ENVIRONMENTAL, SOCIAL, AND GOVERNANCE ISSUES REPORT

October 31, 2019

Office of the Vermont State Treasurer

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Introduction

In April of 2015, the Vermont State Treasurer's Office published an initial Sustainability Report entitled *Update on Environmental, Social and Governance Issues and Actions to Address Climate Change* (2015 Report).[1] The 2015 Report reviewed Treasurer's Office efforts in environmental, social and governance (ESG) issues, both in its capacity as a constitutional office and in its role as staff support and a voting member of the Vermont Pension Investment Committee (VPIC), and the State, Municipal and Teachers' Retirement Systems (Retirement Systems).

ESG is a shorthand to describe responsible investment decision-making. The group Principles for Responsible Investment (one of the many that The Treasurer's Office is actively working with) describes responsible investment this way:

> Responsible investment is an approach to managing assets that sees investors include environmental, social and governance (ESG) factors in: their decisions about what to invest in; the role they play as owners and creditors. It aims to combine better risk management with improved portfolio returns, and to reflect investor and beneficiary values in an investment strategy. It complements traditional financial analysis and portfolio construction techniques.[2]

Examples of environmental factors include climate change, pollution, and deforestation. Examples of social factors include human rights, working conditions, and employee relations. Examples of governance factors include bribery and corruption, executive pay, and board diversity. Recently, the scope of ESG has broadened to include emerging crises such as the opioid epidemic and other human rights issues.

This Report expands on the 2015 Report. It describes the significant body of ongoing work that the Treasurer's Office and VPIC have undertaken since 2015, the success we have

[1] Vermont State Treasurer's Office, *Sustainability Report: Update on Environmental, Social and Governance Issues and Actions to Address Climate Change* (April 2015), *available at* http://secure2.vermonttreasurer.gov/legacywebsite/www.vermonttreasurer.gov/sites/treasurer/files/pdf/misc/Sustainability%20Report_TRE_4.27.15.pdf.
[2] Principles for Responsible Investment Website, *What is Responsible Investment?* (last visited Oct. 31, 2019), *available at* https://www.unpri.org/pri/an-introduction-to-responsible-investment/what-is-responsible-investment.

achieved in moving the ball forward, and the challenges that we continue to face. This Report will focus on their ESG efforts pertaining to climate change. Not only is climate change a serious threat to our State and our way of life, it is also a threat to our bottom line. Therefore, particular attention must be paid to climate change and climate risk when making investment decisions and fulfilling our fiduciary obligation to Vermonters.

This Report presents ESG developments in two categories: (1) ESG developments related to the investment of pension funds; and (2) other programs and initiatives within the Treasurer's Office through which we exercise ESG principles. Key developments since the 2015 Report in these areas include:

- In 2017, The Treasurer's Office proposed, and VPIC approved, a 5-point plan to advance our ESG objectives. As described in this report, we have made significant progress on each of these initiatives over the past two years.

- On June 27, 2017, VPIC amended its ESG Policy to require prospective investment managers to disclose, "its ESG policies, processes and systems for identifying ESG-related value drivers and managing material ESG-related risks…."

- Among our membership in numerous ESG networks, VPIC voted on October 23, 2018, to become a UN Principles for Responsible Investment (PRI) signatory. This commitment requires active ownership of shares, transparent reporting on responsible investing activities, and integration of ESG risk analysis in the portfolio's investment process.

- In fall 2019, VPIC is moving forward with significant commitments of $125 million in farmland and food and agriculture technology funds.

- Over the last several years, the Treasurer's Office has obligated approximately $33 million under the 10% in Vermont Program for local investment projects in Vermont in energy improvements in residential housing, commercial energy projects, higher education, and the rehabilitation of State office buildings for energy efficiencies.

Notwithstanding these advancements, governments and institutions cannot rest on past progress if we want to continue to make headway in these important areas. In the Treasurer's Office, our work on ESG matters has been an ongoing and consistent effort, and one that will continue into the future. Accordingly, this Report concludes with a discussion of recommendations that the Treasurer's Office has developed to guide future ESG policy work.

Integration of Environmental, Social and Corporate Governance (ESG) Factors in Retirement System Investment Decision-Making

Most of the investment activity performed by the State is in the context of the State's three public retirement systems – the State System, the Municipal System, and the Teachers' System. This section will discuss the framework for these investments, while other investment activity performed by the Treasurer's Office will be discussed later in the report.

The Treasurer's Office is both a voting member on and provides staff support for the Vermont Investment Pension Committee (VPIC). Per state statute, VPIC is responsible for the investment of the assets of Vermont's three public retirement systems, and it currently invests assets totaling approximately $4.5 billion.

