PROGRESS REPORT

on the New York State Common Retirement Fund's

Climate Action Plan



Message from the Comptroller

I am pleased to present the Climate Action Plan Progress Report for the New York State Common Retirement Fund, which highlights the Fund's recent efforts to address climate risks and opportunities. The Plan was adopted in 2019, guided by the recommendations of an expert panel, to put the Fund on the path to a truly sustainable portfolio. Since then, we have made significant progress on the Plan's key action



items. Among other steps, we have invested more than \$11 billion in sustainable investments and climate solutions, and undertaken assessments of portfolio companies in high-risk sectors, such as coal mining, to determine their readiness for the transition to a low-carbon economy. These actions and other elements of the Climate Action Plan are essential to achieving the commitment we announced in December 2020: to reduce greenhouse gas emissions from the Fund's entire portfolio to net-zero by 2040.

The impact of the COVID-19 pandemic on the global economy will be felt for a long time to come, reminding us that institutional failures to address systemic risks can harm the Fund's investments, as well as damaging individual lives and disrupting society as a whole. Similarly, climate change poses systemic risks that can negatively affect the economy, the markets, and the Fund's investments while also threatening lives and communities around the world. The body of scientific evidence on climate change is clear; the urgency of the need to act has been reinforced by the extremity and increasing frequency of climate-related disasters such as hurricanes, flooding, wild fires and drought.

The Fund's Climate Action Plan recognizes the gravity and scope of the challenges we face. Climate change and the global energy transition expected to occur in coming decades will inevitably be disruptive to the economy, creating challenges and opportunities to the Fund's diversified portfolio.

I am proud of the progress we have made so far in addressing climate risks through the Plan, as detailed in this report. Nevertheless, we must do more to ensure long-term climate resilience and sustainability. Therefore, we are redoubling our efforts to advocate for appropriate public policies and investments, to encourage the companies in which we invest to accelerate their transition to a net-zero economy, and to further allocate capital to net-zero aligned investments that meet our criteria. These steps are critical to protecting the long-term value of the Fund's investments.

Thomas P. DiNapoli State Comptroller

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Introduction: Climate Action Plan

The 2019 Climate Action Plan (Plan) describes the climate beliefs of the New York State Common Retirement Fund (Fund or CRF) and delineates a set of actions, which build on recommendations from the Decarbonization Advisory Panel. The panel included six distinguished experts, who provided recommendations for climate strategies for the Comptroller's consideration.

The Plan includes:

- establishing industry-specific minimum standards and risk assessment processes to evaluate companies in high impact sectors, starting with thermal coal mining companies, on their readiness to transition to a lowcarbon economy;
- developing a prioritized shareholder engagement program, based on assessments of transition readiness and adherence to minimum standards, to inform investment decisions;
- creating a formal, multi-asset-class Sustainable Investment and Climate Solutions (SICS) Program with dedicated staff to pursue climate solution investments;
- committing an additional \$10 billion to the SICS Program, leading to a total \$20 billion commitment over the next decade; and
- enhancing the Fund's capacity to assess climate risks.

With leadership and direction from the Comptroller, who serves as the Fund's Trustee, the Fund has established a team to implement the Climate Action Plan that includes the Chief Investment Officer, investment professionals representing all asset classes, the Corporate Governance unit, and legal, risk, and operations staff. The team is tasked with developing action plans and executing strategies to address climate risks and identify investment opportunities for the Fund. The Fund also calls upon the office's environmental policy expert to help inform its climate strategies. In 2020, the Fund hired a new Director of Sustainable Investment and Climate Solutions, expanded the Corporate Governance unit's dedicated climate staff, and contracted consultants and data providers who can provide unique research and analysis services.

The Fund's net zero announcement in December was the natural extension of the Fund's Climate Action Plan, which has taken a multi-faceted approach to addressing climate-change related investment risk.¹

¹ Office of the State Comptroller, New York State Pension Fund Sets 2040 Net Zero Carbon Emissions Target, 2020, at https://www.osc.state.ny.us/press/releases/2020/12/ new-york-state-pension-fund-sets-2040-net-zero-carbon-emissions-target.

