CALSTRS

Investment Committee

Item Number 9 – Open Session

Subject: Committee Work Plan for Fiscal Year 2021-2022

Presenter(s): Chairperson

Item Type: Action

Date & Time: July 8, 2021 – 45 minutes

Attachment(s): Attachment 1 – FY 2021-2022 Investment Committee Work Plan
Attachment 2 – Memorandum on the Low-Carbon Transition Pathway
Attachment 3 – Low-Carbon Transition Work Plan Accomplishments Fact Sheet
Attachment 4 - Summary of Current Net-Zero Commitments

PowerPoint(s): None

POLICY

The development of the Investment Committee Work Plan and setting annual objectives/projects is covered by the Board Governance and Administration Policy, Teachers' Retirement Board Policy Manual, Section 500, page 17.

HISTORY AND PURPOSE OF THE ITEM

Planning the future fiscal year Investment Committee Work Plan has historically been discussed at the last meeting of the current fiscal year, for the past 16 years. The purpose is to gain the Investment Committee's support on the upcoming year's objectives.

BACKGROUND

At the July Retirement Board meeting, the Investment Committee Chair will present the FY 2021-2022 Investment Committee Work Plan for its formal adoption. The Plan includes all major agenda items across the respective Investment Committee meetings. These items include policies to revise, performances to monitor and major objectives to accomplish.

The Investment Committee Chair and Vice-Chair, working with the Chief Investment Officer, developed two core work plan objectives. It was presented as an information item at the June 2021 Investment Committee meeting. There were no changes or comments. However, with the late addition of an additional memorandum/attachments detailing whether the current low-

carbon transition pathway should be expanded to include a net-zero emissions pledge and supporting actions, this plan should be adjusted if such a net-zero pledge is approved.

These two work streams will run through the meetings' agendas across the entire year.

1. **Collaborative Model 2.0** - The Committee and staff will work to continue to grow the collaborative investments and make adjustments to different types of collaborations.
2. **Action Steps Toward the Low Carbon Future / Plan the Path to Net-Zero** - The Committee spent a major part of FY 20-21 studying and creating a work plan focused on the timing and transition to a low-carbon future (as detailed in Attachments 2, 3and 4) . In this upcoming Fiscal Year, the Committee and Staff will continue to assess and seek to mitigate climate-related risks in the portfolio (both physical and transition). The Committee will also consider climate solutions investments in the new SISS Private Portfolio. If a pledge to net-zero emissions for the investments portfolio is approved by the Committee, this objective will be alerted to commence the planning process to fulfilling a net-zero goal.

In addition to these two major projects, the Committee has its traditional workload and responsibilities to monitor and evaluate the investment portfolio and amend and revise Investment Policies. Combined with education sessions at the two offsite meetings, the Committee schedule will be, once again, quite full, and robust.

RECOMMENDATION

The Investment Committee Chair and Vice Chair, as well as the CIO, recommend the Committee approve the proposed Work Plan and allow the Chair to present these projects listed below and the Investment Committee FY 2021-2022 Work Plan document at the July Retirement Board meeting.

July 2021	Jan. 2022	June 2022
Collaborative Model 2.0		
Action Steps Toward the Low-Carbon Future / Plan the Path to Net-Zero		

INVESTMENT COMMITTEE
Proposed 2021-2022 Meeting Work Plan

	July	September	October (Offsite)	November	January	February	March	April (Offsite)	May
Major Projects	**Collaborative Model 2.0** **Action Steps Toward the Low-Carbon Future / Plan the Path to Net-Zero** TRB Inv. Comm. Work Plan		CIO Annual Review			CIO Mid-Year Review			Charter Review (C/A) FY 2022-23 Work Plan Objectives (A)
Investment Policies	Asset Class Business Plans (A) Investment Policies (as needed) (A) Investment Policy & Management Plan (A)			Investment Policies (as needed (A) SI&SS Engagement Plan (A) Investment Policy & Management Plan (A)	Investment Policies (as needed) (A)		Investment Policies (as needed) (A)		Investment Policies (as needed) (A)
Performance Reports and Investment Insight Presentations	Investment Insight Speaker (I – TBD*)	FY Inv. Performance Total Fund (A) Real Estate (A) Private Equity (A) Inv. Mngr. Rating (A)	Holistic review of Investment Benchmarks - Meketa				Calendar Year Inv. Performance Total Fund (A) Real Estate (A) Private Equity (A) Inv. Mngr. Rating (A)	Insight Speaker (I – TBD*)	

	July	September	October (Offsite)	November	January	February	March	April (Offsite)	May
Investment Oversight / Monitoring Annual Reports	Review of Staff Delegation (I) 10-Year Financial Plan (I) RMS Implementation Update (I) AB2833 Report (C/I)			DIS Semi-Annual Report (I) RMS Implementation Update (I) Annual Investment Cost Report (I) GIPS Performance Report (C/I)	Diversity in Management of Investments Report (I)		Green Initiative Report (I) RMS Implementation Update (I)		DIS Semi-Annual Report (I)
Annual Reports Posted to the CalSTRS.com website ****Investment Committee can request an agenda item***				FY 20-21 Proxy Voting (I)	SB294 Report – Diversity in Management of Investments (I)				Ancillary Investments Programs Annual Report (I)

(A) = Action **(I) = Information** **(C) = Consent**

***TBD** Investment Insight Speaker will be added to the final agenda based on Board request.

April 2021

CALSTRS
HOW WILL YOU SPEND YOUR FUTURE?