As fiduciary for the State's retirement system assets, VPIC is required to carry out its responsibilities with integrity, prudence, and skill in order to maximize total return on investment, within acceptable levels of risk for public retirement systems. VPIC maintains a governance framework that ensures that all its fiduciary and legal responsibilities are addressed on an ongoing basis. VPIC focuses its time on its four core responsibilities:

- asset allocation,
- risk management,
- governance, and
- member education.

Vermont's pension funds are small in comparison to other, more heavily populated states. Accordingly, VPIC does not have staff to engage in daily transactions (sales, purchases). Instead these functions are delegated to investment managers, selected by VPIC, with appropriate levels of oversight by Treasury staff and VPIC. VPIC has operating policies in place to manage these delegated responsibilities and other services including proxy voting, custodial and consulting services.

VPIC recognizes that ESG issues are among the core factors when assessing the risks and opportunities of an asset, and that they should be fully integrated into the investment decision-making process by VPIC and its managers. Additionally, VPIC recognizes both the importance and the effect on the bottom line value of shareholder engagement on ESG issues with respect to assets owned.

Accordingly, VPIC has adopted an Environmental, Social, and Governance (ESG) policy to establish a framework for applying environmental, social and governance considerations to the management of VPIC assets and to VPIC's shareholder engagement initiatives.[3]

Importance of Climate Change and Climate Risk in Investment Decision-Making

Before addressing the ways in which climate risk is incorporated into investment decision-making in the Treasurer's Office, it is important to stress the urgent and serious threat that climate change poses to Vermont and the United States. Today, a month rarely goes by without another report describing the impacts of climate change and the speed with which they are unfolding. The warnings of these reports are reflected in our daily experience of warmer temperatures and more extreme and unpredictable storm events.

In Vermont, we have not done enough to combat climate change or to reduce our greenhouse gas emissions. Specifically, Vermont has failed to curb its total emissions in the transportation and heating sectors (responsible for 71% of the State's total emissions), and we are far behind where we should be in the year 2019.[4] Vermont has already missed important greenhouse gas reduction goals and is likely to miss future goals as emissions have continued to rise in recent years.[5]

[3] VPIC, *Environmental, Social and Governance Initiatives* (rev. and res. June 27, 2017) (ESG Policy), *available at* https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/2017/VPIC_ESG_Policy_Addopted_20170627.pdf.

[4] Timothy McQuiston, *Vermont must use 'Cap and Invest' system to reduce carbon*, Vermont Business Journal (July 4, 2019), *available at* https://www.vermontbiz.com/news/2019/july/04/vermont-must-use-%E2%80%98cap-and-invest%E2%80%99-system-reduce-carbon.

[5] *Id. See also* Vermont Dep't Environmental Conservation, *Vermont Greenhouse Gas Emissions Inventory Update: Brief 1990 – 2015* (June 2018) (2018 Emissions Inventory Update), *available at* https://dec.vermont.gov/sites/dec/files/aqc/climate-change/documents/_Vermont_Greenhouse_Gas_Emissions_Inventory_Update_1990-2015.pdf.

A Vermont Agency of Natural Resources (ANR) report from June 2018 highlighted the challenge.[6] The ANR Report found that "Vermont's greenhouse gas emissions remain at levels well above its reduction goals established in state statute (10 V.S.A. § 578) and in the Comprehensive Energy Plan. Each successive year of increasing emissions levels makes achieving the state's emission reduction goals significantly more difficult."[7] The Report concludes that:

> Estimates of greenhouse gas emissions in Vermont for 2015 show a continued rise from 2014 levels. State totals are still below the 2004 peak level, however, the total estimated emissions for 2015 are approximately 16% above the levels of the 1990 baseline, and the third highest in the current inventory record (only 2004 and 2005 were higher).[8]

The threats from climate change are real and severe. They require a concerted and collaborative effort from all parties. Local, state, and federal governments, in concert with the private sector, must do more to address the issues that face all citizens.

While the Treasurer's Office is neither an appropriation nor a regulatory authority, we do our part to address climate change primarily in our role as an institutional investor. Through the development and adherence to VPIC's ESG Policy, we carry out our fiduciary responsibilities to the current and future beneficiaries of our pension funds, as well as state taxpayers, in a way that seeks to combine better risk management in this critical area with improved portfolio returns.

Value of Shareholder Engagement

Both the Treasurer's Office and VPIC believe that in their role as institutional investors, one of the most effective modes of transitioning companies to a low-carbon future is to constructively engage with companies, managers, governments, and regulators. Not only does shareholder engagement provide an effective means for Vermont to vote its values as an institutional investor, it allows Vermont to join forces with other, larger institutional investors to have an outsize influence relative to its size. Per activist David Sirota:

[6] 2018 Emissions Inventory Update.
[7] *Id.* at 13 (internal citations omitted).
[8] *Id.*

> Then again, the enormous size that makes multinational companies like ExxonMobil seem so immovable is precisely why these seemingly minute victories are actually huge. If you get a giant corporation with global reach to change even a tiny bit, you have made a global impact.[9]

Shareholder engagement is defined as "…interactions between the investor and current or potential investee companies with the goal of improving (or identifying the need to influence) practices and/or improve disclosure."[10]

One of the primary tools of shareholder engagement is proxy voting. Proxy voting allows an equity shareholder of a company to vote on resolutions pertinent to the operations of the firm.

