which were ultimately withdrawn after working with the company to determine an acceptable compromise. These proposals have included requests for companies to provide reports on issues ranging from their efforts to reduce methane emissions to their water use policies.

In addition to submitting and voting on proposals to enhance corporate transparency, CalSTRS engages companies on an individual basis to encourage utilization of TCFD and SASB disclosure standards. CalSTRS adopted a TCFD 100 engagement plan beginning in 2017, committing to engage 20 companies per year on TCFD standards and climate risk management. As of January 2020, CalSTRS had engaged more than 50 corporations on the TCFD disclosure framework, most of which have since obtained partial alignment to the TCFD recommendations.[13] In March 2020, CalSTRS released a joint statement with Japan's Government Pension Investment Fund and the UK's Universities Superannuation Scheme, emphasizing the importance of addressing climate change as a risk and encouraging companies around the world to embrace climate-related disclosures.[14] The CalSTRS Investment Department also commonly engages companies on the value and importance of using SASB metrics in sustainability reporting.

Investor Networks

In conjunction with the individual advocacy and engagement undertaken by CalPERS and CalSTRS, the creation of *Climate Action 100+* has served as a central focus for climate-related engagement around the world. Created in 2017 at the One Planet Summit as a development of the Montreal Pledge, Climate Action 100+ is a five-year global engagement initiative supported by over 500 signatories representing over $47 trillion in assets, including CalPERS, CalSTRS, and UC.[15] CalPERS and CalSTRS were both founding members of the initiative, and CalPERS served as the inaugural chair of the Climate Action 100+ Steering Committee. Together, signatories have committed to engaging the world's largest greenhouse gas emitters, engaging with 161 companies that are responsible for up to 80 percent of global industrial emissions.[16] As reported in the Climate Action 100+ 2019 Progress Report, these engagements have already begun to yield significant policy shifts from some of the world's largest emitters. American Electric Power has committed to reducing its carbon emissions by 70 percent by 2030 and 80 percent by 2050, and Maersk, the world's largest ocean shipping company, has committed to achieving carbon neutrality by 2050.[12] The following graphic provides additional information on some of the commitments to emerge from Climate Action 100+ engagements.[16]

In total, 70 percent of Climate Action 100+ companies have committed to reducing their long-term emissions, and 30 percent of engaged companies now support TCFD disclosure recommendations.[16] As a Climate Action 100+ lead investor, CalSTRS directly engaged with Duke Energy to develop a plan to reach net-neutral carbon emissions by 2050, a plan that will have the equivalent impact of removing 29 million vehicles from the road.[10] These engagements offer participating investors the opportunity to work closely with large emitters, advocating for improved sustainability practices and encouraging improvements wherever possible.

In addition, CalPERS, CalSTRS, and UC are all members of the *Ceres Investor Network*, which includes over 175 investors managing a total of $29 trillion in assets.[17] Ceres serves as a global leader in climate advocacy, from coordinating a Carbon Asset Risk Working group, which CalPERS participates in, to working with investors to encourage engagement and the introduction of shareholder proposals with companies that they invest in.

Goal 1 – Improve Industry Disclosure and Reporting Practices

In order to make responsible investment decisions, it is imperative that investors have access to accurate and comprehensive information on the companies that they invest in. For climate-related disclosures to be meaningful, they must be made using standard terminology that allows for comparison between different companies or investors. CalSTRS has worked on this and has produced a Low-Carbon Transition Glossary of industry standard terms that clarify any ambiguities in CalSTRS publications.[18] Accurate reporting on greenhouse gas emissions, climate risk factors, and external engagement is most useful when it allows for direct comparisons between investment entities, which requires a collective effort to standardize the terms and definitions used to discuss climate change from an investment perspective.

The work of both TCFD and SASB is critical to aligning disclosure to the needs of investors for material information about sustainability risks. In complementary ways, they provide standards that companies may use to develop their disclosure policies and ensure that they are providing useful information on the physical and transition risks, and carbon footprint, associated with that company. The pension funds should continue to encourage companies to comply with these disclosure recommendations. It is also important to engage with other private actors to encourage broader utilization of the TCFD and SASB structures. To this end, this Framework calls for the creation of a working group with representation from state agencies, private stakeholders, and experts in this arena to explore the development of a practical and comprehensive risk and disclosure standard. This working group should review the leading standards utilized by investors and companies around the world, and work closely with the developers of these standards to determine how the state can best support responsible and transparent disclosure and reporting.

