HARVARD MANAGEMENT COMPANY

Climate Report

MARCH 2024

As part of Harvard University's commitment to achieve net-zero greenhouse gas (GHG) emissions for its endowment portfolio by 2050, Harvard Management Company (HMC) reports annually on progress toward the goal. Data in this report are as of June 30, 2023, the end of HMC's most recent fiscal year. Past Climate Reports are available on the HMC website.

Introduction

Calendar year 2023 continued to demonstrate the inextricable link between climate stability and economic resilience. The effects of wildfire smoke, record-high ocean temperatures, and drought were felt throughout the world. The past year, however, was also notable for progress toward advancing the energy transition and environmental justice. At COP28 in Dubai, the UAE announced a $30 billion commitment to support climate action in the Global South.[1] In the United States, the private sector announced over $110 billion of new investments in clean energy manufacturing and utilities announced over $120 billion in commitments to clean energy generation projects.[2] Globally, investment in clean energy exceeded $1.7 trillion in 2023.[3] Governments and the private sector continue to explore ways to mobilize further public and private capital to generate the estimated $4 trillion in annual investment in clean energy needed by 2030 to transition the world away from a fossil fuel-based economy.[4] The progress of the past year was significant, but there remains a long road ahead.

Solving climate issues in the real economy and supporting sustainable growth are fundamental principles in HMC's approach to a net zero portfolio. As part of its fiduciary duty to account for all material risks to the endowment portfolio, HMC has long considered the climate transition and physical risks more generally in making investment decisions. Investments in technologies that will enable the economy to leverage renewable energy on a global scale also present an opportunity to seek appropriate risk-adjusted returns. HMC partners with several external asset managers at the forefront of investing in climate solutions. These investors are experts in innovative technologies addressing climate mitigation, such as carbon removal, energy transition, and materials science. They also take novel approaches to assessing environmental impact, incorporating emission goals in remuneration, engaging with portfolio companies, and developing new markets for a low-carbon world.

As HMC continues to monitor and take account of the evolving climate context in its plans to achieve its net zero commitment, this report provides updates on HMC's climate-related initiatives. It discusses HMC's transition investments, progress in developing a framework for measuring portfolio emissions, collaborative engagements, and HMC's carbon-neutral operations.

[1] *COP28, UAE commits US$30 billion in catalytic capital to launch landmark climate-focused investment vehicle at COP28, December 1, 2023.*

[2] *The White House, FACT SHEET: One Year In, President Biden's Inflation Reduction Act is Driving Historic Climate Action and Investing in America to Create Good Paying Jobs and Reduce Costs, August 16, 2023.*

[3] *International Energy Agency (IEA), World Energy Investment 2023, May 2023 Update.*

[4] *IEA, Net Zero by 2050, May 2021.*

Climate Transition Investments

In 2020, HMC began investing in technologies that accelerate the necessary low-carbon transition as a thematic strategy to generate outsized risk-adjusted returns. This strategy encompasses a range of investments that directly reduce greenhouse gas emissions or are a critical component to scaling up such solutions. HMC is optimistic that these investments in climate solutions will help drive sustainable development and job growth, while generating competitive financial returns.

These investments are primarily focused on private markets, specifically venture and growth stages of activity. Over the past three years, these commitments have increased. As of June 30, 2023, HMC's exposure to climate transition investments exceeded 1% of the endowment.

To give a better sense of the variety of approaches taken by climate-focused asset managers, below are two that are seen as leaders in their field.

Breakthrough Energy was founded in 2015 to accelerate innovation in sustainable energy. As part of that effort, Breakthrough Energy Ventures (BEV) was formed the following year to "finance, launch, and scale companies that will eliminate greenhouse gas emissions throughout the global economy."

