

Attachment 1: Draft ‘Transition Tracker’ Prototype

Concept

During the [September 2022 Investment Committee meeting](#), staff recommended, and the Investment Committee approved, the adoption of a net zero investment decision making process. As a component of this decision-making process, staff recognized the importance of developing methods to ‘track’ the speed and direction of the broader global net zero transition to inform appropriate actions and pacing. Specifically, the need to map, organize and make relevant, the multiple, disparate data points that currently exist to signal the speed and direction of the transition. Staff refer to this concept internally as a ‘Transition Tracker’.

Development

Staff conducted a comprehensive landscaping exercise to evaluate the current sources of net zero-related data and information available in the market. The exercise involved surveying investment banks, asset managers, consultants, data providers, government agencies, non-governmental organizations, and thought leaders on current net zero data sources and how these data are being applied in investment processes. Ultimately, staff evaluated more than 150 data indicators, at both the macro and micro levels, representing a combination of historical data, forecasts, and assessments.

The landscaping confirmed that no comprehensive method to track the speed and direction of the net zero transition currently exists for a large, global investor like CalSTRS. Staff therefore developed a framework to attempt to categorize and organize existing data in a way that could be meaningful for assessing climate-related investment risk:

- (1) Physical risk indicators (temperature change, extreme weather events),
- (2) Transition: Policy-related risk indicators (country and regional based climate commitments),
- (3) Transition: Technology-related risk indicators (levelized costs of energy, electric vehicle penetration),
- (4) Emissions risk indicators (increases and reductions in global emissions).

Staff believes that the Tracker’s format and content will benefit from being consistent with other high-level/macro risk assessments currently utilized in the Investment Branch. Staff has therefore developed a ‘prototype’ that is modeled on existing economic indicator ‘heat maps’.

Initial Content

For each of the four data categories staff has:

- Assigned two or three ‘trial’ indicators that best illustrate the level of net zero-related progress within the category,

- Presented a four-year lookback to help gauge the scale and speed of transition,
- Provided a qualitative assessment of progress and trajectory for each category: (1) Green: strong momentum, (2) Yellow: limited progress, (3) Red: off course,
- Included hyperlinks to each data indicator as reference points.

Prototype of Transition Tracker

CalSTRS Transition Tracker					
Physical Risk Indicators					
	2019	2020	2021	2022	Signal
Global Surface Temperature (versus 20th century average temp) ⁽¹⁾	0.97°C	1.01°C	0.86°C	0.91°C	
Globally insured losses from natural disasters (in 2022 \$ billions) ⁽²⁾	\$ 89	\$ 120	\$ 146	\$ 132	
Status					↓
(1) Global Time Series Climate at a Glance National Centers for Environmental Information (NCEI) (noaa.gov) (2) 2023 Weather, Climate and Catastrophe Insight (aon.com)					
Transition Risk - Policy Indicators					
	2019	2020	2021	2022	Signal
Share of global GHG covered by national net zero pledges ⁽³⁾	18%	58%	74%	na	
2100 Warming Projections - Policies and Action ⁽⁴⁾	3.00°C	2.90°C	2.90°C	2.75°C	
Status					↔
(3) Net Zero by 2050 - A Roadmap for the Global Energy Sector (windows.net) (4) Temperatures Climate Action Tracker					
Transition Risk - Technology Indicators					
	2019	2020	2021	2022	Signal
Global solar electricity generation (TWh) ⁽⁵⁾	704	846	1,033	na	
Global wind electricity generation (TWh) ⁽⁵⁾	1,421	1,596	1,862	na	
Global passenger EV sales (millions) ⁽⁶⁾	2.1	3.2	6.6	10.7	
Status					↑
(5) Statistical Review of World Energy Energy economics Home (bp.com) (6) BloombergNEF (bnef.com)					
Emissions Indicators					
	2019	2020	2021	2022	Signal
Global GHG emissions (gigatonnes CO ₂ e) ⁽⁷⁾	59.1	55.8	59.6	60.4	
MSCI ACWI IMI Scope 1 emissions (gigatonnes CO ₂ e) ⁽⁷⁾	11.4	10.1	10.8	10.9	
MSCI ACWI IMI companies with a net zero target ⁽⁷⁾	2,154	2,730	2,897	3,152	
Status					↔
(7) MSCI Net-Zero Tracker October 2022					
Color Key			Strong Momentum ↑	Limited Progress ↔	Off Course ↓

Next Steps

As net zero-related data evolves and becomes more tailored to the investment industry, future iterations of the Tracker could contain different and/or additional data points that help staff assess progress around each of the four initial categories. It could also incorporate data indicators that are updated more frequently (e.g. quarterly or monthly) to provide more of a real time window into transition evolution.

The prototype is by no means comprehensive or complete, it is a merely strawman for extensive follow-up discussion, testing and refinement. Most importantly, staff hopes to be able to assess how such information could be used and improved by the Investment Branch, our external partners and the Investment Committee in effectively implementing CalSTRS net zero strategies.