An institutional investor may develop proxy policies or guidelines (a set of statements or beliefs that guide the shareholder on how to vote). Institutional investors may also co-file proxy proposals on various ESG issues.

In the case of comingled investment funds, VPIC's investment managers are required to vote their proxies on behalf of VPIC and other investors in their funds. In the case of separately managed investment accounts, VPIC has a well-developed set of proxy policies, which were first developed 2003/2004, and updated on multiple occasions thereafter, to guide managers' votes. A Proxy Subcommittee is currently wrapping up the most recent revisions, with the assistance of an advisory firm, Segal Marco.

As of 2015, VPIC became active as a co-filer of proxy proposals and has expanded that role over the past few years to include:

- Joining sign-on letters to companies to support various proxy vote positions;
- Encouraging other institutional investors to vote on critical ESG issues; and

[9] Sirota, David, *The Uprising: An Unauthorized Tour of the Populist Revolt Scaring Wall Street and Washington*, Crown Publishing Group (2008).
[10] High Meadows Institute, *Incorporating ESG Considerations into Engagement Practices*, (March 2017) at 3, *available at* http://www.highmeadowsinstitute.org/wp-content/uploads/2017/03/Incorporating-ESG-Considerations-into-Engagement-Practices.pdf.

- Engaging regulatory (SEC) and political bodies (Congress) to maintain the rights of shareholders at annual meetings. (Recent legislation introduced in Congress has sought to limit institutional shareholder proxy activity.)

In the 2019-2020 season, Vermont expects, for the first time, to be a lead filer (as opposed to co-filer) on several proxy proposals.

Annually, Treasury staff present, and VPIC reviews, proposals for new and continuing methods of shareholder engagement. In response, VPIC formally adopts a shareholder plan. Copies of the memos documenting the adopted actions are included in the appendix.

VPIC and the Treasurer's Office are also active participants in many organizations and efforts alongside other institutional investors to encourage integration of ESG considerations into companies' business models and to advocate for corporate policies and regulations that enhance long-term profitability. VPIC voted on October 23, 2018, to become a UN Principles for Responsible Investment (PRI) signatory. This commitment requires active ownership of shares, transparent reporting on responsible investing activities, and integration of ESG risk analysis in the portfolio's investment process. Our memberships with various organizations provide organizational structure, research and guidance, strategy and support in engaging on ESG-related risks and opportunities. A complete list of our memberships is set forth in the appendix.

Shareholder engagement has been successful. Success in this space is measured through a number of metrics: the number of proposals filed, the number withdrawn after successful company engagement, increasing vote approval levels when not withdrawn, and improved performance on governance, disclosure and increases in firm value when engagement is successful. In a recent article posted on Morningstar, authors Jon Hale and Jackie Cook noted:

> Shareholder support for climate-related resolutions climbed to an all-time high of 30% in 2019's proxy season, with the number of resolutions coming to a vote declining significantly. Those are not contradictory developments. Many proposed resolutions were withdrawn prior to votes because shareholder sponsors and

company management teams sat down and had a constructive dialogue, leading to the requested action being taken.[11]

Additionally, Ceres (a sustainability non-profit that works with investors) notes several instances where increased engagement has led to positive results for society as well as the company's bottom line.[12] For example, Ceres described recent shareholder engagement actions between 2011 and 2017 related to deforestation. Of 51 shareholder proposals seeking corporate policies to address risk associated with sourcing palm oil and other deforestation-linked commodities, 23 companies responded to these by making commitments to improve practices.[13]

With respect to the effect of shareholder engagement efforts involving ESG-related risks and opportunities on compony bottom-line performance, the Ceres report highlighted the following results:

- An analysis of the stock performance of 188 companies placed on the "focus list" for ESG engagement by California Public Employees' Retirement System (CalPERS) found that these companies performed significantly better than their peers (15.27 percent above the Russell 1000 Index) over a 14-year period.
- Evidence from collaborative dialogues involving 225 investment organizations over the period between 2007-2017 shows that after "successful" engagements (as defined by a set of predetermined criteria and scorecards) have occurred, target companies experience improved profitability (as measured by return on assets), while unsuccessful engagements demonstrate no change.
- Research from Harvard Business School indicates that filing shareholder proposals is effective at improving the performance of the company on the focal ESG issue, even though such proposals nearly never received majority

[11] Jon Hale & Jackie Cook, *Proxy Process Opens Door to Constructive Engagement on Climate*, Morningstar September 5, 2019, *available at* https://www.morningstar.com/articles/945007/proxy-process-opens-door-to-constructive-engagement-on-climate.
[12] Ceres, Environmental Defense Fund, and KKS Advisors, 2019. *The role of investors in supporting better corporate ESG performance: Influence strategies for sustainable and long-term value creation*. Meridian Institute, *available at* https://static1.squarespace.com/static/5143211de4b038607dd318cb/t/5ce50ff69217950001b465bb/1558515735606/Investor_Influence_report.pdf.
[13] *Id.* at 2.