Assessments

The Fund believes that what is measured can be managed. While climate risk assessment tools are rapidly evolving, it is challenging to find analyses and research that render results that can effectively inform our risk assessments and investment decisions due to lack of consistent, adequate corporate disclosure. Still, the Fund has reviewed research, interviewed experts, and evaluated assessment tools and data providers to ensure that we gain access to the most current science, investment strategies and climate risk analyses. The Fund also works to ensure that staff gets to hear directly from experts, such as Bob Litterman, the Chair of the Commodity Future Trading Commission's Climate-Related Market Risk Subcommittee, who presented that Subcommittee's findings to Fund staff in November 2020.

While it has been challenging to identify and develop climate assessment tools, the Fund has conducted the following assessments to better understand how climate risks and the energy transition could affect the Fund's investments, and continues to seek enhanced climate assessments that utilize the best data and practices available in the market.



Fossil Fuels and High-Impact Sectors: Exposure Analysis and Carbon Footprint Study

The Fund regularly measures the Fund's investments in fossil fuel producers and the other high-impact sectors identified by the Task Force on Climate-Related Financial Disclosures (TCFD) created by the Financial Stability Board under the auspices of the G20 group of nations.

As of December 31, 2020, the Fund's holdings in fossil fuel producers totaled \$3.2 billion in its public equity and corporate fixed income portfolios.²

The following table presents a breakdown of the Fund's global equity and corporate fixed income investments in the TCFD's high-impact sectors and industries.

² When used in this report, the terms "fossil fuel producers" has the same meaning as in New York State Senate Bill S2126A (2019), available at https://www.nysenate.gov/legislation/bills/2019/s2126.

Global Equity and Corporate Fixed Income Holdings in TCFD High-Impact Sectors

Sector/Industry	Total (\$ million)
Energy	3,649
Utilities	3,857
Transportation	3,661
Materials including Forest Products	4,947
Industrials including Construction & Capital Goods	4,537
Agriculture, Food & Beverage	4,809
Real Estate	3,491
Financials	17,676

In 2020, the Fund measured the carbon emissions (scope 1 and scope 2) of its global equity and corporate fixed income portfolios.³ In global equities, the Fund's emissions intensity was 16.6 percent lower than its benchmark (a composite comprising 72 percent Russell 3000 and 28 percent MSCI ACWI ex-US), and 18.3 percent lower than its 2019 intensity. The Fund largely invests in global equities via passive strategies, which generally involve long-term investments rather than active trading and often use indexes to achieve exposure to broad market sectors, lowering transaction costs and reducing volatility. These strategies include a \$4 billion investment in a low-emissions index that has a 75 percent lower carbon emissions intensity than its benchmark, achieved by underweighting investments in high carbon emitters.⁴ The improved emissions of the Fund's global equity portfolio are largely attributable to a combination of the low emissions index and the continued underweights to carbon-intensive sectors within the actively managed assets of the Fund's global equity portfolio.

In the corporate fixed income portfolio, the Fund's 2020 emissions intensity was 22 percent lower than its benchmark (U.S. Bloomberg Barclays Aggregate), and it was 3.8 percent lower than its 2019 intensity. The Fund internally and actively manages the Fund's core corporate fixed income portfolio, and the Fund's underweight on carbon-intensive issuers enabled it to achieve lower emissions than its benchmark.

³ Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles). Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling.

⁴ The low emission index, launched in 2016, underweights stock ownership in some of the worst greenhouse gas emitters based on independent emissions data reported to the CDP (Carbon Disclosure Project) and increases investments in companies with lower carbon emissions with returns that closely track the Russell 1000 index.



The Fund believes that carbon emissions metrics can be useful in assessing transition risks, especially regulatory risks, but are not an effective measure of the future direction of companies. The Fund also recognizes the significance of Scope 3 emissions as a risk metric in investment analyses, but faces challenges in assessing these emissions due to the limited availability of accurate data.⁵

Climate Scenario Analysis

The Fund participated in a 2015 scenario study that assessed the impact of climate change on the total portfolio under different climate change scenarios. The study found that the Fund's public equity portfolio is heavily invested in developed markets, which face the greatest risk in the event of swift and strong policy actions needed to limit global warming to no more than 2 degrees Celsius (2 degree scenario) being adopted, as envisioned in the Paris Agreement.⁶ This finding led to the Fund's development of its low emissions index.

⁵ Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain such as emissions from the organization's suppliers and sold products.

⁶ Article 2.1(a) of the Paris Agreement states the goal of: "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change."