Memorandum

Item Number 9: Fiscal Year 2021-2022 Investment Committee Workplan
Date & Time: July 8, 2021

MEMORANDUM ON THE LOW-CARBON TRANSITION PATHWAY

At the June 10, 2021 Investment Committee meeting, the Committee requested that staff evaluate whether aligning the investment portfolio with the goals of the Paris Climate Agreement, by setting a net-zero emissions commitment, would enable CalSTRS to further manage the risks and opportunities associated with climate change and the transition to a low-carbon economy.

This memorandum and additional attachments provide a summary of CalSTRS' process and diligence activities to date regarding the low-carbon transition (**Attachment 3**) and explain the widespread increase of commitments from global governments, companies and investors in setting net-zero emissions targets (**Attachment 4**). The purpose of this memorandum is to provide Committee members with information to discuss and determine whether the Committee's current low-carbon transition pathway workplan should be expanded to include a net-zero emissions pledge and provide a proposed action plan to guide future activities.

CALSTRS AND THE LOW-CARBON TRANSITION

CalSTRS has been actively integrating material environmental factors into the investment portfolio since 2003. The Green Initiative Task Force (known as the "Green Team") was established in 2007 (and still exists today) as a cross-asset class working group, to identify, analyze and propose investment opportunities and risk-control strategies addressing climate change.

Since the drafting of the Paris Climate Agreement in December 2015, and as a result of increasing shifts in technology and consumer preferences, our climate change-related investment activities have accelerated and included the following important milestones:

In **2016**, we invested in a new low-carbon public equities index with significantly lower exposure to carbon emissions. and in **2017**, we implemented thermal coal exclusions[1].

In May **2019** the Teachers' Retirement Board approved the transition to a low-carbon future as a priority and workplan project for the Investment Committee. In the subsequent months, the Investment Committee participated in a series of educational presentations, including a half-day Investment Committee offsite in October 2019. The educational presentations were conducted by

[1] These exclusions were implemented after thorough research, analysis, due diligence, consideration and documentation by staff, the CalSTRS Committee on Responsible Investment (CRI) and the Investment Committee.

a diverse range of thought leaders and experts in climate science, academia, energy research and finance. Presenters to the Committee included:

- Brian Deese: Director of the National Economic Council for President Joe Biden, former head of Sustainable Investing at BlackRock.
- John Goldstein: Managing Director of the Goldman Sachs Sustainable Finance Group.
- Trevor Houser: Partner and lead of the energy and climate team at Rhodium Group (an independent research provider that combines economic data analytics and policy insight to help decision-makers in both the public and private sectors understand global trends).
- Alicia Seiger: Lecturer at Stanford Law School and the lead of sustainability and energy finance initiatives at Stanford Law, Stanford Graduate School of Business and the Stanford Precourt Institute for Energy.
- Ethan Zindler: Head of Americas at BloombergNEF, a provider of insight, data and news on clean energy, advanced transport, commodities and emerging technologies.

The October 2019 offsite was followed by twenty months of additional education, study and analysis, similar to the process adopted in the New York State Common Retirement Fund's Climate Action Plan.

The Teachers' Retirement Board's low-carbon transition workplan established a five-prong strategy in 2020:

- **Investment Belief:** to develop an additional investment belief related to the low-carbon economic transition.
- **Risk Analysis:** to deepen the understanding of low-carbon transition-related risk, both physical and transition, (also referred to as 'transition readiness') across asset classes.
- **Investment Opportunities:** to expand investments in low-carbon solutions that are additive to the goals of the Total Fund.
- To support these objectives, CalSTRS staff also identified the need to enhance the fund's **Stewardship** activities as well as related communications and **reporting** strategies.

Investment Belief

The Board adopted a new low-carbon investment belief in January 2020. Climate change is a complex and challenging topic and so the educational series and the adoption of the new investment belief helped to create a common understanding among the Board and staff.

Risk Analysis

As climate change shifts economies and societies away from high-carbon products toward lower carbon products, some companies, industries and regions come out ahead and some fall behind. As a result, we recognize that this transition impacts the long-term investment performance of the assets in which we invest.

Internally we are using the concept of 'transition readiness' to help evaluate our portfolio's future preparedness for the low-carbon transition. This is a complex task because available data and financial analysis on climate-related transition risks are at an early development stage in the global

investment industry. Understanding that climate risk manifests itself differently across different asset types, we have developed two initial partnerships to help us understand the physical, technological and policy-related risks that may affect specific investments:

- Physical Risk Analysis: During 2020 and 2021, staff has been partnering with Rhodium Group to deepen our understanding of physical climate risk, with an initial focus on Real Estate. Rhodium is providing independent research, data and analysis on the economic risks of climate change which is being integrated into our internal risk management processes in the Real Estate portfolio.
- Transition Risk Analysis: in March 2021, CalSTRS funded an innovative $1 billion low-carbon transition readiness public equity strategy through which we expect to gain insights into how climate risk is being priced (or mispriced) in public markets. Staff is also piloting a nascent public markets-focused climate risk management tool that seeks to help investors better model how emissions scenarios and carbon pricing risks could influence security pricing.