BEV's approach draws on Breakthrough Energy's framing of the Five Grand Challenges, which identifies the most GHG-intensive industries: manufacturing, electricity, agriculture, transportation, and buildings. They also incorporate the Green Premium concept in their investment decision-making. The Green Premium is a model that estimates, by industry, the additional cost of using clean technology sources over those that emit more greenhouse gases. BEV then targets its investment activity toward opportunities that will have the greatest impact on reducing the Green Premium, incentivizing companies to become as competitive—if not more competitive—by using clean solutions over high-emissions ones.

BEV has invested more than $1 billion in over 100 companies, and in doing so has established itself a leading manager in the space. More information on BEV, and its current perspective, are available in its annual State of the Transition Report.

Eclipse is a venture capital firm that supports the digital transformation of physical industries. Through a collaboration with Rho Impact and Prime Coalition, Eclipse publishes the Eclipse Carbon Optimization (ECO) report to provide the data investors and companies need to help manage net zero commitments. Eclipse portfolio companies develop technologies that drive efficiency, reduce waste, and support electrification and digitization.

The Eclipse team has developed a novel framework to measure the expected environmental impact of its investments and has standardized a methodology for investors to model emissions reduction by portfolio companies. The calculation considers market-level emissions, GHG intensity reduction by the investee technology, and estimated market penetration of the technology by 2050.

Their reporting has also informed HMC's views regarding the type of forward-looking analysis for managing a net zero portfolio. For more information on Eclipse's emissions impact reporting, please see its most recent ECO report.

Within the energy sector, HMC continues to avoid direct exposure to fossil fuel holdings and new investments in private equity funds focused on exploration and development in the fossil fuel industry. Over the past year, distributions from our legacy private energy funds continued to exceed capital calls. As of June 30, 2023, HMC's remaining exposure to private equity funds focused on the exploration and development of fossil fuels represented less than 2% of the endowment, a decrease from 2022. As expected, the endowment's exposure to climate transition solutions is on pace to exceed those in fossil fuel-related investments in the next few years.

Net Zero Assessment

HMC continues to make progress in developing the systems and processes to gather and aggregate the information necessary to estimate the financed emissions of the endowment consistently. To date, HMC has conducted extensive research into the various frameworks for assessing a net zero portfolio—some of which have been discussed in past Climate Reports—and is actively testing other methods to measure portfolio emissions. In parallel with building the financed emissions framework, HMC continues to study methods of forward-looking analysis, such as measuring potential avoided emissions by investments or implied temperature rise. This work will enable us to not simply look at past measures, but also analyze how investments will impact future emissions.

To gather accurate data across a diversified portfolio, HMC must account for the variety of challenges that each asset class presents. As the necessary time and resources are allocated to address the details of each asset class, HMC anticipates it is still several years away from publicly reporting financed emissions. That said, HMC is committed to supporting its approach to net zero with the highest quality data. This section provides an update on those efforts.

As reported in Harvard University's 2023 Annual Financial Report, private equity investments accounted for approximately 39% of the endowment portfolio. Gaining greater insight into the activities of the portfolio companies held by our private equity managers is critical to capturing a meaningful view of the endowment's financed emissions. HMC partners with a third-party service provider to model the emissions intensity of the underlying portfolio companies using public company industry averages.

To gain a more accurate assessment of the carbon emissions from HMC's private equity portfolio, HMC will need more private equity managers to report portfolio company emissions data.[5] HMC will continue engaging with its private equity managers and the broader industry to promote portfolio company emissions reporting.

At 31%, hedge funds comprised the second largest asset class in the portfolio at year end. Assessing the carbon emissions of the hedge fund portfolio remains the most challenging part of HMC's effort to footprint the entire endowment portfolio. No standards exist for assessing the carbon emissions for financial derivatives and other strategies outside of buy-and-hold equity and corporate credit. Consequently, many asset owners with net zero commitments simply exclude hedge funds from their carbon emissions analysis. While it is possible that hedge funds may have little net impact on the endowment's carbon footprint, HMC believes it is important to run the calculations using the best available data rather than exclude a significant portion of the portfolio.