Carbon Value at Risk

In 2021, the Fund has entered into a new strategic partnership that will enable it to undertake a Carbon Value-at-Risk (VaR) assessment of the Fund's global equity and corporate fixed income investments. Carbon VaR provides a systematic analysis of transition risk to identify overall risk exposure to individual companies by employing a range of key assumptions in the following areas: carbon prices, technology development, and fossil fuel demand. The VaR model assesses the effects of these key assumptions on company cost structure, industry prices and cash flows, and integrates company carbon dioxide (CO2) emissions in its analyses. The Fund believes that VAR analysis would enhance the Fund's climate risk assessment by complementing existing assessments.

Corporate Climate Data

The Fund collects and utilizes a range of corporate climate data for integration into its company and industry analyses. Key data includes detailed descriptions and metrics for portfolio companies' transition strategies, capital expenditures, carbon emissions, fossil fuel reserves, green/low carbon revenue, climate governance, and TCFD reporting assessments, among others. The Fund also applies data and analyses from nonprofit organizations and academic studies to the Fund's assessments; these are provided by organizations such as the Transition Pathway Initiative, the Carbon Tracker Initiative, CDP, and the FAIRR Initiative. These sources inform the Fund's transition assessment, establishment of minimum standards and prioritized engagements. In 2020, the Fund added a new climate data set that includes carbon transition assessment and physical risk scores to the Fund's existing corporate research data sources.

Manager Evaluation and Monitoring

The Fund has long recognized that environmental, social and governance (ESG) factors can have a material effect on investment performance, and incorporated ESG analysis in its investment decisions.⁷ The Fund has recently updated the ESG scorecard it uses to evaluate prospective external investment managers, and has introduced a set of climate criteria to be incorporated into this key risk assessment tool. The scorecard below shows the key performance indicators (KPIs) used to evaluate each manager's climate capabilities, and the Fund has been engaging with existing mangers regarding these criteria.

⁷ Office of the State Comptroller, New York State Common Retirement Fund Environmental, Social & Governance Strategy, 2020, at https://www.osc.state.ny.us/files/common-retirement-fund/2020/pdf/ESG-strategy-report-2020.pdf.

ESG Scorecard - Climate KPIs

Category	Key Performance Indicators (KPIs)		
Governance	Senior leadership oversight on climate risks.		
Assessment	Systematic efforts to assess climate risks and opportunities and apply the latest climate science and best data and analytics in the market to investment analyses, including transition and physical risks and opportunities.		
Active Ownership & Stewardship	 For publicly traded asset classes, corporate engagements on transition and physical risks and TCFD reporting. Where relevant, proxy voting policies to support climate-related shareholder resolutions and to integrate climate concerns into director election votes. Public support of global, federal, state climate regulations. 		
Reporting	Robust TCFD reporting in the four categories — Governance, Risk Assessment, Strategy, and Metrics & Targets — including scenario analyses and/or enhanced risk assessments.		

In addition, the Fund joined the Global Real Estate Sustainability Benchmark (GRESB) to explore measuring the sustainability performance of the Fund's real estate and infrastructure assets in areas such as energy, greenhouse gases, and water.

Physical Risk

Climate change is already having substantial physical impacts in certain regions across the world. Greater frequency and severity of climate impacts can create more disruptions to companies' operations by interrupting production, raising costs, and hurting corporate revenues. The Fund has been reviewing various physical risk data and analytics to identify decision-useful information. The impacts of physical climate risk need to be understood in the context of geographically defined areas. Measuring risks, however, is challenging due to the limited accuracy of data at the local level. In addition, the Fund only sees limited disclosures on the physical location of companies' significant assets, the loss or impairment of which would impact financial results. To address this deficiency, the Fund developed an engagement program in partnership with Impax Asset Management on physical location disclosure, which is described further in the Corporate Engagement section below.

Investment and Divestment

Sustainable Investment and Climate Solutions Program

To date, the Fund has deployed more than \$11 billion to specific investment opportunities in the SICS Program across all asset classes, including actively and passively managed public equity strategies, green bonds, clean and green infrastructure funds, and private equity, as well as green building real estate funds. The new Director of the SICS Program, who joined the Fund in early 2020, helps source additional sustainable investments.

