



# MANAGING CLIMATE CHANGE RISKS

UC Investments, 2022

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## I. Executive Summary

This annual climate risk report integrates UC Investments' climate-related strategies, metrics, and targets. Like our inaugural report in 2021, it is aligned with the Financial Stability Board's Task Force on Climate-Related Financial Disclosure (TCFD). We have undertaken this reporting in the spirit of learning and with the hope it helps advance the institutional investment community's efforts to address the risks of climate change.

Since our 2021 report, UC Investments has continued to manage the risks to our portfolio stemming from climate change. Of note:

- **Defined Contribution Plan** UC Investments removed companies that own fossil fuel reserves from the line-up of funds offered in the UC Retirement Savings Program (UCRSP). Removing fossil fuel companies from the UCRSP was the final step in the journey that UC Investments started in 2015 when we sold holdings in companies whose primary business was in thermal coal and oil sand extraction. Starting on June 30, 2022, we sold existing holdings from the RSP core funds and will no longer invest in fossil fuel reserve owning companies.<sup>1</sup>
- **Private Markets** To get access to comprehensive, high-quality climate change data and metrics for our real estate and infrastructure portfolios, UC Investments joined the Global Real Estate Standards Board (GRESB).<sup>2</sup> In 2023, we will quantify climate change risk data associated with these private market asset classes for the first time.
- **Asset Stewardship** We engaged in sustained dialogue with the leadership of 508 companies around the world to advocate for stronger management of climate change related risks facing their companies.

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<sup>1</sup>Participants who are invested in the RSP core funds will no longer hold fossil fuel names as of July 1, 2022. Excludes two funds managed by Fidelity that hold some fossil fuel reserve owning companies - UC Growth Company Fund and UC Diversified International Fund. In addition, plan participants still have access to over 10,000 mutual funds and ETFs including unscreened low-cost index or sector-specific funds through Fidelity Brokeragelink®. For more information, see: <https://www.myucretirement.com/Resource/2312>

<sup>2</sup> "GRESB is a mission-driven and industry-led organization that provides actionable and transparent environmental, social and governance (ESG) data to financial markets. We collect, validate, score, and independently benchmark ESG data to provide business intelligence, engagement tools, and regulatory reporting solutions for investors, asset managers, and the wider industry." For more information, see <https://www.gresb.com/nl-en/about-us/>

## II. Introduction

The Office of the Chief Investment Officer of the Regents of the University of California (UC Investments) manages the pension, endowment, retirement savings, and working capital of the University of California (UC). We think of ourselves as an organization that invests for the next 100 years by seeking the best long-term return on investments for our university and its stakeholders. When we make investment decisions, our centennial orientation and fiduciary duty lead us to actively consider the fundamental challenges and risks facing society, including climate change.<sup>3</sup>

The University of California is a leader in sustainability. UC's ambitious climate change goals include a systemwide commitment to carbon neutrality by 2025. Our pioneering faculty and researchers advance knowledge of climate change science and solutions and our dedicated staff integrate climate change considerations into the operations of our 10 campuses, six academic medical centers, extensive network of agricultural and natural resource centers and the Lawrence Berkeley National Laboratory. The University of California supports the Paris Agreement.<sup>4</sup>

UC Investments manages several distinct portfolios, including the defined benefit UC Retirement Plan (UCRP), the defined contribution UC Retirement Savings Program (UCRSP), the General Endowment Pool (GEP) and working capital. As of July 29, 2022, the total value of assets across these funds stood at approximately \$158.4 billion, with 80% invested in public markets and the remaining 20% in private markets.<sup>5</sup> Of the public market assets, roughly 79% were managed through passive indexes, with the remaining 21% in actively managed accounts.

UC Investments began our climate change journey in 2014, the same year we joined the UN Principles for Responsible Investment (UNPRI). In 2016, as a signatory to the PRI's Montreal Carbon Pledge, we began publicly reporting the carbon footprint of the public equities portion of the pension and endowment. We also signed onto the Financial Stability Board's Task Force on Climate-Related Financial Disclosure (TCFD) because robust and consistent corporate and asset

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<sup>3</sup> For more information on UC Investments, see:

[https://www.ucop.edu/investment-office/210924\\_ucannualreport2021\\_digital.pdf](https://www.ucop.edu/investment-office/210924_ucannualreport2021_digital.pdf)

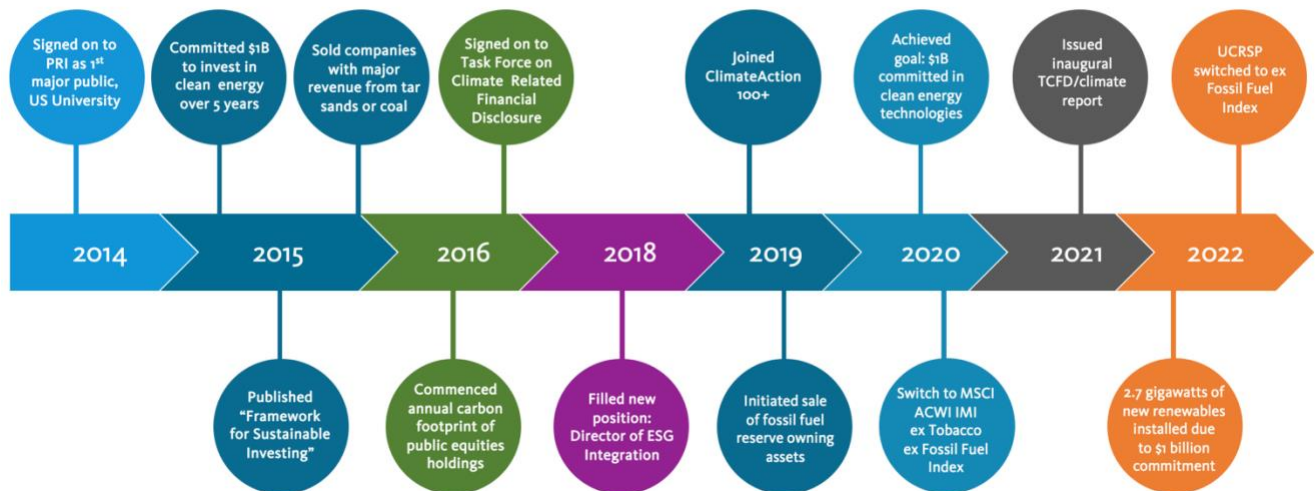
<sup>4</sup> See: <https://www.universityofcalifornia.edu/press-room/uc-president-drake-lauds-us-return-paris-agreement> One of the goals of the Paris Agreement is holding the increase in the global average temperature to well below 2°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.