Through expanding the base of information available for investors to utilize when making decisions on where to allocate their assets, the investment market will naturally evolve around the climate-related risks associated with individual assets. Achieving an ultimate goal of universal disclosures will reduce information asymmetry, which allows high-risk asset owners to avoid acknowledging these risks by failing to disclose them publicly, and allow investors to make decisions that best reflect their risk-mitigation strategies. Likewise, as the disclosure of carbon and other greenhouse gas emissions becomes more common, low-carbon indexes and other passive investment tools used to engage in sustainable market-based investment will become more accurate and accessible as the market adapts to this influx of information. As a result, investors will become better-equipped to develop strategies to mitigate the cyclical nature of climate risk, wherein the physical and transition risks associated with high-risk assets are magnified under a recession scenario. To further the development of accurate and accessible metrics of climate risk, this Framework calls upon the state to become a signatory to the Coalition for Climate Resilient Investment. This Coalition, created by industry leaders and the Government of the United Kingdom, seeks to form a cohesive fiscal understanding of climate risk for usage by investors.

Chapter 3 – Sustainable Investments

Sustainable Investment

In addition to signing on to the PRI and committing to supporting ESG values, the state's pension funds have made investment decisions to support environmentally sustainable assets and reduce climate-related risk from their investment portfolios. CalPERS, CalSTRS, and UC were all recognized in 2019 by the Responsible Asset Allocator Initiative as being among 25 leaders in the field of responsible asset allocation, in part for their work on sustainable investment.[19] Although their approaches to the issue have varied, all three entities publicly recognize that embracing the transition to a low-carbon economy is necessary to mitigate financial risk posed to the long-term health of California's pension funds.

Most large pension funds, including California's three statewide funds, allocate most of their public equity investments to replicate stock indexes, such as the S&P 500 or the MSCI-ACWI. This passive investment strategy gives them a diversified portfolio designed to represent "the market", i.e., all the companies that are available to invest in. The indexes are not designed to address or consider climate risks, but are simply a basket of many stocks. The indexes are "cap-weighted," meaning that each company's share of the index is equal to its total stock market value ("capitalization") compared to that of all the companies in the index. Historical trends indicate that this investment approach produces higher long-term returns than "active" investing, which relies on stock-picking and market timing. Passive investing also has the advantage of very low investment expenses.

Approximately 40 percent of the three pension funds' investments are indexed, largely into cap-weighted indexes that do not take into account climate considerations.

California Public Employees' Retirement System

Chapter 605, Statutes of 2015 (SB 185), also known as the Public Divestiture of Thermal Coal Companies Act, directed CalPERS and CalSTRS to fully divest from publicly traded companies that generated 50 percent or more of their revenue from the mining of thermal coal by July 1, 2017 if doing so was determined to be in alignment with the fiduciary responsibilities outlined in the California Constitution. In compliance with these directions, the CalPERS Board identified 25 companies which met this threshold, including 17 companies which CalPERS held investments in. Beginning in 2015, CalPERS halted any new investments in these companies. Through communication with the companies that CalPERS was already investing in, three thermal coal companies were identified as having demonstrated plans to transition towards clean energy generation and reduce their revenue reliance on thermal coal. CalPERS continued to invest in these companies, and divested all investments, a total of $14 million, from the remaining 14 thermal coal companies in 2017.[20,21]

In addition to ceasing investment in thermal coal companies, CalPERS heavily invests in climate solutions within its private asset portfolios. For example, 50 percent of the CalPERS Real Assets portfolio is invested in renewable and carbon-neutral energy, and $12.1 billion of the organization's private assets is invested in Climate Solutions, Renewable Energy, and Sustainably Certified Buildings.[9] In 2019, CalPERS became the first U.S. investor to join the UN-Convened Net-Zero Asset Owner Alliance, a coalition of investors around the world committed to reaching carbon neutrality by 2050.

California State Teachers' Retirement System

CalSTRS was subject to the same directions under the Public Divestiture of Thermal Coal Companies Act. CalSTRS divested from all thermal coal companies based within the United States in 2016, and from all other thermal coal companies in 2017, for a total impact of approximately $10 million.[13] In addition to moving away from investing in thermal coal, CalSTRS has actively pursued sustainable investment practices in a variety of ways.