The Fund has long integrated ESG considerations into its investment processes and manager selection and monitoring systems. These ESG integration activities help identify sustainable investment opportunities that present risk and return characteristics that track to the relevant asset class and strategy type.

Some examples of SICS investments in climate solutions are described below:

- The Fund's fixed income portfolio held over \$300 million of solar-related asset-backed securities that fund solar panels and solar installation services, in addition to green bonds that fund renewable energy and green buildings, such as those issued by Kilroy Realty LP, a San Francisco-based firm focused on the West Coast.
- Copenhagen Infrastructure Partners (\$295 million commitment by the Fund)
 makes infrastructure investments that are projected to have sustainable
 qualities, including reduced greenhouse gas (GHG) emissions. The firm's
 investments in large-scale energy infrastructure assets include offshore and
 onshore wind, power transmission and solar photovoltaic (PV) investments.
- NREP Fund IV (\$300 million commitment by the Fund) is a Copenhagen-based, opportunistic real estate strategy making investments in the Nordic region that meet high-energy efficiency standards. The manager's investments use sustainable materials and upcycling to reduce the carbon footprint of their building materials. NREP has committed to 100 percent renewable electricity for all of its buildings by 2025, net-zero emissions for its new construction by 2030, and net-zero emissions across its portfolio by 2050.
- Avenue Sustainable Investments (\$300 million commitment by the Fund) is a New York-based private credit fund with a mandate to make senior and junior loans to projects and companies offering environmentally sustainable solutions. The targeted sectors include waste and recycling, renewable energy, energy efficiency and battery storage, water and agriculture, and safety and resilience.

⁸ Office of the State Comptroller, Sustainable Investments-Climate Solutions Program, 2020 at https://www.osc.state.ny.us/common-retirement-fund/sustainable-investments-and-climate-solutions-program.

In 2021, the Fund will explore global equity climate index strategies. This initiative will build on the Fund's experience with its successful low-emissions index and will serve to further allocate the Fund's global equity to climate solution investments.

Transition Assessment and Minimum Standards

The Fund has begun developing transition assessments and minimum standards for portfolio companies in the high-impact sectors identified by the TCFD, which can pose risks to the Fund's long-term value. In this process, the Fund evaluates whether companies in the high-impact sectors are taking steps to transition to a more sustainable business model in line with the emerging net-zero carbon economy. Not all companies within a high-risk sector pose the same investment risks. As such, company engagement is a key component of our efforts to assess and address risks.

The first step in the transition assessment process is to identify companies that meet the Fund's threshold criteria for prioritized engagement. In the event that companies on this watch list fail to demonstrate improvement in transition readiness after further engagement and assessment, the Fund will consider taking investment actions with respect to those companies, such as underweighting, restricting new investments, or divestment, consistent with the fiduciary duty to the members and pensioners of the New York State & Local Retirement System. The Fund's decisions on the assessment framework and individual company analyses have been informed by a number of climate, investment, and legal professionals. The Fund has completed the initial reviews on thermal coal and oil sands companies.



Thermal Coal Transition Assessment Framework

The Fund's first transition assessment and establishment of minimum standards focused on companies that derived at least 10 percent of their revenues from thermal coal mining. This sub-industry was chosen because of the significant transition risk these businesses face as a result of regulatory, technological and financial challenges.

The following chart shows the key performance indicators (KPIs) identified to evaluate thermal coal mining companies' transition readiness.

Thermal Coal Transition Assessment KPIs

Category	Key Performance Indicators (KPIs)
Transition Strategies	Business strategies such as plans to diversify company's business model by shifting away from thermal coal mining and identifying opportunities consistent with the goals of the Paris Agreement.
Capital Expenditures (CAPEX)	Company's capital spending provides evidence supporting transition strategies, reflecting commitment to reducing investment in the development of new thermal coal reserves and increasing investment in low-carbon opportunities.
Emissions Targets	Corporate targets to reduce GHG emissions from the entire value chain (Scope 1, 2, and 3) in line with the Paris goals.
Low Carbon/Green Business	Percentage of revenues from low-carbon/green business such as renewable energy, energy efficiency, among others.9
Disclosure	Corporate disclosures in line with TCFD, focusing on four key categories. 10 Evaluation looks at decision-useful information.