<sup>5</sup> Unless otherwise noted, all data on UC Investments' holdings are as of July 29, 2022.

owner disclosure of climate-related financial risks and opportunities can lead to more informed investment decisions.

**CHART 1**

## Climate Change Journey



### III. The Task Force on Climate Related Financial Disclosures

Following the 2015 Paris Agreement, the Financial Stability Board, an international body that monitors and makes recommendations about the global financial system, developed a framework of consistent climate-related financial disclosures for corporations and investors. The recommendations report, released in 2017, focused disclosures on four areas:

1. **Governance:** An organization's governance around climate-related risks and opportunities.
2. **Strategy:** The actual and potential impacts of climate-related risks and opportunities on an organization's businesses, strategy, and financial planning.
3. **Risk management:** The processes used to identify, assess, and manage climate-related risks.

4. **Metrics and targets:** The metrics and targets used to assess and manage relevant climate-related risks and opportunities.<sup>6</sup>

In addition to the above recommendations, supplemental guidance requirements apply to asset owners such as UC Investments.

## IV. Governance

The Board of Regents of the University of California oversees UC Investments' strategy on climate change and UC's chief investment officer (CIO) develops and implements that strategy.

The Board of Regents, pursuant to the California Constitution, has "full powers of organization and governance" subject only to very specific areas of legislative control.<sup>7</sup> The board defines the goals and objectives of UC's investment funds, and is responsible for establishing and approving changes to each fund's investment policy statements. Further, "[t]he Board of Regents may delegate the implementation of this policy to committees, the Chief Investment Officer and investment advisors."<sup>8</sup> The Investments Committee is tasked with "provid[ing] strategic direction and oversight, mak[ing] recommendations to the Board, and tak[ing] action pursuant to delegated authority on matters pertaining to University investment strategy and operations and pertaining to the review and reporting of investment results."<sup>9</sup>

Specifically related to climate and sustainability risks and opportunities, the board charges UC Investments with the following responsibilities:

The Office of the Chief Investment Officer shall incorporate environmental sustainability, social responsibility, and governance (ESG) into the investment evaluation process as part of its overall risk assessment in its investments decision making. ESG factors are

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<sup>6</sup> TCFD, "Recommendations of the Task Force on Climate-related Financial Disclosures" (2017). Available at: <https://www.fsb-tcf.org/publications/>. For updated and expanded implementation guidance, see: TCFD, "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures" (2021). Available at: <https://www.fsb-tcf.org/publications/#implementing-guidance>

<sup>7</sup> California Constitution, Article 9. Available at: <https://policy.ucop.edu/delegations-of-authority/california-constitution-article-9-education.html>.

<sup>8</sup> UC Board of Regents, "University of California Retirement Plan Investment Policy Statement" (2020). Available at: <https://regents.universityofcalifornia.edu/policies/6101.pdf>.

<sup>9</sup> UC Board of Regents (2019). "Appendix F – Charter of the Investments Committee." Available at: <https://regents.universityofcalifornia.edu/governance/committee%20charters/appendix-f.html>.

considered with the same weight as other material risk factors influencing investment decision making.<sup>10</sup>

The CIO, who reports to the Board of Regents, is responsible for integrating climate risk into the investment process. To implement this charge, the CIO's team, including the chief operating officer, the director of ESG integration, the chief risk officer, and the investments team, analyze and incorporate climate-related data into investment decisions. Both the CIO and COO have a portion of their compensation linked to the entity's performance on ESG integration.

## **V. Strategy**

Since 2015, with the publication of our Framework for Sustainable Investing,<sup>11</sup> UC Investments has proactively addressed ESG-related risks, including climate-related risks, within our investment practices. The framework identified eight ESG factors most relevant to UC Investments' work, including climate change, food and water security, and a circular economy.<sup>12</sup>

From there, UC Investments developed a climate change strategy in which we manage climate-related risks to our investment portfolio; invest in transformational climate solutions; engage with portfolio companies to address climate-related risks; and refine our strategy based on evolving data. This strategy applies broadly to all our assets under management, with some UCRSP-related exceptions, since, as a defined contribution plan, asset allocation and investment decisions ultimately rest with individual plan participants.<sup>13</sup>

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<sup>10</sup> UC Board of Regents, "University of California Retirement Plan: Investment Policy Statement," July 1, 2020. Available at: [6101.pdf \(universityofcalifornia.edu\)](#)

<sup>11</sup> UC Investments, "Framework for Sustainable Investing," (2015). Available at: [sustainable-investment-framework.pdf \(ucop.edu\)](#)

<sup>12</sup> The framework's other ESG factors (inequality, aging population, diversity, and human rights) can all be exacerbated by climate-related challenges in ways that are financially material.

<sup>13</sup> Unlike the pension and endowment, participants are outright owners of the accumulated assets within their individual UCRSP accounts. UC Investments' responsibility is to curate an investment lineup that allows participants to build a cost effective and diversified portfolio.

## CHART 2

# Climate Strategy



We discuss managing risk and engaging as a shareholder in section VI and we discuss refining our approach in section VII. But first we turn to the element of our strategy that identifies and pursues investment opportunities in climate change solutions.

UC Investments believes that the transition to a low carbon economy creates compelling investment opportunities; in 2015, we set a goal of investing \$1 billion in climate change solutions over five years. This commitment is in addition to our investments in climate tech products and services created by publicly owned companies. We believe that private market investments – whether through venture capital, growth equity, infrastructure, or related fund vehicles – have provided more efficient and profitable opportunities to advance sustainable growth than have publicly owned companies. In 2020, we surpassed our \$1 billion investment goal through capital commitments that have generated strong returns, contributed to a lower carbon electric grid, and accelerated new technologies.