> support. Proposals on material issues are associated with subsequent increases in firm value.[14]

Through active shareholder engagement, Vermont, working with its partners and member organizations, makes changes in the corporate boardroom that have an impact on all of us. Additionally, through our dialogue with investment managers, and decisions on where to invest our assets, we have the opportunity to move the dial on climate change risk and transition to a low carbon economy.

[14] *Id.* at 3 (internal citations omitted).

Climate Risk Divestment Discussion Report and Recommendations

Several years ago, the Treasurer's Office and VPIC worked with the General Assembly, Administration, and a broad range of stakeholders to discuss climate risk. One discussion centered on whether climate risk mitigation could be achieved through divestment from certain industries, sectors, and companies. All advocates, pro and con, were welcome to join the discussion through multiple open public meetings of VPIC and a VPIC subcommittee on ESG.[15]

The discussion was robust and productive. Ultimately, it was decided to seek outside assistance to help provide expertise on the matter. Accordingly, the Treasurer's Office and a group of environmental advocates (Sierra Club, 350VT, Clean Yield, and VPIRG) all agreed on the selection of a consultant – Pension Consulting Alliance (PCA) – to commission a new study.[16]

In February 2017, PCA delivered its report, entitled *Climate Risk Divestment Discussion*, a copy of which is included in the appendix. The PCA Report largely confirmed previous studies by NEPC LLC and Treasury staff, which found that divestment would increase costs and add diversification and technological risk to the portfolio. In short, the PCA Report found that divestment of pension dollars is not an appropriate or prudent option for Vermont.

However, the PCA Report noted that "markets now offer meaningful tools to address climate risk." Additionally, the PCA Report determined that:

> We believe that VPIC's significant proxy voting and engagement efforts on climate risk issues at fossil fuel companies, including ExxonMobil, and

[15] Please see VPIC's ESG Sub-committee webpage to listen to audio of VPIC's ESG Sub-Committee meetings, and to review other ESG materials, *available at* https://www.vermonttreasurer.gov/content/vpic-esg-sub-committee.

[16] Representatives from Clean Yield, 350VT, Sierra Club, and VPIRG selected three pension advisory firms, as acceptable firms to provide an independent assessment. VPIC then went through a procurement process with these firms and ultimately selected PCA – a choice that was agreed to by the advocacy groups. The report was funded by the Treasurer's Office, not with pension trust dollars.

investment strategies other than divestment, are better suited than divestment for VPIC to manage risks and opportunities posed by climate change within its role as fiduciary of a U.S. public pension fund.[17]

As a result of the collaborative process and expert insight, the Treasurer's Office submitted, and VPIC adopted, five ESG recommendations. Those recommendations were:

1. The VPIC ESG policy should be revised to include: "When conducting an investment manager search, the investment consultant shall require each prospective investment manager to disclose, in addition to its proposed investment guidelines and practices for investment selection, its ESG polices, processes and systems for identifying ESG-related value drivers and managing material ESG-related risks, to the extent the same may be applicable."
2. PCA recommends exploring the possibility of creating a new passive investment vehicle that could be seeded by VPIC and would be consistent with our ESG policy.
3. Related to recommendation 2 above, the Treasurer's Office recommends working with NEPC to explore ways to identify renewable energy opportunities as incorporated in asset classes or as a subset of asset classes.
4. Consistent with the PCA recommendation, the Treasurer's Office recommends working with our third-party vendors to review the feasibility of developing reporting tools on ESG factors to further our monitoring efforts.
5. VPIC should continue its dialogue with investment managers on climate change and ESG issues and prepare periodic updates.

The Treasurer's Office and VPIC are actively engaged and moving forward on all five recommendations. In the next section, we provide a summary of the recommendations, the current status or actions taken, and next steps that are planned or contemplated.

[17] Pension Consulting Alliance, *Vermont Pension Investment Committee: Climate Risk Divestment Discussion* (Feb. 8, 2017), *available at* https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/2017/PCA_Climate_Divestment_Report_for_VPIC.pdf.

Progress to Date and Next Steps

Recommendation 1:

The VPIC ESG policy should be revised to include: "When conducting an investment manager search, the investment consultant shall require each prospective investment manager to disclose, in addition to its proposed investment guidelines and practices for investment selection, its ESG polices, processes and systems for identifying ESG-related value drivers and managing material ESG-related risks, to the extent the same may be applicable."

