AN **Allocator Guide** *TO*
Climate Solutions Investing

CASE STUDY

CalSTRS

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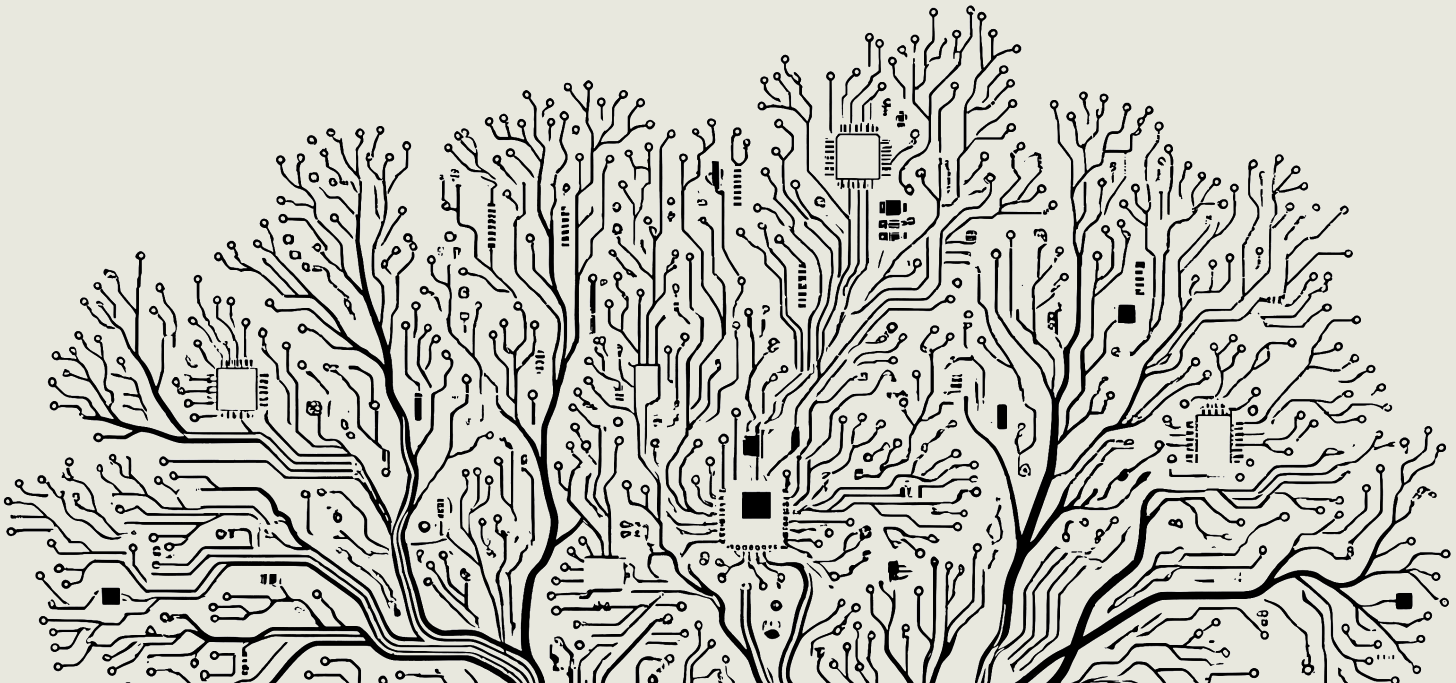

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The California State Teachers Retirement System (CalSTRS) has operationalized its net zero commitment by anchoring climate risk within a holistic investment architecture built on emissions reduction, strategic influence, and exposure to dedicated climate solutions. Central to this approach is the Sustainable Investment & Stewardship Strategies (SISS) Private Portfolio, which leverages an intent-based framework to deploy capital towards emerging mitigation, adaptation, and nature-based climate solutions across private markets.

Anchoring

CalSTRS is the largest educator-only pension fund in the world, providing benefits to over 965,000 prekindergarten through community college educators and their families. CalSTRS considers climate change a systemic and material investment risk that is fundamentally tied to its fiduciary duty of ensuring long-term retirement security for California's educators. As codified in CalSTRS' investment beliefs: *"Investment risks associated with climate change and the related economic transition—physical, policy and technology driven—materially impact the value of CalSTRS' investment portfolio."*

Consistent with this belief, CalSTRS has committed to achieving a net-zero investment portfolio by 2050 or sooner and, in order to operationalize the goal, has established an overall climate architecture built on three core pillars:

1.