Cumulatively, UC’s private markets capital commitments to clean energy projects have led to the acquisition or development of more than 2.7 gigawatts of wind, solar and battery storage projects in the U.S., Canada, Ireland, India, and Japan. The majority of these clean gigawatts were developed through investments in utility-scale renewables platforms, as well as an aggregator strategy to own and operate commercial and industrial solar opportunities.



Our investments have also accelerated the scaling of new technologies that can mitigate climate change. For example, UC Investments has committed more than \$175 million to two climate tech venture capital teams, Congruent Ventures<sup>14</sup> and the MIT Engine Fund.<sup>15</sup> From electric vehicle fleet charging software to solar finance tools, to superconducting electric transmission lines, Congruent’s portfolio companies are enabling and accelerating the transition to a clean, resilient energy system. The Engine Fund invests long-term capital in startups to “help bridge the gap between discovery and commercialization for the most promising teams and breakthrough inventions– so they don’t get stuck inside a lab.”<sup>16</sup> Its portfolio companies include those focused on decarbonizing the manufacturing processes for carbon-intensive industrial materials, such as cement and steel.

## VI. Risk Management

The TCFD broadly categorizes climate-related financial risks as either transition risks (those stemming from the transition to a lower-carbon economy) or physical risks (those stemming from the physical impacts of climate change).<sup>17</sup> UC Investments manages climate change risks throughout our investment process, as shown in Chart 3 and described more fully below.

**CHART 3**

### Climate Change in Investment Process



<sup>14</sup> See, <https://congruentvc.com/>

<sup>15</sup> See, <https://engine.xyz/about/our-mission>

<sup>16</sup> *Id.*

<sup>17</sup> TCFD, “Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures,” at 9 (2021). Available at: <https://www.fsb-tcf.org/publications/#implementation-guidance>. For specific examples of transition and physical risks, please see Appendix A.

## Negative Screening

UC Investments considers stranded asset risk as a key climate change transition risk. To mitigate this risk to our portfolio, UC Investments sold its assets related to coal and oil sands in 2015. In 2019, UC Investments announced it would sell its shares in companies held in our endowment and pension plan that owned any amount of “proved and probable” fossil fuel (defined as thermal coal, oil, and/or gas) reserves. In 2020, we expanded this commitment to cover working capital assets as well. In 2022, the University of California decided to remove all companies that own fossil fuel reserves from the UCRSP fund offering. On June 30, 2022, we initiated the process of selling existing holdings from UCRSP core funds and will no longer invest in fossil fuel companies.<sup>18</sup>

To achieve our fossil fuel exclusion goal, UC Investments uses negative screening across all asset classes. Our largest asset class, public equities, tracks the MSCI All-Country World Index (ACWI) Investable Market Index (IMI) ex Tobacco ex Fossil Fuel Index, which excludes approximately 300 fossil fuel reserve owning companies.<sup>19</sup> We also exclude these roughly 300 companies from our investments in corporate debt. To the extent that fossil fuel reserve owning companies are held in commingled public equity accounts, UC Investments continues to reduce exposure by, for example, converting such accounts into separately managed accounts that exclude fossil fuel reserve owning companies. For investments in private equity, private credit, real assets, and real estate (which account for 20% of our AUM), we screen fossil fuel reserve owning assets on a going forward basis, using a bespoke process that synthesizes relevant data on portfolio companies.

Negative screening of fossil fuel reserves can be effective in managing climate-related transition risks. As discussed in Section VII below, exclusion of fossil fuel reserve owning assets has reduced the carbon footprint of our portfolio. With a lower carbon footprint, UC Investments’ portfolio is better positioned to manage the transition to a low carbon economy.

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<sup>18</sup> For more information, see: <https://www.myucretirement.com/Resource/2312>

<sup>19</sup> For more information, see: <https://www.msci.com/our-solutions/indexes/index-categories/esg-indexes/global-fossil-fuels-exclusion-indexes>.

## **Manager Selection**

In addition to excluding investments in fossil fuel reserve owning assets, we seek to integrate climate change risk – both transition and physical – into our active manager selection and monitoring processes.<sup>20</sup> Depending on a manager’s strategy, climate change transition and/or physical risks may be material; during our due diligence process, we evaluate the manager’s climate risk and risk mitigation strategy, using quantitative and qualitative measures.<sup>21</sup>

## **Shareholder Engagement**

Given that most of our portfolio is invested in public equities and corporate fixed income, investment stewardship – voting our proxies and engaging directly with publicly listed companies on material ESG topics – is a core element of our climate-related risk management approach. Through proxy voting and shareholder engagement, we encourage the companies we invest in to monitor, assess, disclose, and mitigate their climate risks to help create long-term value.

UC Investments’ proxy voting guidelines pay particular attention to climate change related risks and opportunities, as shown in Chart 4.<sup>22</sup>

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<sup>20</sup> UC Investments does not manage investments directly; rather, we select external managers to do so.

<sup>21</sup> To inform our integration of climate risk analysis into manager selection processes, UC Investments incorporates data, data analytics, materiality frameworks and other decision support tools from third party providers, including for example, MSCI, the Sustainable Accounting Standards Board (SASB) and the CDP.

<sup>22</sup> “UC Investments Proxy Voting Guidelines.” Available at: <https://www.ucop.edu/investment-office/sustainable-investment/active-ownership/custom-proxy-guidelines.pdf>.

## CHART 4

# Proxy Voting to Address Climate Change Risks

We generally vote our proxy in support of shareholder proposals that:



Seek information on a company's climate related financial, physical, or regulatory risks & on how it identifies, measures and manages such risks;



Call for the reduction of GHG emissions or adoption of GHG goals;



Seek disclosure of research that informed company policies around climate change; or



Request reports on GHG emissions from companies' operations and/or products

In the 2021-2022 proxy season, UC Investments voted on climate-related shareholder proposals as shown in Chart 5.