Working with a third-party service provider, HMC built and piloted a custom hedge fund carbon emissions report. HMC is fortunate that select long/short equity managers agreed to pilot the reporting process and provide feedback. HMC looks to increase the number of hedge fund managers participating and refine the process to incorporate manager feedback and employ the appropriate frequency of capturing portfolio information.

[5] *Last year, HMC endorsed the work of the ESG Data Convergence Initiative (EDCI), an industry-led initiative to improve ESG data reporting. During 2023, EDCI more than doubled the number of portfolio companies in its benchmark to more than 4,300.*

Among the remaining asset classes, public equity, which comprised 11% of the endowment portfolio at year end, required a more manual approach. HMC independently gathered emissions data for its direct holdings. For the fund positions, HMC relied upon available manager holdings reports, SEC Form 13F filings, and audited financial statements. Finally, HMC receives high-quality manager-reported information for our natural resources portfolio (1% of the portfolio) and is engaging with managers on reporting emissions data for real estate assets (5% of the portfolio).

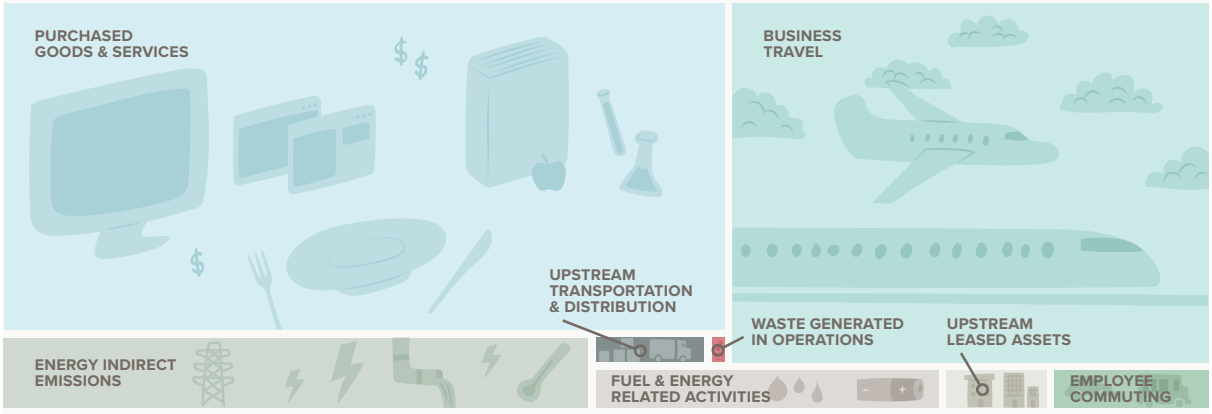
HMC has met with several members of the Harvard faculty to discuss our approach to the net zero commitment and solicit feedback on plans to estimate portfolio emissions. This is an invaluable resource and one that will remain a key source of input throughout this process. HMC is also fortunate to have a network of managers leading in their approach to climate, engagement with portfolio companies, and target setting. Conversations with these managers help HMC bridge theory with practice. From how to approach data collection and measurement of complex financial instruments to understanding climate impacts, this network of collaborators strengthens HMC's evolving framework and methods for assessing portfolio emissions.

Carbon Neutral Operations

HMC's operations were carbon neutral for the second consecutive year. By doing so, HMC holds itself to the same standards it asks of others and aligns its operations with Harvard University's climate commitments. The most significant operational emissions came from professional services, research and data, business travel, energy (heating and cooling), and IT services.

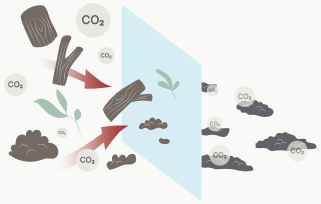
HMC continually seeks opportunities to reduce its operational emissions. State and local initiatives inform these efforts. HMC staff work with our landlord to understand sustainability plans for shared tenant services, collect data on HMC's energy usage, and identify opportunities within office infrastructure to increase efficiencies. HMC also examines employee behavior and company purchases for opportunities to reduce environmental impact.