These programs are intended to inform investment decisions across our portfolios and give us a competitive market advantage.

Investment Opportunities

CalSTRS has a long history of investing in strategies that align with the Fund's belief that sustainable investing supports our fiduciary duty to maximize investment returns and manage financial risks in a changing world.

As demonstrated in the Investment Branch Business Plans for 2021-22, significant investments in low-carbon solutions already exist across the CalSTRS portfolio including: green bonds in the fixed income portfolio, green and LEED buildings in the real estate portfolio, dedicated low-carbon strategies in public equities and renewable power, agriculture and timberland investments in the inflation sensitive portfolio.

To further leverage existing partners and source new opportunities, in March 2021, the 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. This portfolio supplements the existing $10 billion SISS Public Portfolio which includes $3.7 billion in a low-carbon public equity index, $1 billion in a low-carbon transition readiness risk-controlled public equity strategy and over $3 billion in actively managed equity strategies.

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 CalSTRS understanding of how specific investments demonstrate positive contributions to a more sustainable global economy, including mitigating and adapting to climate change. This is an evolving, but fast-moving element of the global investment industry, so this new portfolio will expand CalSTRS expertise in the intersection between risk-adjusted returns and sustainability drivers and outcomes, for the benefit of California's educators.

Stewardship

CalSTRS is a long-term active owner and steward of capital that is being managed to impartially meet the Fund's future obligations across participant generations. For many decades we have used our voice to drive change and enhance the value of the CalSTRS Investment 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 have demonstrated that engagement can effectively drive change that results in a positive impact on our Fund and the companies we engage, as well as society and the environment. Furthermore, stewardship is a strategy for impacting climate policy and addressing systemic risks that may not be fully avoided through diversification.

The low-carbon transition remains a Stewardship Priority and we expect companies to demonstrate their resilience to shifting public policies, technological advancements and physical impacts associated with climate change. Collaborative investor engagement initiatives like the Climate Action 100+ have secured corporate emissions reduction commitments and CalSTRS has also pioneered new, escalated engagement strategies like activist stewardship as demonstrated by the May 2021 appointment of three new board directors at ExxonMobil to fill gaps in the board's needed skill sets.

Reporting

CalSTRS is committed to being transparent about our goals, ambitions, and activities to multiple audiences, including our beneficiaries, our partners and our global investment peers. Further details describing the progress and results of the low-carbon transition study and work plan can be found in **Attachment 4: Low-Carbon Transition Work Plan Accomplishments Fact Sheet** and also in the following **reports**: Green Initiative Taskforce Report 2020; Green Initiative Taskforce Report 2019. Additional updates are also provided on our low-carbon transition and value of engagement webpages.

AN INTRODUCTION TO NET-ZERO

Over the past year, and particularly since the start of 2021, there has been an increasing focus on all actors in the global economy establishing net-zero emissions goals.

What does net-zero mean[2]? Net-zero emissions will be achieved when all greenhouse gas (GHG) emissions released by humans are counterbalanced by removing GHGs from the atmosphere. To achieve this, all human-caused emissions will need to be reduced as close to zero as possible. Any remaining GHGs then need to be balanced with an equivalent amount of carbon removal.

How does net-zero relate to the Paris Climate Agreement? Under the Paris Agreement, countries agreed to limit warming well below 2 degrees C and ideally to 1.5 degrees C. Latest science (from the Intergovernmental Panel on Climate Change, IPCC) suggests that in order to reach these temperature goals, net-zero emissions will be required by mid-century. If the world reaches net-zero by 2040, the chance of limiting warming to 1.5 degrees C is considerably higher.

[2] For additional information on common questions relating to net-zero: https://www.wri.org/insights/net-zero-ghg-emissions-questions-answered

What is the Race to Net-Zero[3]? The United Nations has established a "Race to Zero" campaign calling on countries, regions, cities, companies, investors and civil society/non-governmental organizations to submit plans to reach net-zero emissions by 2050. Over the past year, commitments have been increasing very rapidly ahead of the United Nations climate negotiations (COP 26) in Glasgow in November 2021.

Current commitments come from: 120 countries, 708 cities, 24 regions, 2,360 businesses, 163 investors and 624 higher education institutions. Estimates consider that 60-70% of global GDP is now covered by a net-zero emissions commitment. **Attachment 4: Summary of Current Net-Zero Commitments** provides more details on these commitments.

Closer to home:

- **The U.S**. has set a "*goal of achieving net-zero greenhouse gas emissions by no later than 2050 and of limiting global warming to 1.5 degrees Celsius, as the science demands."* This goal is supported by a target – announced by President Biden in April 2021[4] – for the U.S. to achieve a 50-52% reduction from 2005 levels in GHG pollution in 2030.
- **California** has multiple climate policy goals and targets including: reducing GHG emissions 40% below 1990 levels by 2030, providing 100% of the state's electricity from clean energy by 2045, developing zero net energy buildings, adding 5 million zero-emission vehicles by 2050 and prohibiting the sale of new gasoline-powered vehicles by 2035. In addition, in 2018, an Executive Order committed California to achieving economy-wide 'carbon neutrality' (which broadly aligns with net-zero) by 2045.