## CHART 5

# Proxy Voting on Climate-Related Shareholder Resolutions

Climate Theme	For	Against
Lobbying	6	0
Capital Expenditure	6	0
Exploration/Use of Coal, Oil, Gas, Nuclear	1	10
Report/Scenario Analysis	3	0
Retirement Plans	2	0
Financing/Underwriting	17	0
Emission Targets	37	0
Low Carbon Transition	21	0
Renewable Energy	1	2
Misc.	3	0
<b>Total climate-related votes</b>	<b>99</b>	<b>12</b>

Data provided by ISS for the 2021-2022 proxy season.

In addition to exercising our proxy votes, UC Investments is a member of several coalitions focused on climate-related investment risks, such as Climate Action 100+, an investor-led effort that seeks to persuade high emitting companies to transition to net zero emissions.<sup>23</sup> To bolster our influence and expand our reach, we retain a responsible engagement overlay (“reo”) consulting service that engages directly with corporate leadership on our behalf.<sup>24</sup> In collaboration with other large institutional investors, we identify companies for which climate change poses significant material risks and then enter into a sustained dialogue with their leadership to advance our recommended climate risk management strategies, as summarized in Chart 6.

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<sup>23</sup> See, <https://www.climateaction100.org/>. In addition, UC Investments leverages its work on climate through the FAIRR Initiative, which assesses the physical and transition related climate risks to the food sector (see, <https://www.fairr.org/>) and the PRI, which provides resources to learn about and act on climate change’s impacts to investment portfolios (see, <https://www.unpri.org/>).

<sup>24</sup> See, <https://www.columbiathreadneedle.co.uk/en/inst/about-us/responsible-investment/#Active-ownership>. Working through our engagement consultant, UC Investments is part of a coalition with roughly \$1.16 trillion worth of combined assets.

**CHART 6**

# Engagement to Address Climate Change Risks

We encourage our investee companies to adopt climate change strategies that include:

-  A plan to cut emissions to net zero by 2050 at the latest, with interim targets;
-  A credible strategy to implement the net zero target, including alignment of capital expenditures;
-  A strong governance framework to oversee climate strategy;
-  Risk analysis and disclosure in line with the TCFD; and
-  Lobbying and public policy practices consistent with this approach.

Our 2021-2022 climate change related engagements are summarized below in Charts 7-9.

## CHART 7

### Shareholder Engagement by Sector

Sector	Number of Companies Engaged	Number of engagements
Communication Services	2	2
Consumer Discretionary	53	87
Consumer Staples	41	55
Energy	54	124
Financials	68	127
Health Care	54	75
Industrials	73	151
Information Technology	54	69
Materials	66	129
Real Estate	23	35
Utilities	20	35
<b>Total</b>	<b>508</b>	<b>889</b>

Information provided by Columbia Threadneedle for the period July 1, 2021-June 30, 2022.

## CHART 8


### Shareholder Engagement by Theme

Climate Change Sub-themes	Percentage
Net zero strategy	25%
Emissions Management	22%
Disclosure and Transparency	15%
Energy Transition	14%
Resilience and Adaptation	9%
Climate Finance	5%
Climate Change Other	4%
Just Transition	3%
Climate Change Lobbying	2%
<b>Total</b>	<b>100%</b>

Information provided by Columbia Threadneedle for the period July 1, 2021-June 30, 2022.

## CHART 9

# Getting Results by Engaging on Climate Change



**Volkswagen:**

In the past year, UC continued its sustained shareholder advocacy with Volkswagen, through the responsible engagement overlay service. UC Investments is the lead investor on behalf of the Climate Action 100+. In this multi-year engagement, we have communicated regularly with Volkswagen's board and executive leadership, regarding the material risks the company faces from the global transition to a low-carbon economy. Partly as a result of our efforts, Volkswagen set new scope 1 and 2 emissions reduction targets, which will result in reducing emissions from its own production facilities by 50% by 2030. These targets are deemed by the Science Based Targets initiative to be aligned with 1.5 degrees Celsius of global warming.

Information provided by Columbia Threadneedle for the period July 1, 2021-June 30, 2022.

## VII. Refining our Approach: Metrics

We refine our climate change strategy and risk management actions over time, informed by three main sources of information: UC staff, faculty, and students focused on addressing climate change, our engagement with other investors and stakeholders through peer networks and collaborative initiatives, and our metrics and targets.

In calculating the data for Charts 10-14 below, we rely on reports, prepared by MSCI, that analyze UC Investments' public equities and fixed income holdings.<sup>25</sup> A few methodological points:

<sup>25</sup> Certain information © 2022. MSCI ESG Research LLC. Reproduced by permission. Although UC Investments' information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the "ESG Parties"), obtain information (the "Information") from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for informational purposes, may not be reproduced or re-disseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Further, none of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.



- Compared to our inaugural climate risk report, the holdings data that forms the basis of the 2022 report is more granular and transparent. Specifically, the 2022 holdings data provides visibility into the corporate debt and public equities in commingled assets, whereas the 2021 holdings data did not.
- Data for UC Investments' 2022 portfolio holdings is as of July 29, 2022, as opposed to the 2021 holdings data, which is June 30, 2021. We chose this date to allow for the sale, which commenced on July 1, 2022, of roughly \$1 billion worth of fossil fuel reserve owning companies from the UCRSP.
- We include Scope 1 and 2 – but not Scope 3 – emissions data, due to the lack of reliable, verifiable and/or standardized data for Scope 3 emissions.<sup>26</sup>
- Due to limited climate change data on private asset classes, Charts 10-14 cover UC's public equities (and in one case corporate debt as well) portfolio only.<sup>27</sup>
- MSCI's calculations for Charts 10-14 are based on available data for approximately 99% of UC's public equities portfolio (excluding cash).