Action Taken:

On June 27, 2017, VPIC amended its ESG Policy to require prospective investment managers to disclose, "its ESG policies, processes and systems for identifying ESG-related value drivers and managing material ESG-related risks…." The ESG Policy further states:

> The VPIC recognizes that environmental, social and governance issues are among core factors when assessing the risks and opportunities of an asset and should be fully integrated into the investment process by VPIC and its managers. ESG should be weighed with all other risks and opportunities and not considered in isolation. Engagement on ESG issues can result in more informed decision-making and VPIC recognizes the importance of shareholder engagement.[18]

VPIC evaluates the ESG Policy annually, and we anticipate that the policy will continue to evolve over time.

NEPC, LLC is the investment advisor to VPIC. NEPC is a national leader, providing "comprehensive consulting services to over 60 public fund clients with total assets in excess of $600 billion. "[19] NEPC provides VPIC with screening services for prospective managers and due diligence on current managers.

[18] VPIC, ESG Policy.
[19] NEPC website, *Public Funds* (last visited Oct. 31, 2019), *available at* https://www.nepc.com/focus-areas/public-funds.

Over the past two plus years, Treasury staff have worked with NEPC to make sure that ESG factors are included in the initial manager screening process and subsequent reviews. They currently are in the process of preparing a dashboard for each manager and a sample for Acadian (an international equity fund manager for VPIC) is displayed below. NEPC assigned Acadian a rating of "1" because the firm has been able to demonstrate that it integrates ESG at both the firm and strategy levels.

ESG INTEGRATION EVALUATION

General Fund Information	
Firm	Acadian Asset Management
Fund	Non-US Equity
Strategy-Type	Traditional Public Equity
Firm AUM	$95.7 Billion as of September 30, 2019
Non-US Strategy AUM	$17.2 billion (as of 9/30/2019)
VPIC AUM	**$112 million (as of 9/30/2019)**

ESG Rating
ESG 1

Analyst Opinion
Acadian believes ESG factors are material and that sustainable companies will generate strong performance over time. Over a dozen ESG indicators are included within the four main factors of their quantitative model (value, quality, growth, technical). In order for a factor to be included in the model it must add value. Acadian's universe includes over 40,000 stocks, all of which are evaluated on ESG issues that inform the factors in the model. ESG is integrated throughout every product due to the quantitative process.

Evaluation Criteria and Commentary	
Firm-Level	
Firm-Level Commitment	Acadian was the first quantitative signatory of the United Nations Principles for Responsible Investment (PRI) in 2009. They are rated A+ by the PRI on Strategy & Governance, A on Incorporation as well as Active Ownership. Additionally, Acadian is a signatory of ESG Research Australia and the Japan Stewardship Code. They are also active members in organizations such as High Meadows Institute. The firm has an ESG philosophy and policy that informs research across all investment products and they have incorporated ESG factors in their investment process since the 1990's.
Resources	The Responsible Investing Committee Team (RCIT) at Acadian is comprised of senior level leaders including the Co-CEOs, CIO and members of the Portfolio Management Team. The team is led by Asha Mehta. The ESG effort at the firm is not siloed to the RCIT and it is truly integrated across all portfolios. The RCIT is responsible for overseeing the ESG effort at the firm which includes discussing key issues, themes, prioritization of ESG efforts across the firm and assisting research when evaluating ESG signals. Acadian utilizes the underlying data from over 20 companies across data aggregators (i.e. TruCost), rating agencies (i.e. MSCI, Sustainalytics) as well as Acadian's proprietary research.
Engagement Policies	Acadian's main focus is to engage with companies on improving data disclosure. Given Acadian's quantitative investment process, better data disclosure is crucial. Additionally, the firm has a Corporate Engagement Team to assist with targeted engagement and they also participate in collaborative engagement efforts.
Strategy-Level	
Overview	The strategy integrates all ESG factors that are included in the quantitative model.
Integration Process	Governance and Social issues are very important in strategies with exposure to emerging markets. Due to the nature of these markets, these factors are almost doubled compared to domestic strategies because of their importance. The strategy weighs social/labor standards highly when assessing developed market securities.
Resources	The analysts and portfolio managers have access to ESG data and everyone understands and considers ESG when constructing portfolios. Team members utilize the RCIT for additional support and research. In addition to traditional performance attribution, the portfolio managers evaluate performance drivers through an ESG attribution model.

In practice, the ESG Policy is yielding positive results. VPIC is currently finalizing combined commitments of $125 million to a farmland fund and an agricultural technology fund. ESG factors played a role in the selection of both. We expect these two funds to not only generate attractive risk-adjusted returns, but also to promote sustainable farming practices. Specific examples include reduction in the use of chemical fertilizers and pesticides, reduction in nitrate runoff, and improvements in the production of higher quality food supply.