Measuring and Reducing Portfolio Emissions

Different asset class teams are tasked with implementing emissions reduction strategies for investments across the entire fund. This includes allocating percentages of the various portfolios to climate solutions and focusing on measuring and reducing absolute emissions across asset classes. Additionally, private markets teams use a proprietary framework to classify GPs based on their maturity in measuring and monitoring portfolio performance, allowing CalSTRS to pragmatically benchmark GP practices.

2.

Increasing Exposure to Climate Solutions

While all asset classes are encouraged to invest in climate solutions, CalSTRS established the Sustainable Investment & Stewardship Strategies (SISS)

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Portfolio as a dedicated engine for driving capital to opportunities that address climate challenges. This specialized multi-asset-class program targets opportunities across private equity, private credit, and infrastructure. This pillar focuses on investments that meet risk-return goals while specifically targeting emerging climate solutions. SISS investments are capped at no more than 5 percent of the total CalSTRS portfolio.

3.

Using Influence to Accelerate the Net Zero Transition

CalSTRS leverages its position as a major asset owner to influence global financial markets and corporate activities. This includes: working closely with external partners to integrate net-zero considerations into the portfolio; engaging GPs on measurement and reporting practices; leveraging a dedicated risk management strategy team to survey managers and create a baseline for their net-zero integration processes; and executing approved stewardship priorities to accelerate the global transition.

The focus of this case study is CalSTRS' dedicated SISS Portfolio.

Strategy

The SISS Portfolio is structured to invest in a broad range of risk-return profiles, enabling CalSTRS to take advantage of new and emerging climate solutions across private markets. CalSTRS defines climate solutions as "technologies, services, tools, or social and behavioral changes that directly contribute to the elimination, removal, or reduction of real-economy greenhouse gas emissions or that directly support the expansion of these solutions", consistent with the Glasgow Financial Alliance for Net Zero (GFANZ).

In alignment with GFANZ's definition, as well as leading market standards including the Climate Bonds Initiative Taxonomy, the EU Taxonomy for Sustainable Activities, the MSCI Sustainable Impact metrics, and the PSP Green Bond Framework, CalSTRS has developed and identified three climate solutions sub-types:

- **Mitigation:** Solutions that directly reduce or remove emissions (e.g., renewable energy, carbon capture, and low-carbon transportation).
- **Adaptation and Resilience:** Enablers that help build and maintain capacity to withstand, adapt to, and recover from the impacts of climate change (e.g., water management, infrastructure resilience, and agricultural adaptation).
- **Conservation and Restoration:** Nature-based solutions that mitigate climate impacts (e.g., coral reefs and wetland restoration, preventing deforestation, reforestation).

While CalSTRS staff across all private markets asset classes endeavor to increase exposure to attractive climate solutions where feasible, the SISS Portfolio focuses on emerging climate solutions that may not yet fit standard asset class norms and benchmarks, such as advanced geothermal or industrial decarbonization.

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To date, the SISS Portfolio has committed over $5.6B to investments in these climate solutions. The portfolio is currently constructed across three sub-sleeves to diversify risk: private equity (31%), private credit (33%), and infrastructure (36%). These allocations include a mix of direct investments, co-investments, joint ventures, and LP commitments, to allow SISS to deliver novel investments and partnership structures. Specific examples of these investments include:

- A loan to a steel rebar manufacturer building a new electric furnace micro mill, reducing emissions by up to 90% in comparison to incumbent technologies
- An equity investment into a home electrification installation and maintenance manufacturer, focused on providing residential solar energy and battery storage
- An equity investment into a robotics company improving waste sortation and recycling, increasing landfill diversion rates by up to 80%.

The program is strategically supported by what CalSTRS refers to as the "One Fund Approach," which entails bridging gaps between investment teams and operational functions to harness all the advantages of the size and scale of CalSTRS. To support this, SISS collaborates with other portfolio teams routinely to review investment pipeline, diligence and underwriting, and partnerships. This facilitates CalSTRS' execution capabilities, enabling SISS to pursue aligned opportunities unilaterally or in partnership with other CalSTRS asset classes to scale investments that are additive to the CalSTRS Total Fund.