### **Metrics: Low Carbon Transition Risk**

The term "low carbon transition" refers to the global economy's shift to low or no greenhouse gas emitting sources of energy. This transition poses risks to – and opportunities for – companies due to regulatory, technological and market forces.<sup>28</sup> On the one hand, companies that create low carbon products and services – such as electric vehicles and renewable energy – could "benefit" from the transition to a low carbon economy. On the other hand, most companies face varying types and degrees of risk. The chart below quantifies the cost to our \$82.4 billion public equities portfolio from low carbon transition risk – 9.7%, or roughly \$8 billion.<sup>29</sup>

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<sup>26</sup> Scope 1 emissions are direct emissions of greenhouse gases, such as direct combustion of fuel from owned or controlled sources of a company. Scope 2 emissions are indirect emissions of greenhouse gases from the generation of purchased energy. Scope 3 emissions are all indirect emissions of greenhouse gases (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

<sup>27</sup> In 2022, UC Investments joined GRESB. We expect to use GRESB's data to assist us with a carbon footprint of our real estate and real assets portfolios in the year ahead. For more information, see: <https://www.gresb.com/nl-en/about-us/>

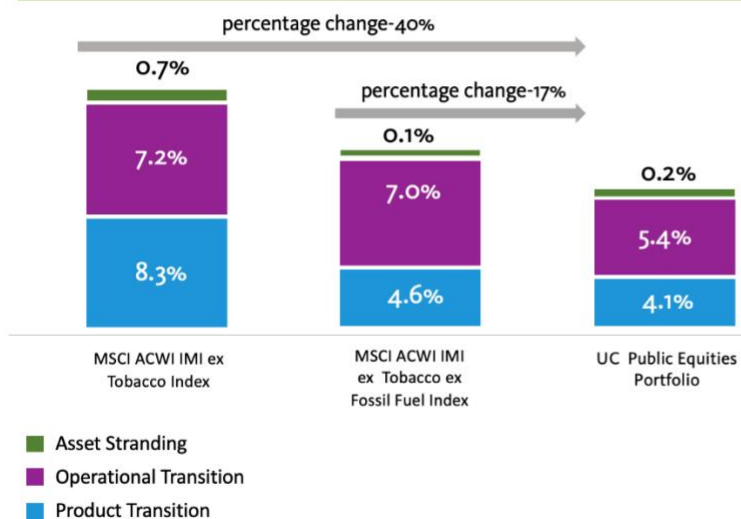
<sup>28</sup> For more information on low carbon transition risks, see Appendix A.

<sup>29</sup> Because this is our first year of incorporating the Exposure to Low Carbon Transition Risk data into this report, Chart 10 does not contain prior year's data.

## CHART 10

### Exposure to Low Carbon Transition Risk

Market value of public equity portfolio's exposure to low carbon transition risk



Source: MSCI, 2022

#### Transition Risk Categories

#### Operational Transition

Companies with increased operation and/or capital cost due to carbon taxes and/or investment in carbon emission mitigation measures leading to lower profitability of the companies. Examples include fossil fuel-based power generation, cement, steel etc.

#### Product Transition

Companies that face reduced demand for carbon-intensive products and services. Leaders and laggards are defined by the ability to shift product portfolio to low-carbon products. Examples include Oil & gas exploration & production; gasoline-based automobile manufacturers, thermal power plant turbine manufacturers etc.

#### Asset Stranding

Potential to experience "stranding" of physical/natural assets due to regulatory, market or technological forces arising from low-carbon transition. Examples include coal mining & coal-based power generation; oil sands exploration/production.

As Chart 10 indicates, the value of low carbon transition risk to our public equities portfolio is 40% less than that of the MSCI ACWI IMI ex Tobacco Index, primarily due to our decision to follow the MSCI ACWI IMI ex Tobacco ex Fossil Fuel Index.<sup>30</sup>

Chart 10 also shows that the value of UC Investments' low carbon transition risk is 17% less than that of the MSCI ACWI IMI ex Tobacco ex Fossil Fuel Index, primarily due to active management by our public equity managers. To reduce the low carbon transition risk to our passively managed public equities portfolio, UC Investments actively engages with corporate leadership, as described above in section VI.

Chart 11 below quantifies the potential future emissions from the stranded fossil fuel reserve assets in our public equities portfolio. The potential future carbon dioxide equivalent (CO<sub>2</sub>e) emissions<sup>31</sup> from fossil fuel reserves in UC's public

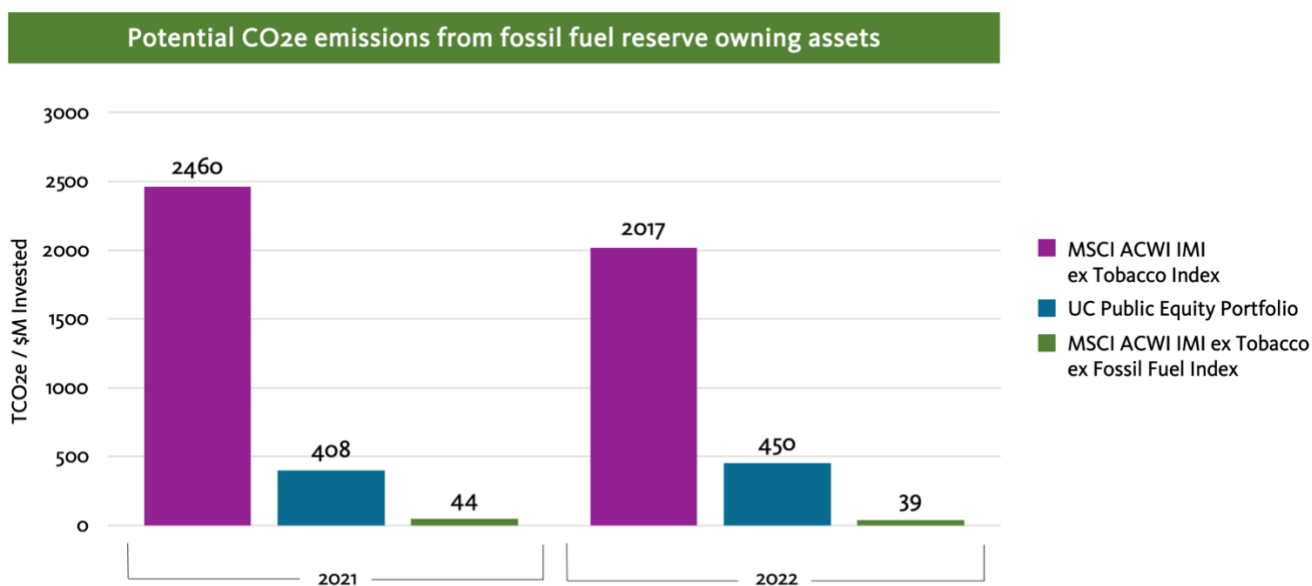
<sup>30</sup> These two indices contain the same roughly 9,000 securities, except that the latter excludes fossil fuel reserve owning companies. UC Investments tracked the former Index until July 2020, when we began tracking the ex-Fossil Fuel Index.