The Fund identified 27 thermal coal companies for the CRF watch list.¹¹ The Fund notified the 27 companies, providing each the opportunity to respond and inviting it to engage. Multiple factors were considered in evaluating each company, including but not limited to its low-carbon transition planning processes, execution, level of disclosures and ambition. The Fund's analysis concluded that 22 companies failed to meet the Fund's minimum standards due to a lack of

⁹ Examples include renewable energy generation, energy efficiency, battery technologies, electric vehicle, small-scale hydropower, pollution control and water related technologies, waste recycling, among others. Case-by-case analysis will be made for other technologies, e.g., large-scale hydropower. Carbon Capture Sequestration is not considered a low-carbon technology due to limited availability at the commercial scale.

¹⁰ TCFD recommendations focus on the four high-level disclosure categories: Governance, Strategy including scenario planning, Risk Management, and Metrics & Targets to measure risks and opportunities.

¹¹ Office of the New York State Comptroller, Thermal Coal Watch list, 2020 at https://web.osc.state.ny.us/press/docs/thermal-coal-list.pdf.

evidence demonstrating the company's transition strategies or its execution of the stated strategies. As a result, the Fund restricted and divested investments in the 22 companies. Also, the research revealed that Anglo American plc does not meet the Fund's definition of "thermal coal mining company," since its coal mining activities represent less than 10 percent of its revenue. There are four companies—South32, Banpu Public, CIMIC Group, and Exxaro Resources—that have met the Fund's minimum standards due to the following reasons:

- South32 has divested from its coal business and has set a long-term goal of net-zero emissions by 2050. A substantial share of its capital expenditures goes into renewables, as well as copper, nickel, aluminum, and manganese—minerals that can be used for renewable energy technologies and electric vehicles.
- Banpu Public is a utility company and has a strategy of diversifying away from the coal business into renewable/green and smart energy businesses.
 A substantial share of its capital expenditures goes to renewable power, copper, nickel, aluminum and manganese.
- CIMIC Group is a mining service company and does not own substantial coal reserves; it is committed to shifting its mining services to commodities for use in alternative technologies such as lithium, cobalt, manganese, nickel, graphite and rare earths.
- Exxaro Resources has transition strategies of increasing clean and other environmental businesses while committing to achieving carbon neutrality by 2050.

Oil Sands Transition Assessment Framework

The Fund's second transition assessment and development of minimum standards focused on companies with significant revenues from crude oil production from oil sands. Oil sands, sometimes referred to as tar sands, is a mixture of sand, clay, other minerals, water, and bitumen. Compared to other forms of oil production, oil sands production is more costly and has a much higher carbon intensity. Thus, oil sands companies are likely to face significant risks in a declining oil demand scenario and as result of climate policies that put a significant price on carbon or limit emissions.

The following table shows the key performance indicators (KPIs) identified to evaluate oil sands companies' transition readiness in the oil sands transition assessment framework.

Oil Sands Transition Assessment KPIs

Category	Key Performance Indicators (KPIs)
Transition Strategies	Business strategies such as plans to diversify company's business model by shifting away from oil sands production and identifying opportunities consistent with the Paris goals.
Capital Expenditures (CAPEX)	Company's capital spending provides evidence supporting transition strategies, reflecting commitment to reducing investment in the development of new oil sands reserves and increasing investment in low-carbon opportunities.
Emissions Targets	Corporate targets to reduce GHG emissions from the entire value chain (Scope 1, 2, 3) in line with the Paris goals.
Low Carbon/Green Business	Percentage of revenues from low carbon/green business such as renewable energy, energy efficiency, among others.
Disclosure	Corporate disclosures in line with TCFD, focusing on four key categories. Evaluation looks at decision-useful information.

The Fund identified nine oil sands companies for its analyses. 12 The oil and gas industry has been affected by the pandemic and the collapse of oil prices, and some of the companies the Fund engaged with acknowledged that continued investments in oil sands will pose significant risks. The analysis concluded that seven companies failed to meet the Fund's minimum standards, and thus investments in those companies have been restricted and divested. There are two companies—Suncor Energy and Tatneft—that met the Fund's minimum standards due to the following reasons:

Suncor Energy has demonstrated transition strategies and capital expenditures growth trends in low-carbon technologies, with a strong focus on onshore wind.