Emissions Categories



To neutralize the unabated emissions for fiscal year 2023, HMC purchased and retired voluntary credits for carbon dioxide removal (CDR). Since 2021, HMC has signed long-term agreements with several of the top CDR suppliers. Entering long-term contracts is critical for these companies' ability to rapidly scale the growth and development of their technologies. These carbon removal partners meet the highest standards for measurement, reporting, and verification.

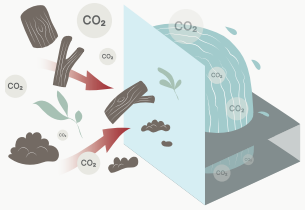
Carbon Removal Methods



BIOCHAR

Processing biomass into charcoal ("biochar") to store carbon in soils

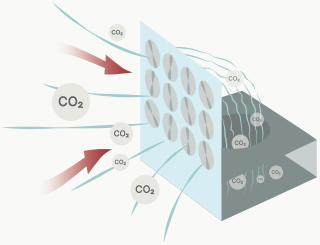
100+ YEARS



BIOMASS CARBON REMOVAL AND STORAGE (BICRS)

Converting biomass into carbon-rich bio-oil with geological storage

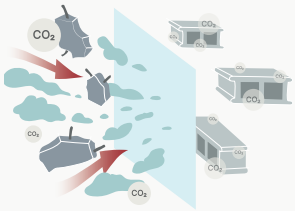
1,000+ YEARS



DIRECT AIR CAPTURE (DAC)

Capture CO_2 from the ambient air with geological storage

1,000+ YEARS



MINERALIZATION

Demolished concrete used to store captured CO_2 and provide recycled carbon-rich concrete for new construction

1,000+ YEARS

HMC works with Carbon Direct to measure operational emissions and advise on CDR partnerships to ensure monitoring and permanent removal. HMC is also an investor in Carbon Direct's climate investment funds.

Carbon Direct

The adjacent column shows the types of CDR credits HMC has purchased to offset our operational emissions and their anticipated years of durability. HMC's carbon removal will vary across technology types and counterparties in response to industry innovation, market development, and supply/demand dynamics. HMC continuously seeks new partnerships and CDR technology to maintain our carbon-neutral status and support these technologies' ability to scale.

Engagement & Standards

Engagement is an essential tool for investors to achieve real-world impact and a key component of HMC's net zero portfolio strategy. Joining with like-minded asset managers and asset owners on collaborative engagements, HMC encourages companies to improve their climate-related business practices.

Through its engagement efforts, HMC aims to improve climate transparency and governance, promote real economy emissions reduction, and support a just transition.

Climate transparency and governance

Engagement with companies to encourage TCFD-aligned reporting and transparency into climate lobbying.

Real economy emission reduction

Engagement with companies to support net zero commitments, science-based targets, creditable transition strategies, and Paris-aligned capital expenditure. When relevant, the use of carbon offsets and the scope of emissions included in a company's strategy is discussed.

Just Transition

Engagement with companies to discuss the impacts of climate on employees and communities. HMC requests that companies engage with impacted communities, retrain workers, or report on the effects of relocating facilities or operations related to energy transition or physical risks of climate change.

As a collaborating investor in Climate Action 100+, HMC participated in company engagements with energy, utility, and auto manufacturing companies to discuss their net zero plans, including capital expenditures and the credibility of transition plans. HMC joined the 2023 CDP Non-Disclosure Campaign, which directly engaged with high-impact companies to improve reporting related to climate change, forests, and water security. HMC also participated in the CDP Science-Based Targets campaign.

Without governments and corporations following through on their Paris-aligned commitments, the ability for investors alone to reduce GHG emissions in the global economy to net zero will be significantly reduced. To address real-world emissions reductions in high-emitting sectors, HMC believes it will take strong climate stewardship practices by all stakeholders, including investors, across assets in public and private companies.

HMC continues to participate in industry working groups and contribute comments to evolving standards and regulations to progress net zero frameworks and measurement.