<sup>31</sup> Carbon dioxide equivalent (CO<sub>2</sub>e) is a catch-all term that includes emissions of all seven greenhouse gases, not just carbon dioxide. Each greenhouse gas has a different global warming potential (GWP); CO<sub>2</sub>e normalizes the values by converting them all to the GWP of CO<sub>2</sub>.

equities portfolio are 78% lower than those of a portfolio that tracks the MSCI ACWI IMI ex Tobacco Index.<sup>32</sup> However, since 2021, UC’s potential future CO<sub>2</sub>e emissions from fossil fuel reserves have increased by 9%. This is due to our use – in 2022 but not 2021 - of holdings data that provide visibility into commingled accounts, some of which contain fossil fuel reserve owning companies.<sup>33</sup>

**CHART 11**

## Potential Emissions from Fossil Fuel Reserves



2022 data as of July 29, 2022  
Source: MSCI, 2021 & 2022

### Metrics: Carbon Footprints

The carbon emissions footprint of an investment portfolio, broadly speaking, measures the greenhouse gas emissions stemming from the portfolio companies. Below are three different carbon footprints of the publicly valued assets in our

<sup>32</sup> Although the MSCI ACWI IMI ex Tobacco ex Fossil Fuel Index screens out fossil fuel reserve owning assets, there are some fossil fuel reserves in the index, as Chart 11 indicates. MSCI explains this as follows: “[the] ex Fossil Fuel index does not exclude metallurgical coal reserve ownership and companies with fossil fuel reserves used for other applications such as industrial application (e.g., companies classified in the Steel, Diversified Chemicals or Commodity Chemicals sub-industries) are not excluded from the MSCI Global Fossil Fuels.” Personal email communication, 10/20/21.

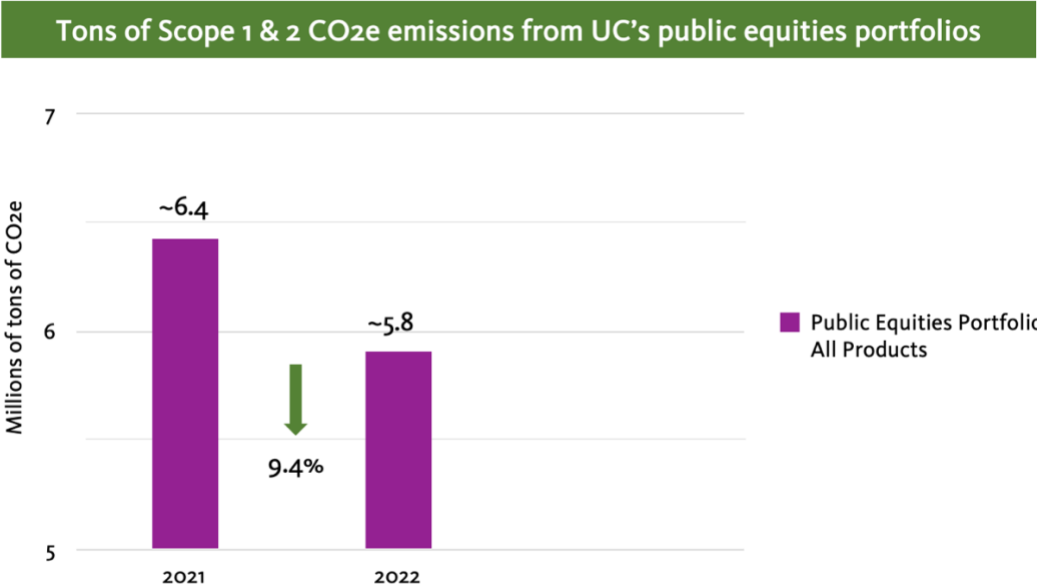
<sup>33</sup> “Commingled accounts” combine investments from multiple sources into one fund over which the fund’s investors have no discretion.

portfolio. One shows the absolute emissions of CO<sub>2</sub>e in tons – essentially the climate impact of UC’s public equity portfolios; the next shows emissions of CO<sub>2</sub>e per million dollars invested – essentially the climate impact of UC’s public equity portfolios normalized by the millions of dollars invested; and the third footprint shows the weighted average carbon intensity of UC’s public equity and corporate debt portfolios – or UC’s exposure to carbon intensive companies.

As shown in Chart 12 below, the tons of greenhouse gases emitted from the companies in UC Investments’ public equities portfolio decreased by 9.4% from 2021 to roughly 5.8 million tons in 2022.