How are net-zero commitments being implemented? Multiple frameworks are being developed to support the net-zero commitments being made by different parties, including investors, and to ensure their accountability. The Race to Zero campaign requires four broad criteria to be met:

- ***Pledge:*** the head-of-organization pledges a commitment to reach net-zero GHGs as soon as possible, and by midcentury at the latest. Sets an interim target to achieve in the next decade.
- ***Plan:*** within one year, explain what actions the organization will take to achieve interim and longer-term pledges, especially in the short-to-medium term.
- ***Proceed:*** take immediate action toward achieving net-zero, consistent with delivering interim targets.
- ***Publish:*** commit to report publicly progress against interim and long-term targets, as well as the actions being taken, at least annually.

There is broad acceptance that achieving a net-zero global economy within the next decades will be very challenging for all actors involved and will require significant economy-wide changes. The bold, yet required, ambitions to address the worst impacts of climate change are matched by

[3] https://unfccc.int/climate-action/race-to-zero-campaign#eq-3
[4] https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/

the acknowledgment of the challenges that must be overcome. Those committing to a pledge recognize that it is a serious commitment and one that is dependent on the world's governments, companies and financial markets moving in the same direction over multiple decades.

CALSTRS AND A NET-ZERO PLEDGE

CalSTRS Low-Carbon Investment Belief states that:

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

Staff believe it is paramount that CalSTRS continue to capture opportunities to invest, manage and mitigate portfolio risks, and engage companies during the low-carbon transition. We also recognize that these risks and opportunities are accelerating due to the increasing urgency and momentum from global governments, companies and fellow investors to achieve the goals of the Paris Agreement through achieving net-zero emissions over the coming decades. Staff is evaluating whether the failure to align the CalSTRS portfolio with the goals of the Paris Climate Agreement exposes the portfolio to transition risks, which are reasonably foreseeable given the collective global movement towards net-zero.

While the Board's low-carbon study and workplan have created a strong foundation to help position the portfolio for a low-carbon future, staff believe it is now appropriate to evaluate whether setting net-zero as a destination would more comprehensively account for the pecuniary effects of decarbonization on the CalSTRS portfolio, over the appropriate time horizon, by allocating capital toward Paris-aligned activities and mitigating climate-related risks.

Staff recommends adding an evaluation of the merits of a net-zero pledge to the current low-carbon workplan. Below is sample language and an implementation framework that the CIO and Investment staff believe could be used for a U.S. institutional investor like CalSTRS:

(1) PLEDGE: Consider adopting a Net-Zero carbon commitment or 'north star' as suggested below:

> *CalSTRS recognizes the risks and opportunities presented by the inevitable transition to a low-carbon economy, as well as the global acceleration toward the science-based 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.*

(2) PLAN: Implement a commitment through a net-zero action plan with three core components:

- **Risk management:** build on the transition readiness assessments already underway to estimate current portfolio emissions and determining appropriate measures to decarbonize the portfolio.
- **Investment opportunities:** expand investments in low-carbon solutions that benefit from the transition to net-zero and meet CalSTRS risk-return objectives.

- **Stewardship:** continue to challenge and engage policy makers and companies, in collaboration with global investor peers, to take actions to achieve a net-zero economy by 2050 or sooner.

Given the complexities involved in implementing a net-zero action plan, staff believe that the following principles should underpin its development:

- It should build on and expand on the analysis and activities already underway across the CalSTRS portfolio under the Board's low-carbon workplan (as described earlier in this item).
- It should rely on extensive research, consultation with external experts, clearly articulated decision-making processes and oversight procedures.
- It should be reviewed annually reflecting the need for it to be adaptive and responsive to changing market norms and developments, as well as lessons learned, and challenges encountered.

(3) PROCEED: Determine a set of the goals for the next year which could include:

- Conducting a thorough review of existing frameworks and methodologies supporting net-zero commitments to inform strategy.
- Proposing an effective internal structure and determining any required external expertise (including identifying and hiring expert external consultants, as needed) to successfully implement a net-zero action plan.
- Estimating current portfolio emissions, where possible within the year, to establish a baseline for initial interim goals.
- Setting interim goals that support the three components of a net-zero action plan and align with CalSTRS investment policies and overall risk-return objectives.
- Establishing a communications plan to effectively educate and inform CalSTRS priority audiences about a net-zero action plan.
- Determining whether the Teachers Retirement Board will align CalSTRS operations (i.e. corporate/enterprise activities) with the CalSTRS investment portfolio pledge to achieve net-zero emissions across the entire organization.

(4) PUBLISH: Provide and encourage regular reporting on the progress toward net-zero by:

- Leveraging existing reporting mechanisms (including the annual Green Initiative Task Force Report and the quarterly Value of Engagements) to report on CalSTRS' progress implementing a net-zero action plan.
- Continuing to advocate for improved corporate climate-related reporting and disclosure in alignment with the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD) and the metrics and targets of the Sustainability Accounting Standards Board (SASB).

It is important to fully understand the challenges, dependencies, risks and opportunities involved in implementing a net-zero pledge. Given the long-term implementation time horizon, reaching the target will be dependent on meaningful action by all the companies within the investment portfolio, by CalSTRS partners and by future Investment Committees. The Committee will need

to evaluate how a net-zero pledge aligns with CalSTRS current investment philosophy, including its traditional passive investing approach. As the Investment Committee knows, active management comes with a wider tracking error, both positive and negative. The Committee will need to understand and weigh such factors as it evaluates the most appropriate approach for CalSTRS in managing risk and return.