In 2016, CalSTRS committed a total of $2.5 billion to investments within a low-carbon index. Beginning in 2017, $1.3 billion was invested into American companies within a passive index portfolio, which identified low-carbon investment opportunities that would not impact expected rates of return. In 2018, an additional $1 billion was invested into non-U.S. developed markets. CalSTRS is currently planning to complete the index with a final investment of $200 million into non-U.S. emerging markets. MSCI, developers of the Low-Carbon Index, estimate that the carbon footprint of CalSTRS' current investments into this index is approximately 76 percent lower than a market equivalent, and that their negative impact upon carbon reserves is 87 percent lower.[12]

In addition to the Low-Carbon Index, CalSTRS maintains a number of sustainability-related portfolios. Within the Sustainable Investment and Stewardship Strategies asset class, CalSTRS owns a Sustainability-Focused Portfolio totaling $2.1 billion, which prioritizes investments that have a specific impact on ESG issues, while continuing to generate a ten-year rate of return of 13.54 percent, nearly 3 percent higher than expected.[13,12] CalSTRS also both invests in and sells green bonds: the ongoing expansion of CalSTRS' headquarters was funded by the sale of $341 million in green bonds, and CalSTRS holds a total of $306 million in assorted green bonds. Finally, CalSTRS has invested a total of $505 million into renewable power generation within the Inflation Sensitive asset class, and maintains a Clean Energy Portfolio totaling $691.6 million within the Private Equity asset class.[12] Taken together, CalSTRS has implemented ESG principles by investing billions of dollars into reducing its carbon footprint, supporting clean energy, and creating a more environmentally sustainable portfolio.

University of California

Beginning in 2014, the same year that UC became the first American public university to sign on to the PRI, the UC Board of Regents approved the commitment of $1 billion over the next five years for direct investments in the development of clean energy solutions to climate change. These investments have resulted in the installation of 1.7 gigawatts of solar and wind generation around the world.[25]

While UC was exempted from the Public Divestiture of Thermal Coal Companies Act, it was announced in 2015 that the system had sold off all holdings in coal and oil sands companies, previously a total of $200 million.[23] In 2019, UC announced that both its endowment and pension fund would be made "fossil free" due to the long-term risk posed by continuing to invest in what UC Investments views as a declining industry.[24] Following this announcement, UC sold off all holdings in its endowment in companies that own any fossil fuel reserves. As a result, it is estimated that the potential fossil fuel reserves emissions of the UC endowment's investment portfolio have declined by 99.5 percent.[25] As of May 2020, this process was also undertaken for the UCRP portfolio, which included approximately $1.3 billion in fossil fuel reserve owning assets as of January 2020.[24]

Goal 2 – Engage in Climate-Conscious Investments

As noted above, the pension funds invest hundreds of billions of dollars into equity indexes that hold stocks regardless of climate considerations. But, while the companies that are included in the indexes are not chosen based on such considerations, market consideration of those risks does incorporate climate risk into the design of the indexes. For example, in 2010, energy companies represented 12.03 percent of the S&P 500. Today, they are only 4.35 percent. This shift occurred because the market price of many energy companies dropped while the rest of the index climbed. As a result, without making a conscious decision about holding energy stocks, investors in the S&P 500 reduced their holdings by almost two-thirds for every dollar invested.

How this happened demonstrates the important connection between index investing and the need for improved disclosure and engagement. As investors demand enhanced disclosure about the climate risks companies face, and engage with companies about how they are addressing those risks, active investors may shift money out of companies that are facing high risk but slow to address that risk. In this way, the effort by passive investors to promote greater disclosure of climate risks also translates into holding a passive investment portfolio that is less exposed to these risks.

Given the reliance of the pension funds on passive index investing, more needs to be done to push for disclosure and engagement to address climate risk in their indexed equity portfolios. Proponents of passive investing believe no investor is able to consistently beat the market and, therefore, after consideration of fees, an investor who accepts average market returns will enjoy a better outcome over the long run than an investor who tries to beat the market. However, an index investor should be able to respond by investing in a broad-based index that explicitly weights companies not just according to market capitalization, but also by their exposure to and response to climate risk.