Tatneft has demonstrated transition strategies of diversifying away from oil sands, due to the Russian government's termination of tax break for oil sands and other economic reasons. Tatneft has set a long-term carbon neutrality target by 2050, which includes Scope 1, 2, and 3 emissions.

Moving forward, in addition to conducting annual reviews of thermal coal and oil sands companies, the Fund will evaluate the transition readiness of companies in the shale oil and gas, integrated oil and gas, and energy midstream sectors, using a similar framework and subject to the same fiduciary standards.

¹² Office of the State Comptroller, Oil Sands Watch List, 2020 at https://www.osc.state.ny.us/files/press/pdf/list-of-oil-sands-companies-under-review.pdf.

Engagement and Advocacy

Corporate Engagement

Engagement is a critical component of the Fund's climate risk and opportunity analyses, and includes both direct discussions with company management and filing of shareholder proposals. By urging changes in corporate strategy, engagement can help mitigate the Fund's climate-related investment risks. The Fund undertakes corporate engagements with high-risk companies directly and in collaboration with other investors through initiatives such as Climate Action 100+, the Ceres Investor Network on Climate Risk, and the CDP non-disclosure campaign, which targets companies that do not respond to investor requests for disclosure to CDP, among others. The Fund's own direct engagements utilize letter writing and meetings with management and board directors. The Fund also files shareholder resolutions to encourage changes in climate strategies. The Fund's engagements on environmental issues represented 44% of the Fund's total ESG engagements in 2020.

2020 Shareholder Proposals

Since 2008, the Fund has filed over 150 climate-change-related shareholder resolutions, reaching more than 70 agreements with portfolio companies on climate issues such as setting GHG emissions reduction targets, committing to renewable energy and energy efficiency goals, and providing enhanced climate disclosures in line with TCFD.

In 2020, the Fund filed three proposals at companies requesting that they set targets for increased use of renewable energy and energy efficiency at their facilities. The Fund secured agreements with all three companies: Texas Instruments, Qorvo, Inc., and Microchip Technology. The Fund also filed a shareholder proposal at Fluor Corp., asking the company to adopt company-wide targets for GHG emissions, taking into consideration the global GHG reduction needs defined by the Paris Climate Agreement. Fluor agreed to adopt such GHG targets and the Fund withdrew the resolution.

In addition, the Fund filed a shareholder proposal at ExxonMobil, asking the company to take steps necessary to separate the roles of board chair and chief executive officer in order to make the board chair an "independent" director. The Fund believes that an independent director would improve overall governance at ExxonMobil, and lead to independent oversight of climate risks. The proposal received a high level of support, earning approval from 32.7 percent of Exxon Mobil shareholders.

Direct Engagements

The Fund also engages in dialogues with portfolio companies across high-impact climate sectors, including those engaged in the following industries: oil and gas production, coal mining, electric and natural gas utilities, automobile manufacturing, airlines, banking, materials, and real estate industries. The Fund urges them to establish transition strategies, develop strategic CAPEX planning, and adopt GHG targets and TCFD reporting.

AEP Engagement

The Fund is the lead investor in the Climate Action 100+ American Electric Power (AEP) engagement group. AEP is one of the largest electric utilities in the United States, with substantial reliance on coal. The company has committed to the low-carbon transition, but largely operates in states that are significant producers of coal and other fossil fuels. The political environment and state regulatory schemes in those jurisdictions have posed significant challenges for AEP in its efforts to retire coal assets and deploy renewable energy.

Despite these challenges, the Fund's engagement with AEP has been constructive, and AEP has been transparent about its challenges and opportunities. The important progress the company has made so far includes:

- updating carbon targets to accelerate the transition, including setting goals of 80 percent reduction by 2030 and net-zero emissions by 2050;
- publishing a climate scenario analysis including a 100% clean energy scenario; and
- providing further transparency in its TCFD report about efforts to ensure a
 just transition for its employees and the communities in which it operates,
 along with reporting on transition and physical risks.