Fulfilling a net-zero pledge will require both patience and adaptation over the next two decades. An implementation plan that can monitor, adjust and adapt to changing external circumstances would best equip CalSTRS to acknowledge and better manage the inherent risks associated with significant uncertainty. Furthermore, such an approach would recognize the role that CalSTRS must also play in influencing governments, companies and the financial markets to achieve economy-wide net-zero goals that will benefit Fund participants long into the future.

OPTIONAL READING MATERI ALS

World Resources Institute, Net-Zero Q&A: https://www.wri.org/insights/net-zero-ghg-emissions-questions-answered

World Economic Forum blog by Ontario Teachers' Pension Plan: https://www.weforum.org/agenda/2021/03/investors-3-questions-net-zero

June 2021 Economist Leader article: https://www.economist.com/leaders/2021/06/12/how-green-bottlenecks-threaten-the-clean-energy-business

Guardian overview of U.S. activities required to meet net-zero goals: https://www.theguardian.com/us-news/2021/mar/15/race-to-zero-america-emissions-climate-crisis

CALSTRS®
CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

Fact Sheet

Low-Carbon Transition Work Plan Accomplishments
(As of April 2021)

Background

CalSTRS has a long history of managing climate risk within its investment portfolio.

In May 2019, the Teachers' Retirement Board directed staff to develop a comprehensive work plan to understand the global low-carbon transition and its impacts on CalSTRS' investments.

Three priority action items came out of the work plan:

- To develop an additional investment belief related to the low-carbon economic transition.
- To deepen the understanding of low-carbon transition-related risks, both physical and transition, across different asset classes.
- To expand investments in low-carbon solutions that are additive to the goals of the Total Fund.

To support these objectives, CalSTRS staff also identified the need to enhance the fund's stewardship activities as well as related communications and reporting strategies.

Priority 1

Build board and staff consensus on the portfolio impacts of the low-carbon transition

Why is this important? Climate change is a complex topic, and CalSTRS understands it will impact portions of the investment portfolio in different ways. To establish a common understanding of climate investment risk across the board and staff, CalSTRS hosted an educational series on the global low-carbon transition. The series included presentations from a diverse range of climate change thought leaders and experts.

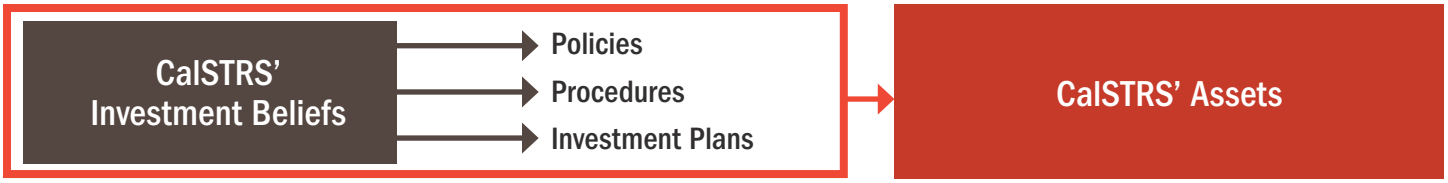
CalSTRS' investment beliefs provide a foundational framework for all of CalSTRS' investment decision-makers. They represent CalSTRS' unique view of the global investment markets and our vision for participating in these markets to meet our fiduciary goal. Our investment beliefs are intended to guide and align CalSTRS' decision-making leaders as they develop policies, procedures and plans for investments.

Progress update

In January 2020, the Teachers' Retirement Board approved a new low-carbon investment belief.

Investment Belief 9

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



Priority 2

Evaluate the transition readiness of different investments by asset class

Why is this important? CalSTRS is seeking to understand how low-carbon related risks, both physical and transition, can impact investments within our portfolio, with an initial focus on our Real Estate and Global Equity asset classes. Climate-related data are rapidly evolving, and climate risk is impacting our asset classes in different ways. As there is no 'quick and easy' way to evaluate climate risk across a large and complex investment portfolio, CalSTRS is analyzing the transition readiness of different asset classes in a phased approach. These analyses will help CalSTRS determine how well positioned the investment portfolio is for the global low-carbon transition and inform ongoing investment decisions.

CalSTRS **recently invested** $1 billion in two innovative low-carbon transition readiness equity exchange-traded funds (ETFs) launched by **BlackRock**. These strategies overweight companies that are better positioned for the low-carbon transition, allowing us to gain insights into how climate risk is being priced (or mispriced) in public equity markets.

Progress update

Real Estate

Because physical climate risks—like temperature, precipitation, sea level rise, floods, hurricanes and wildfires—will have the most acute economic impacts on real assets, CalSTRS is first assessing physical climate risks within our Real Estate asset class.

CalSTRS has selected **Rhodium Group** to provide independent research, data and analysis on the economic risks of climate change to our real estate portfolio. We will integrate this analysis into our risk management for this asset class.

Global Equities

CalSTRS has invested in low-carbon index strategies since 2017. As of April 2021, our low-carbon index-like investments had grown to $4.5 billion.

CalSTRS recently funded an innovative $1 billion low-carbon transition readiness equity strategy. Through this strategy, we expect to gain insights into how climate risk is being priced (or mispriced) in public equity markets.