In order to effectively mitigate the impacts of the transition from a fossil fuel-based economy to a more diversified, carbon neutral economy (aka "transition risk") upon investment assets, Finance recommends that the state's pension funds increase their allocation to low-carbon indexes. Many companies have designed such indexes, but more options are needed and the pension funds should continue to push for their development. Furthermore, the development of accessible and open-source low-carbon indexes is crucial to supporting financially responsible investment decisions for institutional investors of all types. The pension funds have explored the concept of investing in low carbon indexes and are taking modest steps to implement it. Most notably, CalSTRS has more than $2.7 billion invested into a low-carbon index fund which has generated a one-year rate of return of 10.51 percent.[13] This Framework challenges CalPERS, CalSTRS, and UC to continue transitioning their combined equity index investments to low carbon indexes and other climate-conscious investments as more become available.

In addition, Finance recommends the pension funds increase their investments in sustainable technologies and other green assets such as regenerative agriculture. Actions such as UC's decision to invest $1 billion into development of clean energy solutions result in directly positive outcomes for the environment and in an accelerated global transition towards a low-carbon economy. Similarly, CalPERS has invested approximately $12.1 billion into Climate Solutions, Renewable Energy, and Sustainably Certified Buildings.[11] California has put forward policies to reduce emissions, and the pension funds can further accelerate this transition by investing in sustainable assets. Investments in emerging technologies inherently carry risk, but they are also necessary to reduce exposure to climate-related risk. Ultimately, the investment decisions of the pension funds must be rooted in their constitutional fiduciary duty of ensuring the long-term stability and economic well-being of the pension fund above all else. However, achieving climate goals and avoiding the many costs associated with inaction requires these risks to be quantified and reflected in all aspects of the portfolios, passive indexes, and other investments, so that the pension funds can support climate goals through upholding their fiduciary duties.

Chapter 4 – Strategic Overview of Pension Investment Funds

Although the California economy produces an expansive GDP of approximately $3 trillion per year from a diverse array of sources, the three pension entities hold a great deal of power to influence the state's economy and provide leadership on issues of sustainability. [26] CalPERS, CalSTRS, and UC own a total of over $700 billion in investment assets, and represent a combined total of over three million members and beneficiaries. [27,28,29] By coming together to advocate for sustainable investment practices, these entities can leverage their collective size and reputation to elevate the urgent discussions surrounding this subject to the attention of their private partners and the public. Likewise, the impacts of the actions described above travel far beyond the state's borders. Joining their voices with international actors to support sustainable investment, responsible reporting, and active engagement has additionally helped to draw attention to, and action on, these issues on a global scale.

While each of the state's pension entities engages in various forms of environmental reporting and sustainable investment, the actions taken, and rationale behind them, differ dramatically. CalPERS, CalSTRS, and UC all maintain some kind of sustainable portfolio or investment in clean energy, but their approaches to investing in fossil fuels and other large greenhouse gas emitters vary. CalPERS and CalSTRS continue to invest in fossil fuels, and have the opportunity to influence the operation of these companies. As investors, CalPERS and CalSTRS have utilized proxy voting, shareholder proposals, and direct engagement both individually and through Climate Action 100+ to encourage transparent reporting and sustainable policies from some of the world's biggest emitters. The UC is in the process of ceasing direct investments in fossil fuels, motivated by UC Investments' desire to reduce long-term risks to their investment returns. These risks are inherently tied to the issue of climate change, through this alternative investment strategy, the UC reduces its exposure to the potential financial risks associated with a low-carbon transition. While this decision does reduce the direct ability of UC to exert influence over large emitters through engagement or shareholder proposals, it had the effect of reducing the potential fossil fuel reserves emissions associated with the institution's investments, and may accelerate the state's overall transition to a low-carbon economy. These approaches to sustainable investment and mitigating financial risk vary based upon the assumptions and predictions of each fund's investment team; however, they all pursue the same fundamental goal of maximizing stable returns for beneficiaries in accordance with their fiduciary responsibilities.

Each of the pension entities also takes a different approach to public reporting. CalSTRS has produced an extensive annual report for over a decade, which reviews the organization's sustainable investment initiatives, efforts at engaging private companies, and climate-related risk factors. This report maintains compliance with global standards such as TCFD and SASB, to offer transparency into the environmental policies and practices at CalSTRS. In alignment with SB 964, CalPERS released a similarly detailed report in December 2019, and is mandated to do so every three years until 2035. This report also aligns with TCFD and SASB standards, offering a clear picture of the climate-related advocacy undertaken by CalPERS, and the risks posed by a changing environment to CalPERS' investments. UC publishes an annual report on its actions to promote sustainability across its campuses, including a review of sustainable investment policies undertaken throughout the previous year. These reports are meant for public consumption, and contain useful information on the institution's status against internal sustainability benchmarks. However, the annual reports do not contain information on climate risk as it pertains to UC Investments, or a full picture of the sustainability-based investment that is undertaken on an ongoing basis.