CDP Emissions Data and Other Climate Disclosures

It is important for the Fund to obtain standardized climate data in order to evaluate risks with even greater precision and comparability. CDP provides a standardized and comparable data set that covers more than 8,000 companies, representing over 50 percent of total world market capitalization in 2019. The Fund believes that there is great value in bringing together information on this issue across sectors and regions, using this consistent approach. Therefore, the Fund engages with companies to urge their disclosure of emissions data and other key climate disclosures to CDP. In 2020, the Fund participated in the Non-Disclosure Campaign, a joint initiative led by CDP with over 100 investors targeting over 1,000 companies worldwide to disclose climate information through CDP's standardized, TCFD-aligned platform. Under this initiative, the Fund sent letters to over 200 of its U.S. portfolio companies in 2020, and several high-emitting companies such as Marathon Petroleum, Consolidated Edison, Monster Beverage and Entergy have provided information to CDP for the first time.

Physical Risks

The S&P Global study "The Big Picture on Climate Risk" released in 2020 found that companies in the S&P 500 Index own physical assets across 68 countries globally—and 60 percent of these entities (with a market capitalization of \$18 trillion) hold assets that are at high risk of at least one type of physical risk related to climate change. 13 In October 2020, in partnership with Impax Assessment Management, the Fund wrote to S&P 500 companies calling on the companies to disclose the precise physical locations of their significant assets. 14 Corporate disclosure of the physical location of major assets is limited. General geographical information about the locations of assets, such as in the U.S. or China, is insufficient for us to evaluate exposure to specific physical hazards such as wildfire, flood and hurricane, and therefore to evaluate physical hazard risks comprehensively. There are significant differences in the climate physical risks within such broad geographies. Thus, the Fund requested that companies disclose location data on where their significant assets are located. The Fund expects to see greater physical risks in the long run if the world fails to limit temperature rise. The Fund will continue to engage companies with respect to location data and physical risk in 2021.

Environmental Stewardship and Climate Risk Votes

In 2020, the Fund enhanced its proxy voting guidelines by adding criteria to reflect how the Fund reviews low-carbon transition preparedness and to delineate situations that would prompt the Fund to withhold support from director nominees for failing to manage climate risks. ¹⁵ In implementing the updated climate voting guidelines, the Fund focused on:

- Thermal coal companies that lack transition plans;
- Climate Action 100+ company laggards (high emitters); and
- Carbon Disclosure Project (CDP) persistent non-disclosing companies in the high impact sectors identified by TCFD.

¹³ S&P Global, The big picture on climate, 2020, at https://www.spglobal.com/en/research-insights/featured/the-big-picture-on-climate-risk.

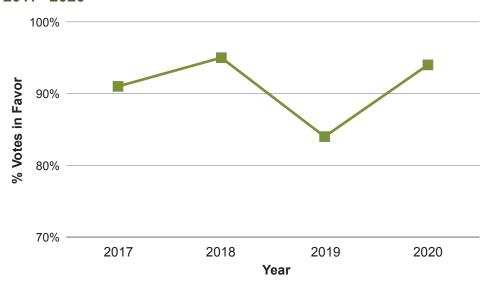
¹⁴ Impax Asset Management, Impax and New York State Common Retirement Fund Team Up To Protect Investors from Physical Risks Posed by Climate Change, 2020, at https://impaxam.com/news-and-views/ press-releases/impax-and-new-york-state-common-retirement-fund-team-up-to-protect-investors-from-physical-risks-posed-by-climate-change/.

¹⁵ OSC, Proxy Voting Guidelines, 2020 at https://www.osc.state.ny.us/files/common-retirement-fund/ corporate-governance/pdf/proxy-voting-guidelines-2020.pdf.

As a result, the Fund withheld support from or voted against 42 incumbent directors who were members of audit and/or environment and social committees at 16 portfolio companies that lacked robust climate risk management, including Exxon Mobil, Phillips 66, Peabody Energy Corp. and Berkshire Hathaway. Moving forward, the Fund will continue to use its voice and vote to encourage and support efforts in climate risk management, strategic planning, and reporting by portfolio companies in order to achieve a successful transition to the low-carbon economy, which is integral to long-term value creation for shareholders.

The Fund also supported 94 percent of environment-related shareholder proposals that were on portfolio companies' ballots during the 2020 proxy season. The figure below shows that this is a relatively high share even in the context of the Fund's consistent shareholder activism on ESG issues.

Fund Support for Environment-Related Shareholder Proposals 2017–2020



Manager Engagement

In early 2020, the Fund began to engage its top global equity and fixed income external managers in the areas of climate governance, risk management, engagement and proxy voting and TCFD reporting. The findings from the Fund's initial review and dialogues are as follows:

- Some managers have explicit climate risk oversight at the board/senior leadership level.
- While most of the global equity managers we reviewed were actively developing capabilities to assess transition risks and opportunities, only a few are undertaking physical risk assessments.