CalSTRS has invested in low-carbon index-like strategies since 2017. As of April 2021, our low-carbon index-like investments had grown to $4.5 billion.

Priority 3

Expand investments in new climate-related solutions

Why is this important? CalSTRS has the opportunity to deploy capital, at scale, into investments that both meet the risk-return goals of the Total Fund and accelerate the low-carbon transition.

Progress update

In March 2021, the Teachers' Retirement Board unanimously approved **changes** to the Sustainable Investment & Stewardship Strategies (SISS) **investment policy**, allowing staff to expand the fund's sustainable and low-carbon investments to private asset classes. CalSTRS is creating a systematic platform to further expand sustainable investment opportunities in private equity, infrastructure, and real estate. Over the coming years, we anticipate investing $1–2 billion into private markets.

Staff will initially focus on affordable housing opportunities, as well as low-carbon solutions relating to energy, technology-enabled resource efficiency, water and waste management, land and agriculture management, and food security.

Priority 4

Enhance low-carbon stewardship activities

Why is this important? CalSTRS is a long-term, active owner and steward of capital. We engage hundreds of companies each year to promote sustainable business practices. We influence companies through proxy voting, authoring letters, attending meetings and conferences, and collaborating with other like-minded investors.

Progress update

CalSTRS is a leader in **Climate Action 100+**, an investor initiative seeking to ensure that the world's largest greenhouse gas (GHG) emitters act on climate change. We have secured significant emission reduction commitments through the eight engagements that we lead, proving that investor engagement works.

Company	Region	Industry	GHG Emissions Commitment
Duke Energy	United States	Electric Utilities	Net Zero by 2050
Southern Company	United States	Electric Utilities	Net Zero by 2050
Dominion Energy	United States	Diversified Utilities	Net Zero by 2050
Phillips 66	United States	Oil & Gas Refining	Ongoing Engagement
Daikin Industries	Japan	A/C Manufacturing	Net Zero by 2050
ENEOS	Japan	Oil & Gas Refining	Net Zero by 2040
Nippon Steel	Japan	Steel Manufacturing	30% Reduction by 2030
Toray Industries	Japan	Textile Manufacturing	30% Intensity Reduction

In December 2020, we also pioneered a new engagement strategy called **activist stewardship**, which is targeted and heightened engagement at a company where traditional engagement has failed to produce meaningful results.

> **The low-carbon transition is a Stewardship Priority for CalSTRS, and we are actively engaging companies to make them resilient in a low-carbon future. We expect companies to demonstrate their resilience to changing public policies, technological advancements and physical impacts associated with climate change.**

Priority 5

Communicating strategies

Why is this important? CalSTRS is committed to being transparent about our goals, ambitions, and activities to multiple audiences, including our beneficiaries, our partners and our global investment peers. We provide in-depth reports detailing our climate-related activities every three years.

Progress update

CalSTRS' 2019 Green Initiative Task Force Report was the first to be aligned with guidance from the Task Force on Climate-Related Financial Disclosures (TCFD).

The **2020 Green Initiative Task Force Report** is our first interim report. We will continue to publish regular updates on our **low-carbon transition** and **value of engagement** webpages.

CALSTRS
HOW WILL YOU SPEND YOUR FUTURE?

Memorandum
Item Number 9: Fiscal Year 2021-2022 Investment Committee Workplan
Date & Time: July 8, 2021

SUMMARY OF CURRENT NET-ZERO COMMITMENTS

Under the 2015 Paris Agreement, countries agreed to limit global warming to well below 2 degrees C (3.6 degrees F), ideally to 1.5 degrees C (2.7 degrees F). In 2018, the Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5 degrees Celsius clarified the minimum action governments need to take to fulfill their pledge: to reach the Paris Agreement's temperature goals, and avoid the worst climate impacts, global greenhouse gas (GHG) emissions will need to drop by half by 2030 and reach net-zero around mid-century. Today, pledges to reach net-zero greenhouse gas emissions span governments (regions, countries, states and cities), corporate strategies, and investor portfolio targets.

GOVERNMENT NET-ZERO COMMITMENTS

As of the March 2021, Energy and Climate Intelligence Unit (ECIU) report Taking Stock: A global assessment of net-zero targets, national net-zero pledges covered 61% of global greenhouse gas emissions, 68% of GDP, and 56% of the global population. The status of these pledges ranges widely, including achieved (two), in law (six), proposed legislation (six), in policy document (20, including the U.S.) and proposed/target under discussion (98). Countries, states, regions and cities are expected to increase their immediate actions and provide greater clarity on their net-zero targets and begin turning pledges into concrete plans in the coming months before the U.N. Climate Change Conference of the Parties 'COP26' in Glasgow in November.

Country Examples

The pledges vary widely, and many are continually evolving. In 2017, Sweden became the first nation to put into law a net-zero target by mid-century (2045). In 2019, the U.K. became the first G7 economy to legislate for net-zero by 2050. France, Denmark, New Zealand and Hungary have also enshrined net-zero by 2050 into law.

The E.U. outlined its 2050 net-zero target in late 2019 and early 2020, then in December 2020, improved its 2030 target to be in line with the 2050 goal. In September 2020, the President of China announced at the U.N. General Assembly that China would peak emissions by 2030 and achieve carbon neutrality before 2060. Japan and South Korea followed, with 2050 target dates. In the U.S., President Biden issued an Executive Order pledging the U.S. to net-zero by 2050 in his first week in office in January 2021.