The following table contains a brief summary of the collective efforts described in the previous chapters:

Current Efforts by Pension Entities			
	CalPERS	CalSTRS	UC
Listed as Leaders in Responsible Asset Allocation in 2019	✓	✓	✓
Signatory of U.N. Principles for Responsible Investment	✓	✓	✓
Published or signed onto statements on environmental sustainability in an investment context	✓	✓	✓
Included language related to climate change in official investment policy	✓	✓	✓
Produces regular climate-related risk reports	✓	✓	✓
Support TCFD disclosure standards	✓	✓	✓
Support SASB disclosure standards	✓	✓	
Discloses carbon footprint of investment portfolio	✓	✓	✓
Investor for Climate Action 100+	✓	✓	✓
Steering Committee member of Climate Action 100+	✓		
Members of Ceres Investor Network	✓	✓	✓
Use stakeholder status to engage with companies and encourage exploring climate risk	✓	✓	✓
Invests in sustainable portfolios	✓	✓	✓

While each of the state's pension entities has undertaken different approaches to investment, reporting, and engagement, their fundamental goals remain the same. CalPERS, CalSTRS, and UC remain committed to meeting their fiduciary responsibilities despite the challenges presented by climate change. These responsibilities frequently align with the state's goals of reducing carbon emissions and leading a wholesale transition into the sustainable economy that the state must create for generations to come. Despite different strategic and economic decisions, which guide their individual actions, a united vision of a greener California has allowed the state's pension entities to succeed in amplifying their market impact through the collective action described in this Framework.

Moving Forward

Investment in a Post-COVID World

As the world continues to grapple with the COVID-19 pandemic and its impact on the global economy, sustainable and responsible investing offers the best prospect for institutional investors to address future risks. At a time when global GDP is estimated to have declined by approximately 7.5 percent due to the pandemic, assets classified under the umbrella of ESG have continued to perform well.[30] Despite unprecedented market shifts throughout 2020, 70 percent of sustainable equity funds generated better returns than the average fund within their category as classified by Morningstar, with 24 of 26 sustainable index funds with an ESG focus outperforming their closest competitors over the first four months of 2020.[31]

As more governments and investors recognize the reality of climate change, investments consistent with a zero net-carbon future will have a lower risk of stranded assets and should have higher returns. As every aspect of society is reexamined in an attempt to mitigate the impacts of COVID-19, sustainable technology, green energy, and other low-carbon innovations present an opportunity to push forward in rebuilding an economy which is more sustainable and inclusive. Advocating for improved disclosures across every sector of the economy will allow investors to make better-educated decisions about which assets to invest in and which risks to accept, in turn creating an opportunity to avoid physical and transition risks and invest in sustainable assets instead.

It is for these reasons that this Framework calls for the following actions to be taken, as described throughout the previous chapters:

- The Governor should create a working group to explore the development of a practical and comprehensive climate-risk disclosure standard.
- The state should become a signatory to the Coalition for Climate Resilient Investment.
- The state pension funds should increase their usage of low-carbon strategies.

For institutional investors and the economy as a whole to better respond to the climate risk inherent in many commonly held assets, it is first necessary for that risk to be understood through an economic lens. The creation of a California-based working group on this topic, in addition to supporting groups such as the Coalition for Climate Resilient Investment which are leaders in this field, presents opportunities to consider how best to institutionalize the consideration of this risk. There is great work being done already in this arena, and developing a statewide understanding of existing resources and tools that are publicly available is a critical step towards developing actionable metrics for investors to take into account when making asset management decisions.

As more and improved methods of evaluating climate risk become available, institutional investors can account for this risk in alignment with their fiduciary responsibility, and low-carbon assets will become more valuable to investors in comparison to their high-risk counterparts.