The Work Ahead

Over the coming year, HMC will continue to work with third-party data providers and external managers to improve our access to the climate-related data necessary to reasonably estimate a carbon emissions baseline for our portfolio. Once a baseline measurement for a majority of the portfolio is established, the work will shift to identifying appropriate interim targets for the reduction of emissions.

Different types of targets emphasize different aspects of a net zero commitment. Engagement targets promote manager outreach and engagement. Coverage targets measure the percentage of a portfolio covered by a climate commitment, either net zero GHG emissions or science-based targets. Portfolio emissions reduction targets can be on an intensity or absolute basis. HMC recognizes the critical need to develop and disclose interim goals and progress toward the achievement of those goals to ensure accountability and transparency.

HMC also recognizes the urgency with which this work must progress and remains committed to achieving all aspects of its net zero pledge.

Task Force on Climate-related Financial Disclosures (TCFD)

In this Appendix, HMC assesses climate-related risk in the HMC portfolio according to the TCFD's recommended climate-related financial disclosure framework. HMC has been a supporter of the TCFD since April 2020.

Governance

Board Oversight

The Harvard Corporation, also known as the President and Fellows of Harvard College, exercises ultimate fiduciary responsibility over the University's financial resources and overall well-being. In April 2020, following deliberation by the Corporation Committee on Shareholder Responsibility (or CCSR), the Harvard Corporation instructed HMC to set the Harvard endowment on a path to net zero, establishing the objective of HMC's climate policy. In September 2021, in consultation with the CCSR, then President Lawrence Bacow issued a statement on climate change that, among other things, addressed related investment strategy matters. HMC follows the policy goals set by the Harvard Corporation and the CCSR.

Role of Management

HMC is led by its Chief Executive Officer, Narv Narvekar. Together with HMC's Chief Investment Officer, Rick Slocum, they manage the Generalist investment team responsible for managing all aspects of HMC's investment portfolio, including climate-related risks.

The responsible investment activities are integrated into the Compliance group at HMC. This team is led by HMC's Chief Compliance Officer (CCO), Kate Murtagh. Together, this team helps set the ESG goals and objectives for HMC, develops ESG policies and procedures, and implements ESG integration plans across the portfolio. Each quarter, the CCO provides an update on HMC's sustainable investment activities, including progress on the net zero commitment, to HMC's board. The CCO is assisted by a Managing Director, who dedicates a portion of his time to responsible investment initiatives, and a full-time Associate Director of Sustainable Investing.

Strategy

HMC's strategy for addressing climate-related risks and opportunities is to:

1. Manage the endowment towards the 2050 net zero target
2. Engage with external managers to encourage better disclosure and practices to improve data availability
3. Engage with industry groups to establish standard GHG accounting methodologies for alternative investment strategies

4. Identify and act upon appropriate investment opportunities that are aligned with or will benefit from the transition to a low-carbon economy
5. Work to develop the appropriate metrics and analysis to assess the endowment's performance against the net zero target
6. Be carbon neutral in its operations

HMC's progress towards these goals is described in the main body of this report.

Risk Management

As a long-term, global institutional investor, HMC recognizes that climate change presents a material risk to our investments. HMC considers material climate-related factors alongside other factors throughout the entire investment lifecycle. This is done on a top-down basis analyzing the sector(s) and geographies in which HMC's managers operate. As an investor in actively managed commingled funds, HMC relies on its external managers to understand and manage the climate-related risks relevant to their investments.

Many of HMC's investments are long-lived assets with ownership horizons of many years. Fixed, tangible assets are susceptible to the physical impacts of climate change, such as damage caused by flooding, hurricanes, or wildfires. Businesses also face supply-chain risks from disruptions to agricultural commodities, workability in certain regions, and the destruction of natural capital. HMC relies on its external managers to identify and manage the identifiable physical climate risks.