In the case of the farmland search, the selected manager's leadership on ESG factor integration tipped the scale in favor of its fund. The attractive risk-adjusted return within the diversified portfolio was compelling, but the seamless integration of ESG metrics made the fund stand out in the asset class. VPIC will hold a seat on the fund's ESG investor council when the commitment is finalized.

Additionally, current managers have articulated policies and practices where ESG is integrated into the securities section process. For example, Acadian (the fund profiled above) has reported:

> Acadian applies an implied carbon tax level on companies with high carbon emissions to "decarbonize" their future earnings. By applying this adjustment, the firm leans portfolios away from companies that contribute to climate change and, therefore, has the potential to underperform industry peers in a transition to a low carbon economy.[20]

Acadian further explained that Vermont's portfolio with the manager has seen a measurable impact from this approach. As noted by Acadian representatives:

> As of September 30, 2019, your portfolio demonstrates a lower carbon profile than the benchmark's. Specifically, the portfolio's Scope 1 total emissions were 9% below the MSCI EAFE IMI (net) benchmark's level (4.05 and 4.47 mm metric tons, respectively). Likewise, the combined Scope 1 + 2 emissions were reduced by 14% (4.70 vs 5.49 mm metric tons).[21]

[20] Survey Response Summary – Acadian, *available in* Appendix E.
[21] Email from Jennifer Sachs, Acadian, to Eric Henry, Vermont Treasurer's Office (Oct. 17, 2019).

Another manager reports using a "proprietary ESG ratings on companies incorporating a range of factors, such as greenhouse gas emissions, renewable energy use, and water scarcity management."[22] PIMCO (a core plus fixed income manager for VPIC) has a well-articulated proprietary toolkit to manage climate risk that is detailed in the Appendix as part of its response to the investment manager surveys.

As noted in the document below, Mondrian (an international equity fund manager for VPIC) uses the following proprietary report to capture ESG risks and opportunities for companies in its portfolio.

[22] Survey Response Summary – Wellington, *available in* Appendix E.

MONDRIAN
INVESTMENT PARTNERS LIMITED

Company Name

Date: Analyst: Country:
Sector: Sub-Industry:

Summary

Univ.	Peer	Category
		Environmental
		Social
		Governance

Sources:

ESG Issue Evaluation

	ESG	Key Issue	Univ.	Peer	Analysis
Core Values	E	Climate Change			
	S	Human Capital			
	G	Corporate Governance			
Specific Concerns					

NOT FOR DISTRIBUTION

Valuation Impact

	Worst Case	Base Case	Best Case
Short-Term Years 1 - 5			
Medium-Term Years 6 - 10			
Long-Term Years 11 - 50			

Next Steps:

VPIC intends to continue to evaluate options to invest in low-carbon opportunities, consistent with existing manager selection processes and the ESG Policy. The Treasurer's Office plans to bring together advocates from environmental groups to review the current policy and to discuss the evolution of ESG and to make any recommendations to the VPIC. Additionally, the Treasurer's Office will continue to work with its investment consultant to improve ESG integration with new and existing managers.

Recommendation 2: **PCA recommends exploring the possibility of creating a new passive investment vehicle that could be seeded by VPIC and would be consistent with our ESG policy.**

Action Taken:

To date, we have seen limited results in adopting a pooled passive investment vehicle with appropriate cost parameters. Our initial effort in this investment space was in June 2017, when we engaged NEPC to find a passive/index provider that could create a fund/vehicle to match the MSCI ACWI ex US (a non-US, global equities fund) and allow for the investors to vote proxies according to their ESG beliefs. Another NEPC client, a large West Coast public pension fund, was looking for the same type of solution and wanted to join forces with Vermont and seed the new fund with approximately $350 million (the Vermont proposed commitment was $150 million). The idea was to have VPIC and the other public fund start the fund and have other public funds invest over time, in an effort to join forces and make an impact on climate and other ESG goals. The fund would have a customized proxy voting/shareholder engagement policy.

On behalf of Vermont, NEPC issued an RFP to seven firms with the following request:

> NEPC is running a passive manager search for two of our public, non-ERISA clients. This is a search for an index provider that can provide MSCI ACWI ex USA passive exposure while allowing a client or group of clients to vote proxies according to their ESG beliefs. The intent is to have multiple investors with like ESG and climate risk goals to be investors. Our clients have an indicated interest for a total of ~500 million in mandate size.[23]

Of the seven firms invited to participate, one declined, and five indicated that they would only consider separate accounts, not a pooled fund. Many of the difficulties centered on the need for separate proxy policies for the participating plans. The final firm indicated that it was in the process of formalizing its proxy voting strategies and would prefer not to move forward with mandates with proxy voting requirements at the time. While this

[23] Email from Margaret Belmondo, NEPC, to Beth Pearce, Vermont State Treasurer (Oct. 22, 2019), *available* upon request.

manager has some worldwide experience in sustainability funds, that experience was more in what NEPC would consider active funds, which were more expensive than expected.