**CHART 12**

# Carbon Footprint: Absolute Emissions

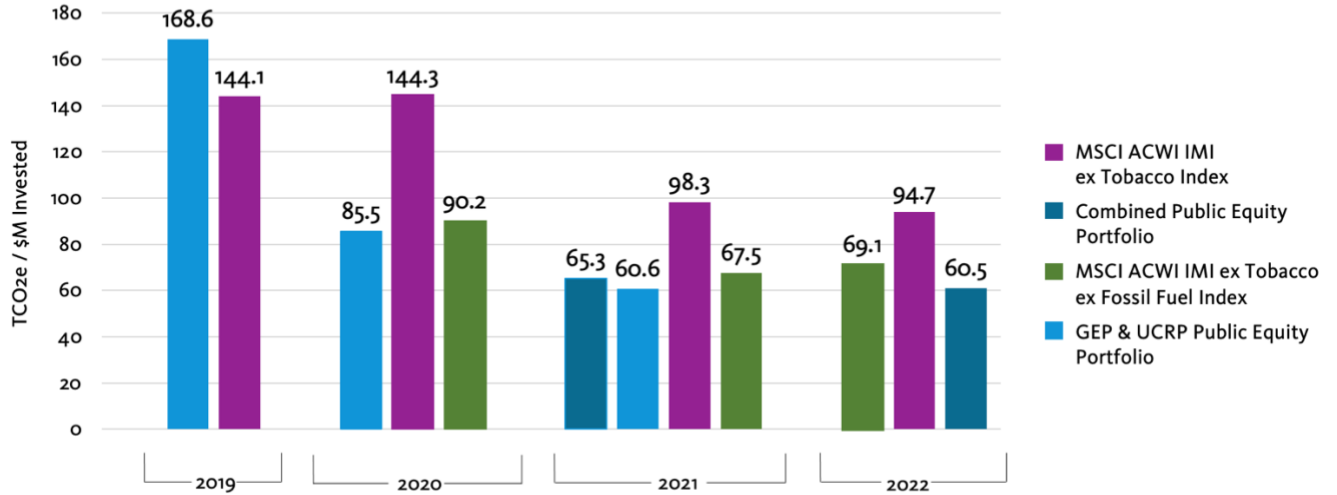


To compare the carbon footprints of portfolios of different dollar amounts, asset owners use a standardized metric: tons of CO<sub>2</sub>e per million dollars invested. UC Investments has reduced its carbon emissions rate by 7.4% (from 65.3 to 60.5) since 2021 due to our sale of fossil fuel reserve owning assets in the UCRSP, as can be seen in Chart 13 below. Moreover, our portfolio’s carbon emissions rate is 10% less than that of our benchmark index (60.5 vs. 69.1) due to our choice of managers in the “actively managed” portion of our public equities portfolio (few of which have exposure to high CO<sub>2</sub>e emitting sectors).

**CHART 13**

## Carbon Footprint: Emissions Rate

Scope 1 + 2 CO<sub>2</sub>e emissions rate of UC's public equities portfolios



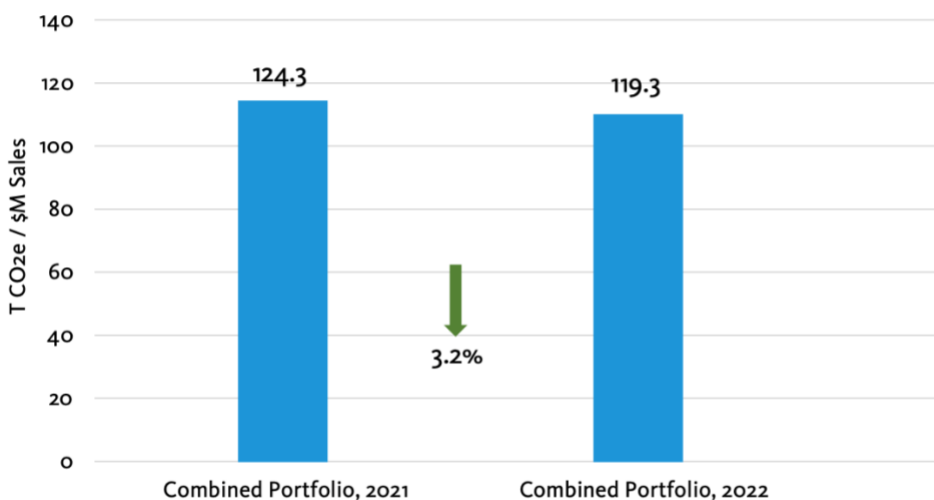
UC Investments' holdings as of 6/30/2019, 6/30/2020, 6/30/2021 and 7/29/22.  
 Source: MSCI 2021, 2022

The weighted average carbon intensity (WACI) measures a portfolio's exposure to carbon-intensive companies as determined by the portfolio companies' carbon intensities (normalized over sales) and portfolio weights. This methodology enables the WACI footprint to include corporate fixed income as well as public equities. Chart 14 below shows that the weighted average carbon intensity of our combined public markets portfolios decreased by 3.2% from 2021 to 2022.

## CHART 14

# Weighted Average Carbon Intensity

Scope 1 + 2 CO<sub>2</sub>e emissions intensity from public equities and corporate bonds



Weighted Average Carbon Intensity measures a portfolio's exposure to carbon-intensive companies by dividing the companies' greenhouse gas emissions into their sales (using portfolio weights of public equity and corporate debt). Combined Portfolio includes GEP, UCRP, UCRSP and Working Capital. UC Investments' holdings as of 7/1/2021 and 7/29/22.

Source: MSCI, 2021 & 2022

## Metrics: Dollars Invested in Fossil Fuel Reserve Owning Assets

Through negative screening and sales of assets, the endowment, pension and working capital portfolios contain *de minimis* exposure to fossil fuel reserve owning assets. UC Investments continues to reduce exposure to fossil fuel reserves in both public and private markets investments by, for example, selling legacy investments and converting commingled public equity accounts into separately managed accounts that track the MSCI ACWI IMI ex Tobacco ex Fossil Fuel Index.

## Targets

As discussed above in section V., UC Investments set a target in 2015 to invest \$1 billion in transformational solutions to climate change over the course of five years, a target we met in 2020.

## Looking Ahead

UC Investments continues to explore the use of additional metrics and targets to manage climate risk throughout the investment process. With GRESB data on our real estate and real assets portfolios, we will be able to quantify their climate

change risk in 2023. We will continue to explore climate risk data availability for private equity and private credit assets. We anticipate updating and bolstering our proxy voting guidelines to encourage the companies we own to identify and manage their climate risk.

We are considering climate scenario analysis techniques to assess whether and how to incorporate the results of such analyses as formal metrics that would inform both investment decisions and portfolio monitoring. Various tools available on the market enable investors to test their portfolios' exposures against potential future climate scenarios and quantify the present-day costs of both transition and physical risks under those future scenarios.<sup>34</sup>

## **VIII. Conclusion**

UC Investments is committed to taking a leading approach to addressing climate change in our investment portfolio, and we hope our climate report will serve as the basis for robust dialogue, learning, and continued improvement.

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<sup>34</sup> MSCI's Climate Value at Risk tool is one such product. "The premise of Climate VaR is to model costs related to specific climate risks towards the end of the century and with the help of a discounting approach calculate the impact on current asset valuations." MSCI, "Climate Data & Metrics," 2021. Available at: <https://www.msci.com/our-solutions/esg-investing/climate-solutions/climate-data-metrics>. See also: <https://www.msci.com/our-solutions/esg-investing/climate-solutions/scenario-analysis>.