Other risks arise from the transition to a low-carbon economy, such as changes in government policies, consumer sentiment, legal liability, and technological innovation. High emitting sectors such as oil and gas, utilities/power generation, and transportation are more likely to be subject to these risks. The range of transition risks and opportunities depends on which decarbonization path the world takes and how quickly. Policies designed to limit climate change will likely impact some sectors more than others, as governments implement their nationally determined commitments to reduce emissions. The decision to stop making new commitments to private equity funds focused on the fossil fuel industry reduced HMC's exposure to these transition risks, although at the cost of increasing market risk.

Proxy Voting

Harvard is committed to responsibly voting shareholder proxies. Each year, the University publishes a report describing and explaining its votes on proxies.

Most of Harvard's holdings in the U.S. public equity markets are held through pooled investments and commingled funds managed by outside management firms. Harvard holds very few individual stocks directly in the University's name. As a result, Harvard currently votes on a much smaller number of shareholder resolutions than in past years.

Currently, Harvard exercises its influence on proxy votes through a series of guidelines on shareholder resolutions, including on issues related to climate change. The guidelines are developed by the University's Advisory Committee on Shareholder Responsibility (ACSR) and submitted to the CCSR for approval. HMC believes these proxy voting guidelines provide an informed perspective and shares them with its external managers. The guidelines are not intended to be prescriptive, and HMC recognizes that external managers may not necessarily share Harvard's view on every issue. Nonetheless, HMC expects its external managers to have a robust stewardship approach and make informed voting decisions. The University also makes the guidelines publicly available to inform other interested investors.

Metrics and Targets

Measuring Portfolio Emissions

To meet Harvard's net zero commitment, HMC must obtain relevant data and develop reliable methods to estimate the relationship between its investments and greenhouse gas emissions. In 2023, HMC piloted a new process for gathering data and estimating the financed emissions of the endowment.

Portfolio CO_2e emissions can be measured using different metrics. For the endowment, HMC plans to include company Scope 1 and 2 emissions in its calculations. HMC is working to determine the appropriate emissions reporting and target setting metrics. While HMC generally plans to follow the TCFD framework and Partnership for Carbon Accounting Financial (PCAF) standards for calculating the portfolio emissions, for the reasons discussed in the main body of this report, HMC is approaching the process carefully and expects to ultimately adopt an approach and methodology tailored to HMC's investment program.

Following TCFD guidance, portfolio carbon emissions using weighted-average carbon intensity (WACI), a measure of a portfolio's exposure to carbon-intensive companies, can indicate the potential climate change-related risks relative to other portfolios or a benchmark. WACI uses revenue or sales to normalize emissions. This makes it helpful in comparing portfolios across asset classes. However, results are misleading when measuring the intensity values for companies with little or no revenue, such as early-stage biotech companies. In its research, HMC has encountered other examples where metrics may be skewed by factors other than changes in real-world emissions, such as portfolio re-weighting, market value adjustments, or data coverage. MSCI's research shows that intensity measures may be more volatile than absolute emissions metrics, given their sensitivity to changes in their denominator (e.g., revenues or enterprise value).[6] For HMC to build a framework for measuring climate-related data, it must select the appropriate metrics for our portfolio and develop the knowledge and tools to interpret them.

HMC Operational Emissions

In fiscal 2022, HMC became the first university endowment investment office with physical operations apart from the university to be carbon neutral in its facilities and operations.

For the commitment to be carbon neutral in our operations, HMC measures our Scope 1, 2, and 3 emissions. HMC's Scope 2 emissions consist of purchased electricity. Scope 3 emissions include business travel, procurement of goods and services, employee commuting, and the HVAC system used in leased office space.

HMC does not anticipate incorporating "downstream" Scope 3 emissions in its calculation. For HMC, "downstream" activities include the investment portfolio and the portion of Harvard's annual budget financed by the endowment. These activities are managed separately under the University's Sustainability Action Plan, including its goals to be fossil fuel neutral by 2026, fossil fuel free by 2050, and set the endowment on a course to be net zero by 2050.

[6] *Connecting Emissions Attribution with Climate Action, MSCI, May 3, 2023*