Together, China, the U.S., and the E.U. comprise the world's three largest emitters, and account for about half of both global GDP and global emissions.

COMPANY NET-ZERO COMMITMENTS

As of November 2020, over one-fifth (21%) of the world's 2,000 largest public companies had net-zero commitments, representing annual sales of nearly $14 trillion and 33% of total sales across the top 2,000 public companies. This number has significantly grown in just the last two years and is expected to increase heading into COP26 in November.

According to the March 2021 ECIU report Taking stock: A global assessment of net-zero targets, certain industries have led the way in making net-zero commitments. For example, more than two thirds of companies (by sales) in the Household & Personal Products industry have net-zero targets. In contrast, the lowest coverage by sales is in the Semiconductors industry, at around 5%. Aerospace & Defense is little higher, at just over 10%. Until significant advances in technologies, such as hydrogen-based energy generation are made at scale, energy-intensive industries have a less clear path to achieving net-zero capabilities (thus explaining why certain sectors are able to commit sooner as the direction of travel for them is clearer).

Significant discussions around capital expenditure planning within energy intensive industries are taking place to ensure that innovation increases and that the levelized cost of low to no-emissions technology continues to decrease. According to the International Energy Agency (IEA), the iron and steel industry accounts for approximately 4-5% of total world CO2 emissions. Leading iron and steel companies (such as CalSTRS-led Climate Action 100+ engagement company Nippon Steel), are investing in lowering the emissions of its current process and innovating on its use of hydrogen and carbon capture and storage.

Company Examples

Microsoft: the two trillion-dollar market cap technology company, has a goal to become carbon negative by 2030. By 2050, Microsoft will remove from the environment all of the carbon the company has emitted, either directly or by electrical consumption, since it was founded in 1975.

Microsoft's approach is based on seven elements including comprehensive carbon foot printing, deploying $1 billion to accelerate the development of carbon reduction and removal technologies, empowering customers and supply chain to reduce carbon footprints, promoting carbon-related public policy issues, and enlisting its employees in advancing innovation and contributing to these goals.

ENEOS: is a CalSTRS-led Climate Action 100+ Japanese petroleum and metals conglomerate. It aims to be carbon neutral in its own CO2 emissions in 2040. ENEOS will be pursuing this by expanding its use and business in renewable energy, CO2- free hydrogen, and carbon capture technological innovation. ENEOS also plans to expand its mobility business to be more aligned to electric vehicles and hydrogen and will invest in automated operations of refineries and smelters to help reduce emissions. The company also announced a $14B capital expenditure plan over the next three years to help drive its transformation into a low-carbon company.

INVESTOR NET-ZERO COMMITMENTS

There are currently a variety of asset owner and asset manager initiatives focused on supporting and driving net-zero portfolio commitments. While investor alliances differ in terms of their timelines, metrics and commitments, they share the common goal of achieving carbon emissions reductions within investment portfolios in a manner that aligns with a 1.5 degrees Celsius limit to global temperature rise. To date, aggregate investor net-zero commitments exceed $40 trillion assets under management.

The **Net Zero Asset Managers Initiative** is an international group of 87 asset managers, collectively managing $37 trillion in assets, committed to supporting the goal of net-zero greenhouse gas emissions by 2050 or sooner, in line with global efforts to limit warming to 1.5 degrees Celsius. Initiative members agree to set interim targets for 2030 which include:

- Measuring scope 1, 2 and, where material, scope 3 portfolio emissions
- Reducing CO2 emissions by 50% within their investment portfolios
- Creating investment products aligned with net-zero emissions by 2050
- Implementing stewardship and engagement strategies that are consistent with the net-zero commitments

Members of the Net Zero Asset Manager Initiative include: BlackRock, Vanguard, State Street Global Advisors, Lazard, Schroders, Allianz Global Investors, and UBS.

The **Net Zero Asset Owners Alliance** is an international group of 42 institutional investors, representing approximately $6.6 trillion in assets under management. These asset owners have committed to transitioning their investment portfolios to net-zero by 2050. Launched in September 2019, the Net Zero Asset Owners Alliance signatories work together to align their portfolios with a 1.5 degrees Celsius global warming scenario based on the IPCC 1.5C Report.

The Net Zero Asset Owners Alliance requires members to set interim carbon reduction targets every five years, beginning in 2025 and to periodically report on progress on an ongoing basis. Members of this alliance include: CalPERS, CDPQ, Caisse des Depots, CBUS Super Fund, Pension Danmark, Swiss Re, and Unilever.

The industry-led **Net-Zero Banking Alliance (NZBA)** hosted by the United Nations Environment Programme Finance Initiative (UNEP FI) and co-launched in April 2021 with the Prince of Wales' Sustainable Markets Initiative (SMI), is the newest net-zero alliance. NZBA brings together an initial cohort of 43 of the world's biggest banks with a focus on delivering the banking sector's ambition to align its climate commitments with the Paris Agreement goals with collaboration, rigor, and transparency.