- Half of the managers we reviewed published or committed to publishing a
 climate report in line with TCFD. Several of them were evaluating TCFD to
 identify how they can report their practices. Since Principles for Responsible
 Investment (PRI), a global network of investors supported by the United
 Nations, has mandated TCFD reporting for its members in 2020, the Fund
 expects to see an increasing number of TCFD reports released by managers
 going forward.
- Some of the public equity managers were enhancing their climate voting analyses.
- A few managers that adopted a portfolio target in line with net-zero emissions were identifying specific actions to achieve the target.

In 2021, the Fund will expand its engagement with managers on climate data, stewardship and proxy voting, among other criteria.

Public Policy and Market Leadership

Exerting leadership with respect to pertinent public policy issues, including policies governing the financial markets, is an additional component of the Fund's strategy that can play a vital role in helping to protect the long-term value of our investments. The Fund supports policies and practices that promote the overall stability, transparency and functionality of financial markets and the economy. The Fund's public policy engagement takes many forms, including meetings and correspondence with elected representatives, regulators and other public officials, testimony at hearings and forums, comments on regulatory and legislative proposals, and participation in state, national, and international forums and initiatives.

Addressing public policy matters is also a key component of the Fund's Climate Action Plan. The Fund's primary public policy advocacy priorities have included enhanced climate disclosures and fighting against harmful deregulation efforts surrounding climate change. In recent years, the Comptroller, the Fund and Fund's staff have weighed in on a number of important climate-related investment and regulatory issues. ¹⁶ Some recent comments are reflected in the following table.

¹⁶ OSC, Supporting Statement on Senator Warren's Climate Risk Disclosure Act, 2018 at https://www.osc.state.ny.us/press/releases/2018/09/ dinapoli-statement-support-senator-warrens-legislation-creating-greater-climate-risk-disclosure.

²⁰¹⁶ Regulation S-K at https://www.sec.gov/comments/s7-06-16/s70616-214.pdf.

²⁰¹⁶ Regulation S-K at https://www.sec.gov/comments/s7-06-16/s70616-205.pdf.

²⁰¹⁵ Corporate Disclosure on material risk in the fossil fuel industry at https://www.osc.state.ny.us/files/press/pdf/sec-corporate-disclosure-letter.pdf.

²⁰⁰⁹ Petition on Climate Risk Disclosure at https://www.sec.gov/rules/petitions/2009/petn4-547-supp.pdf. Also, in 2019 and 2018, the Fund wrote to the Environmental Protection Agency and the U.S. Department of Transportation on regulatory rollbacks related to hazardous air pollutant emissions and vehicle emissions standards

Fund's Public Comments on Climate Policies

Entity	Topic
New York State Public Service Commission	In the Matter Regarding the Need for Reporting Risks Related to Climate Change
Pennsylvania Department of Environmental Protection	Investor Statement Supporting Strong Existing Source Methane Emissions Regulations in Pennsylvania
U.S. Financial Regulators	Letter Regarding Immediate Action to Address Climate Change as a Systemic Financial Risk
U.S. Securities and Exchange Commission	Rulemaking Petition Requiring Companies to Report on the Physical Location of Their Significant Assets
Various State Governors	Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Initiative

Moving forward, as the Biden administration has set climate change as one of its top priorities, the Fund will continue to work on key regulatory areas such as corporate climate disclosures and emissions standards.



Conclusion

Although 2020 was a challenging year for society, the global economy and the Fund, active implementation of the Climate Action Plan has continued because addressing climate change-related investment risks and investing in the opportunities created by the transition to a low carbon economy remain top priorities for the CRF and the Comptroller. The Fund has invested in additional staff, data and analytics, consultants and managers to ensure the success of its minimum standards, sustainable investments, engagements, proxy voting and policy advocacy.

In 2021, the Fund will continue its progress by focusing on: new minimum standards for shale oil and gas companies; additional investments in climate solutions and new climate index strategies; enhanced risk assessments such as VaR; and renewed advocacy efforts focused on shaping the national and international climate policies that are essential to realizing economy-wide net-zero greenhouse gas emissions.

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