## APPENDIX A: CLIMATE CHANGE RELATED INVESTMENT RISKS

### Examples of Climate-Related Risks and Potential Financial Impacts

Type	Climate-Related Risks	Potential Financial Impacts
Transition Risks	Policy and Legal	
	<ul style="list-style-type: none"> <li>• Increased pricing of GHG emissions</li> <li>• Enhanced emissions-reporting obligations</li> <li>• Mandates on and regulation of existing products and services</li> <li>• Exposure to litigation</li> </ul>	<ul style="list-style-type: none"> <li>• Increased operating costs (e.g., higher compliance costs, increased insurance premiums)</li> <li>• Write-offs, asset impairment, and early retirement of existing assets due to policy changes</li> <li>• Increased costs and/or reduced demand for products and services resulting from fines and judgments</li> </ul>
	Technology	
	<ul style="list-style-type: none"> <li>• Substitution of existing products and services with lower emissions options</li> <li>• Unsuccessful investment in new technologies</li> <li>• Costs to transition to lower emissions technology</li> </ul>	<ul style="list-style-type: none"> <li>• Write-offs and early retirement of existing assets</li> <li>• Reduced demand for products and services</li> <li>• Research and development (R&amp;D) expenditures in new and alternative technologies</li> <li>• Capital investments in technology development</li> <li>• Costs to adopt/deploy new practices and processes</li> </ul>
	Market	
<ul style="list-style-type: none"> <li>• Changing customer behavior</li> <li>• Uncertainty in market signals – Increased cost of raw materials</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced demand for goods and services due to shift in consumer preferences</li> <li>• Increased production costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment)</li> <li>• Abrupt and unexpected shifts in energy costs</li> <li>• Change in revenue mix and sources, resulting in decreased revenues</li> <li>• Re-pricing of assets (e.g., fossil fuel reserves, land valuations, securities valuations)</li> </ul>	
Reputation		
<ul style="list-style-type: none"> <li>• Shifts in consumer preferences</li> <li>• Stigmatization of sector</li> <li>• Increased stakeholder concern or negative stakeholder feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced revenue from decreased demand for goods/services</li> <li>• Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions)</li> <li>• Reduced revenue from negative impacts on workforce management and planning (e.g., employee attraction and retention)</li> <li>• Reduction in capital availability</li> </ul>	



Type	Climate-Related Risks	Potential Financial Impacts
Physical Risks	<b>Acute</b> <ul style="list-style-type: none"> <li>Increased severity of extreme weather events such as cyclones and floods</li> </ul>	<ul style="list-style-type: none"> <li>Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)</li> <li>Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism)</li> <li>Write-offs and early retirement of existing assets (e.g., damage to property and assets in “high-risk” locations)</li> <li>Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)</li> <li>Increased capital costs (e.g., damage to facilities)</li> <li>Reduced revenues from lower sales/output</li> <li>Increased insurance premiums and potential for reduced availability of insurance on assets in “high-risk” locations</li> </ul>
	<b>Chronic</b> <ul style="list-style-type: none"> <li>Changes in precipitation patterns and extreme variability in weather patterns</li> <li>Rising mean temperatures</li> <li>Rising sea levels</li> </ul>	

(The sub-category risks described under each major category are not mutually exclusive, and some overlap exists)

Source: TCFD, 2021, available at: <https://www.fsb-tcf.org/publications/#implementing-guidance>

## **APPENDIX B:**

### **Glossary of Key Terms**

**Greenhouse gases (GHGs):** Greenhouse gas emissions trap heat in the atmosphere and cause the greenhouse effect (climate change). There are seven GHGs: carbon dioxide, methane, sulfur hexafluoride, nitrous oxide, hydrofluorocarbons, perfluorocarbons and nitrogen trifluoride.

**CO<sub>2</sub>e:** This acronym stands for carbon dioxide equivalent. It is a catch-all term that includes emissions of all seven greenhouse gases, not just carbon dioxide. Each greenhouse gas has a different global warming potential; CO<sub>2</sub>e normalizes the global warming potential.

**Scope 1 emissions:** Direct emissions of greenhouse gases, such as direct combustion of fuel from owned or controlled sources of a company.

**Scope 2 emissions:** Indirect emissions of greenhouse gases from the generation of purchased energy.

**Scope 3 emissions:** All indirect emissions of greenhouse gases (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

**Decarbonization:** The process by which countries, individuals or other entities aim to achieve zero fossil carbon existence. Typically refers to a reduction of the carbon emissions associated with electricity, industry, and transport.

**Physical risks:** Risks related to the physical or natural environment such as flooding and wildfires that pose a threat to physical assets e.g., buildings, equipment, and people.

**Transition risks:** Risks from policy changes, reputational impacts and shifts in market preferences, norms, and technology. See Appendix A for more information.

**Stranded assets:** Assets exposed to devaluations or conversion to “liabilities” because of unanticipated changes in their initially expected revenues due to

innovations and/or evolutions of the business context, including changes in public regulations at the domestic and international levels.

**Net zero CO2 emissions:** Net zero carbon dioxide (CO2) emissions are achieved when anthropogenic CO2 emissions are balanced globally by anthropogenic CO2 removals over a specified period. The term “net zero” is also typically associated with the 2050 date or earlier, as this is aligned with the scientific recommendations to achieve a 1.5°C scenario.

**Benchmark index:** A market index that may be used as the benchmark against which portfolio performance is evaluated.

**MSCI ACWI IMI ex Tobacco Index:** This index is based on the MSCI ACWI IMI Index and is designed to represent performance of the full opportunity set of large- and mid-cap stocks across 23 developed and 27 emerging markets, excluding companies that are classified under the tobacco sub-industry based on the Global Industry Classification Standard.

**MSCI ACWI IMI ex Tobacco ex Fossil Fuel Index:** This index is based on the MSCI ACWI IMI Index and is designed to represent performance of the full opportunity set of large and mid-cap stocks across 23 developed and 27 emerging markets, excluding companies that are classified under the tobacco sub-industry based on the Global Industry Classification Standard or own oil, natural gas, or thermal coal reserves.



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