Statewide Goals and Action

The state of California has set highly ambitious goals to address every aspect of transitioning to a carbon-neutral economy. From aiming to reduce statewide greenhouse gas emissions to 40 percent below 1990 levels by 2030 to planning for a fully renewable energy grid by 2045, California is a global pioneer for sustainable economic practices. In order to tackle the highest-emission sector of the state's economy, California is on its way to meeting a goal of putting five million zero-emission vehicles on the state's roads by 2030 through programs that incentivize the purchase of zero-emission vehicles and expand easy access to electric vehicle charging stations across the state.[32]

Executive Order N-19-19, which calls for the creation of this Framework, also calls for the evaluation of state transportation and property management policies to further reduce greenhouse gas emissions across the state in a variety of ways. The California State Transportation Agency is tasked with reducing congestion and vehicle miles travelled through strategic funding and promotion of public transportation. In conjunction with instructions to the California Air Resources Board to further regulate transportation-related greenhouse gas emissions and promote zero-emission vehicles, these directives will shift the state's approach to private-sector emissions from the transportation industry. The Governor has also called for the California Department of General Services to reduce emissions associated with state-owned vehicles, buildings, and other assets, through the pursuit of maximized energy efficiency and more sustainable business practices. As part of the state's goals to achieve carbon neutrality by 2045, it is expected that the pension entities play a role in supporting these programs, and developing their own policies to protect the environment and build a sustainable and inclusive economy in the years to come.

Not only is it fiscally responsible to invest in a more sustainable economy, it is a vital step towards achieving a healthier, more inclusive, and more resilient California for all. By 2030, it is estimated that approximately 3,300 premature deaths will have been avoided by efforts to promote active transportation and reduce hazardous emissions of all types.[32] Climate impacts, both from extreme weather and from increased emissions, also disproportionately affect California's most under-served communities and workers. These impacts cannot be viewed without a focus on supporting historically under-served communities who are most impacted by climate change. Tackling the issues that contribute to climate change will result in a healthier planet for future generations.

Global Partnerships

While California is a pioneer in pursuing a more sustainable economy, the state does not, and cannot, act alone. Climate change is an issue without borders, which does not discriminate between public or private interests, and which will impact the entire globe for generations to come. Governments and the private sector alike are beginning to realize the potential impact of climate change on every aspect of daily life, and to acknowledge the importance of acting quickly to mitigate these effects. It is for these reasons that a total of 197 state actors have accepted or ratified the 2015 Paris Agreement, committing to limit a global temperature rise this century below 2 degrees Celsius above pre-industrial levels and pursuing policy initiatives to further limit the temperature increase below 1.5 degrees Celsius. Although the federal government plans to withdraw from this agreement by the end of 2020, California has created the United States Climate Alliance, a group of 24 states committed to fighting climate change. California is committed to continue engaging global partners and elevating a dialogue on how to reduce emissions and mitigate the effects of climate change. Ultimately, these discussions may lead to collaboration with other states and countries on a shared set of core investment policies and practices that would significantly move the global market toward low-carbon adaptations at the speed and scale necessary to reach the commitments made through the Paris Agreement.

The private sector has displayed leadership in this field, as well as through their participation in initiatives such as Climate Action 100+ and the Net-Zero Asset Owner Alliance. As detailed throughout this Framework, the work that investors and other private sector actors do, from sustainable investing to high-quality risk reporting to engaging their peers on these issues, is critical to developing a global effort to incorporate climate risks into decisions about how trillions of dollars of investment capital are allocated. The goals presented above may be applied not only to the state's pension entities, but to investors across the public and private sectors around the globe.

Driven by their fiduciary duty, investors who fully incorporate climate considerations into their investment decisions will also allocate investment capital to companies prepared to address the risks of climate change and take advantage of the opportunities made available by the transition to a low-carbon economy. In this way, pursuing stable and low-risk investment strategies naturally supports the fight against climate change, without sacrificing fiduciary responsibility. The investment goals laid out in this Framework are necessary to reduce greenhouse gas emissions and develop sustainable practices in all sectors of the state's economy in order to head off the worst consequences of climate change and build an inclusive economy in years to come.

Acronym List

CalPERS – California Public Employees’ Retirement System

CalSTRS – California State Teachers’ Retirement System

ESG – Environmental, Social, and Corporate Governance

PRI – United Nations Principles for Responsible Investment

SASB – Sustainability Accounting Standards Board

TCFD – Task Force on Climate-Related Financial Disclosures

UC – University of California

UCRP – University of California Retirement Plan

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