NEPC and Treasury staff then revised the request to seek just carbon efficient funds. We had some limited interest, but the fees were in excess of the current index provider and there were concerns over diversification and performance, so staff did not move forward at the time.

Part of the issue is scale. The NY State Common Retirement Fund, with assets well over $200 billion has created an in-house index fund – the Low Emissions Equity Index. As noted by the NY Comptroller's Office, "(the) low emission index 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." Given the size of the New York portfolio and the index fund, this can be done with internal staffing at a competitive price. VPIC does not have the scale to make this work, at present.

VPIC's goal remains the creation of a low-cost, highly scalable, passive solution resulting from a collaborative effort that amplifies a common set of ESG and low-carbon views. We will continue to look for opportunities here and plan to ask our investment consultant to re-engage the search process as the ESG space continues to evolve. We will also continue to look for partnerships with other public pension plans.

Next Steps:

Staff has and will continue to explore opportunities to monitor and encourage opportunities in this space as market conditions might shift to make this recommendation more economical and meet performance and diversification requirements. In addition to VPIC, the Treasurer's office is interested in pursuing a similar vehicle that may be appropriate for some of its non-pension trust funds.

Recommendation 3: **Related to recommendation 2 above, the Treasurer's Office recommends working with NEPC to explore ways to identify renewable energy opportunities as incorporated in asset classes or as a subset of asset classes.**

Action Taken:

VPIC and Treasury staff continue to look for opportunities to invest in renewable energy. However, since the development of these recommendations, we have expanded the universe of investments sought to include investments that facilitate a transition to a low carbon environment. We believe such opportunities are consistent with our future energy direction and are good investments, now and in the future. As VPIC seeks to diversify its asset classes, this is a window in which to identify renewable opportunities, specifically in private equity and private debt.

With respect to investments in renewable energy, our existing private equity portfolio contains a total of $1.7 million (0.6% for the portfolio) in Cleantech. Cleantech, as an industry category spans many investment segments, including: Clean energy, Energy Storage, Advanced Manufacturing and Materials, Mobility, and Food & Agriculture; and technologies, including Artificial Intelligence, robotics, and sustainable chemistry, among others.

Additionally, we have surveyed our equity managers to identify their selection of renewable energy or investments that promote a transition to a low carbon economy. As of September 30, 2019, one equity manager reports having $14.6 million in VPIC investments that are, as reported by the manager, “sustainability focused.”

This includes three companies that have material exposure to electricity generation and where renewables contribute over 40% to the total generation capacity: Enel (Italy), Iberdrola (Spain), and SSE (UK). The total dollar exposure of the portfolio to these names is $6.05 million, or 5.6% of the total portfolio managed by the vendor.

Among other companies making up the $14.6 million are Kyocera (a leading player in solar power and clean technology) and Mitsubishi Electric (a producer of highly energy efficient semiconductors and elected by CDP as an “A List” or top 5% in recognition of the company’s efforts to reduce CO2 emissions). Several other companies held by the portfolio also have some exposure to renewable energy opportunities, but they are not included in the total dollar exposure figure above given that renewable energy opportunities make up a much smaller part of their overall businesses.

With respect to investments in other low carbon environment positions, VPIC is finalizing combined commitments of $125 million to a farmland fund and an agricultural technology fund: $100 million to the Nuveen Global Farmland Fund (Nuveen); and $25 million to a Food and Agriculture Technology Fund. Both funds plan to incorporate ESG factors significantly into their investment decisions.

Nuveen is one of only a few institutional size investment managers to engage a firm-wide ESG Advisory Council. VPIC has been offered and will be taking a seat on that council. Nuveen has a long and proactive history of incorporating ESG factors into their investment decisions and actions, specifically related to farmland investing. Nuveen is a founding member of the UNPRI Farmland Guidelines, it adopted a Zero Deforestation Policy for investments in Brazil, and it has completed a climate change impact analysis. Additionally, Nuveen has released a detailed Sustainability Report for 2019 which may be found here: https://www.nuveen.com/farmland-sustainability-report.

Nuveen also proactively performs an ESG specific site visit/audit for every farmland property it owns at least once per year. These visits cover topics from fuel and fertilizer storage, to the labor policies of the farm managers who lease the land. Finally, Nuveen includes their Head of Sustainability in all of the firm's Global Investment Committee meetings.

The Food and Agriculture Technology Fund is a growth private equity fund with a focus on food and agricultural technology. It will be investing in companies that improve soil health and reduce the environmental impact of farming, improve supply chain sustainability and efficiency, and work to reduce CO_2 emissions from agriculture.

One of the issues with identifying renewable energy and low-carbon assets in the VPIC portfolio is classification. In some cases, managers list these as electric utilities rather than the GICS subcategory "renewable energy." Over the next year, we will be attempting to achieve some standardization to better define and identify assets in the above categories and track their growth in the portfolio. Staff will be working to improve metrics to identify existing green investments as well as to track progress in a transition to new opportunities.