Diligence

CalSTRS leverages an intent-based approach to assess potential investment opportunities in the SISS Portfolio (as distinct from revenue-based thresholds aligned with established taxonomies across public markets). Investments are classified into three tiers:

- **Dedicated Climate Solutions:** Core business models focused on mitigation (GHG emissions reduction), adaptation and resilience, and nature-based solutions.
- **Ancillary Climate Benefits:** Companies that provide material transition benefits, or are actively shifting away from carbon-intensive activities.
- **Minimal / No Deliberate benefit:** Traditional investments with no specific climate-positive thesis.

As a component of CalSTRS' climate solutions diligence process, deal teams work closely alongside the internal SISS research team and partners at Rhodium Group to evaluate opportunities across three key components, leveraging the Impact Management Project's (IMP) Five Dimensions of Impact framework. The three verticals are:

- **Intent:** Evaluates whether an investment has a forward-looking strategy that supports positive outcomes; examines the degree to which this strategy is supported by specific actions, commitments, and structures; and determines whether

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the investment leverages its influence to drive solutions across the wider industry.

- **Real-world impact:** SISS leverages the Transition Acceleration Framework ("TAF"), developed by Rhodium Group, which augments SISS' primary analysis. The key TAF metric used by CalSTRS is the Technology Factor, which measures the capital efficiency of additional emissions reductions achieved by scaling a technology from its current baseline projected deployment to a higher-deployment "potential" scenario consistent with deep decarbonization. A complementary metric is Transition Potential, which measures the absolute magnitude of additional emissions reduction between the two scenarios. These metrics are supplemented by primary data collection on energy technologies, Clean Investment Monitor, and Rhodium's policy and market expertise.

  TAF includes several features that are key to understanding a deal's real-world impact: forward-looking impact analysis built on projections under both current-policy and deep-decarbonization scenarios; systemic impact analysis that models economy-wide energy system dynamics, capturing technology learning curves, supply chain maturation, and new market creation; full technology coverage, holistically assessing both clean and fossil-intensive technologies that advance or decelerate the transition; and uncertainty quantification, using many thousands of Monte Carlo simulations across key uncertainties (e.g. GDP, demographics, fossil fuel prices, cost curves) to produce probabilistic projections of technology deployment and emissions.

  TAF provides a quantitative foundation for evaluating the relative importance of the transaction to unlocking economy-wide emissions reductions and the efficiency with which capital can advance it. Technologies with a large Transition Potential and a high Technology Factor, such as enhanced geothermal, represent spaces where catalytic capital can drive transformational change. On the other hand, the incremental impact of climate-dedicated capital on mature technologies is lower, since the baseline trajectory already captures much of the net-zero-consistent deployment. TAF addresses this dynamic directly in a way that Scope 1-3 accounting and avoided emissions analysis alone do not.

- **Business practices:** Considers the effects of the investment across the full value chain; examines the transparency of the investment strategy's actions; assesses the degree to which the investment strategy leads and promotes industry best practice.

By leveraging the TAF scorecard, CalSTRS' goal is to move beyond ESG screening to an active approach to climate solutions underwriting. This ensures that every allocation in the portfolio is held to a high standard of both scientific and fiduciary integrity.

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Measurement and Monitoring

CalSTRS adopts a two-pronged approach to measuring the impacts of its climate investments: monitoring its absolute emissions exposure and measuring the scale and quality of 'positive outcomes'. The team is currently refining its framework through several channels:

- **Metric Standardization:** Recognizing the challenge in standardizing data collection for climate solutions investments across asset classes and geographies, CalSTRS is actively working to enhance its measurement practices and contribute to field-wide standardization. As part of this effort, CalSTRS tracks the absolute emissions of investments to understand how efficiently a company is decarbonizing as it grows.
- **The Rhodium Transition Acceleration Framework:** CalSTRS is beta-testing this framework to quantify the specific real-economy decarbonization impact of its private market investments, providing a more granular view of avoided emissions.
- **Systemic Stewardship & Data:** The Risk Management Strategy team deploys comprehensive annual surveys to baseline manager progress on net-zero integration. By participating in global initiatives such as the ESG Data Convergence Initiative (EDCI) and the International Sustainability Standards Board (ISSB), CalSTRS is working to solve the data gap in private markets, ensuring that the climate solutions they fund are held to rigorous reporting standards.