The **Paris Aligned Investment Initiative** (PAII) is an investor-led global forum enabling investors to align their portfolios and investment activities to the goals of the Paris Agreement. Established in May 2019, the PAII has 118 investor members representing over $34 trillion in assets. The initiative's overarching goal is to enable investors to transition investment portfolios to net-zero by 2050 or sooner. PAII participants agree to set objectives and targets for scope 1, 2 and 3 emissions, including an interim target consistent with achieving 50% global reduction of

CO2 emissions by 2030. These objectives and targets align with the IPCC 1.5C Report. Initiative members also agree to implement stewardship and engagement strategies, with companies, managers, credit rating agencies, stock exchanges, consultants and data providers that are consistent with achieving net-zero greenhouse gas emissions by 2050 or sooner.

Members of this initiative include: ABP, AP2, Brunel, BT Pension Scheme, New York State Common, and Scottish Widows.

The **Investor Agenda for Climate Action Plans** (ICAPs) is a global forum that provides resources to enable the acceleration of investor action towards a net-zero emissions economy. There is no formal membership or signatories, rather ICAPs serves as a repository of investment-related resources and tools to support the investment community in making net-zero portfolio commitments.

Beyond the aforementioned commitments, pension funds globally continue to make independent greenhouse gas net-zero investment portfolio commitments in line with limiting global temperature rises to 1.5 degrees Celsius by 2050 or sooner.

Pension Fund/Asset Owner Examples

CDPQ (Canada)

CDPQ is a member of the Net-Zero Asset Owner Alliance and has made a commitment to net-zero emissions in their portfolio by 2050. To help reach this target, in 2017 CDPQ committed to factoring climate change into every investment on a go-forward basis, increasing low carbon investments by 80% by 2020 (104% growth achieved), reducing their carbon footprint by 25% by 2025, and leveraging their corporate and public policy engagement to prioritize carbon emission reductions.

OTPP (Canada)

OTPP has made a commitment to a net-zero emissions portfolio by 2050. The organization is not part of any formal investor alliance or initiative and plans to release 2025 and 2030 interim targets ahead of COP26 this fall. To date, OTPP has completed a portfolio wide carbon foot printing assessment. To achieve its 2050 target OTPP will:

- Increase investments in climate-friendly solutions
- Ensure portfolio companies manage and report emissions annually
- Work with portfolio companies to achieve net-zero emissions
- Use proceeds from green bond offerings to invest in climate friendly opportunities
- Increase the resilience of their assets with physical risk assessments of their direct holdings
- Advocate for clear climate policies and partner with global organizations to effect change.

Australian Super (Australia)

Australian Super has made a commitment to achieve net-zero emissions within its portfolio by 2050. To achieve its target, Australian Super will:

- Increase low-carbon investments (including an interim goal of at least $1 billion by 2022)
- Incorporate the risks and opportunities of climate change into each investment going forward
- Require all companies in their portfolio incorporate a net-zero by 2050 target into their strategy
- Will monitor and report the portfolio's emissions alignment with its 2050 target

APG (Netherlands)

APG is a member of the Net-Zero Asset Managers Initiative and has made a commitment to a net-zero portfolio by 2050. Specifically, APG committed to work with its clients to decarbonize their portfolio, consistent with an ambition to reach net-zero emissions by 2050 or sooner across all assets under management. The organization will set interim targets and review them every five years with a view of ratchetting up the proportion of assets under management that are net-zero until all are covered.

New York State Common Retirement Fund (NYSCRF) (U.S.)

NYSCRF is a member of the Paris Aligned Investor Initiative and has made a commitment to a net-zero portfolio by 2040. The announcement includes a commitment to complete a review of its investments in the energy sector and set a minimum standard to assess transition readiness and climate-related investment risk within four years from making the net-zero commitment. Further the minimum standards will, where consistent with fiduciary duty, inform divestment decisions for companies that fail to meet the minimum standards. The organization plans to report on progress annually and will issue interim targets in the fall of 2021.

CalPERS (U.S.)

CalPERS is a member of the Net Zero Asset Owner Alliance and by association has signaled a commitment to a net-zero portfolio by 2050. No specific strategies or interim targets have yet been set and the organization has conducted a climate value at risk (CVaR) analysis on its fixed income and public equities portfolio to assess the portfolio's alignment to global temperature warming potential by 2050.

SFERS (U.S.)

SFERS has made an aspirational commitment to a net-zero portfolio by 2050. To achieve its 2050 target the plan will:

- Outline steps to integrate considerations of climate risk across asset classes and achieve net-zero emission by 2050 (including establishing interim targets every five years)

- Build on existing SFERS' climate strategies to address climate risks including Climate Transition Risk Framework for Oil & Gas and Climate Transition Risk Framework for Utilities
- Be consistent with SFERS' 3 Pillar ESG Platform, by incorporating proxy voting, shareholder engagement, and policy advocacy efforts alongside investment related actions
- Report on progress annually

New Zealand Super (New Zealand)

In 2016 New Zealand Super announced a strategy to make the investment portfolio more resilient to climate change and the transition to a lower carbon economy. One element of the strategy was to reduce carbon emissions intensity for the Fund by 20% and reduce the carbon reserves of the Fund by at least 40% by 2020. The goals were achieved in 2019 and as a result the Fund has set 2025 interim targets to:

- Reduce the Fund's carbon emissions intensity by at least 40%
- Reduce the Fund's carbon reserves exposure by at least 80%

While New Zealand Super has not publicly made a net-zero by 2050 commitment, the Fund has set 2025 interim carbon emission reduction goals that directionally align with net-zero investor initiatives.