Next Steps:

The Treasurer's Office is working closely with the VPIC investment consultant to identify private debt funds that lend to developers of solar and wind farms. The office is in the early stages of identifying which companies have been most successful in this space and when VPIC would be able to invest in such a product, in a manner consistent with its investment policies.

On a more macro level, Treasury staff has begun reviewing the sources of climate-related risks and how they may impact the portfolio. Source data from the investment managers as well as various affiliations that VPIC and/or the Treasury have joined has provided a better understanding of these risks. However, a more formal and structured framework is needed, and Treasury staff recommend the use of the framework of the Task Force on Climate-related Financial Disclosures (TCFD). The risks set out by the TCFD are as follows:[24]

Transition Risks				Physical Risks	
Policy and Legal	**Technology**	**Market**	**Reputation**	**Acute**	**Chronic**
Increased pricing of GHG emissions Enhanced emissions-reporting obligations Mandates on and regulation of existing products and services Exposure to litigation	Substitution of existing products and services with lower emissions options Unsuccessful investment in new technologies Costs to transition to lower emissions technology	Changing Customer Behavior Uncertainty in market signals Increased cost of raw materials	Shifts in consumer preferences Stigmatization of sector Increased stakeholder concern or negative stakeholder feedback	Increased severity of extreme weather events such as cyclones and floods	Changes in precipitation patterns and extreme variability in weather patterns Rising mean temperatures Rising sea levels

[24] Int'l Investors Group on Climate Change, *Addressing Climate Risks and Opportunities in the Investment Process* (June 2018) at 15 (IIGCC Report), *available at* https://www.iigcc.org/resource/addressing-climate-risks-and-opportunities-in-the-investment-process/.

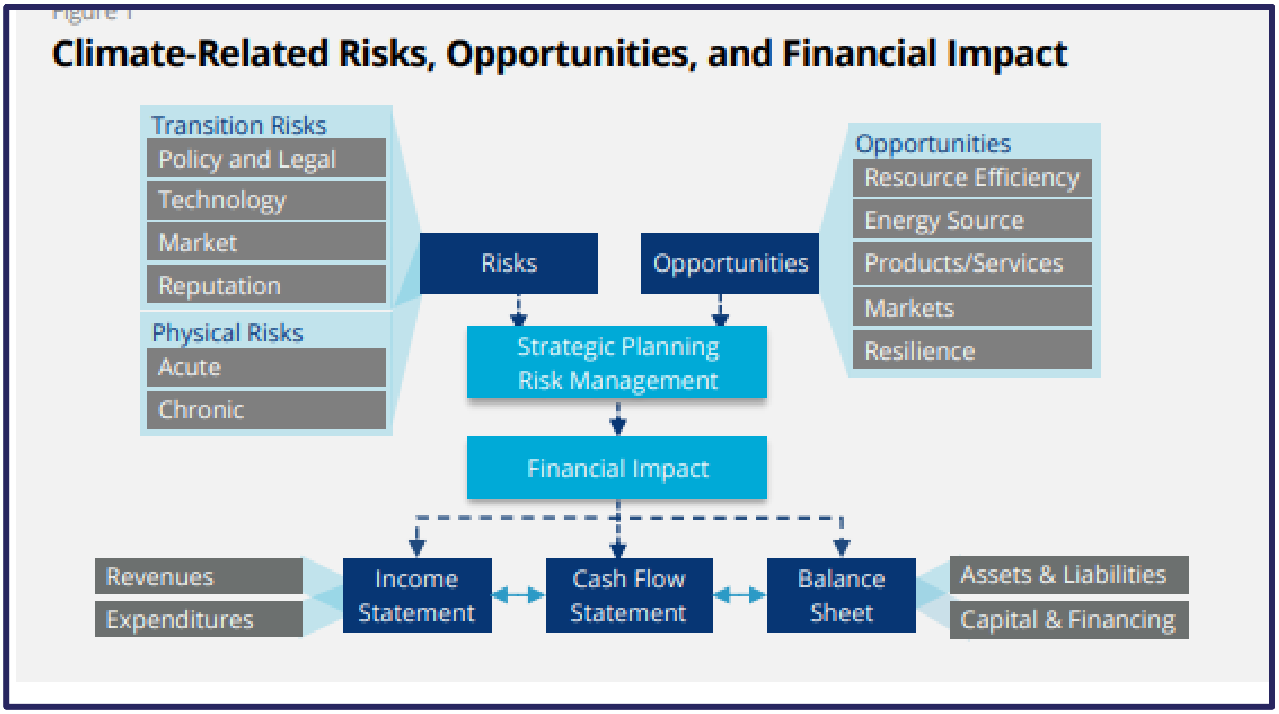
At the same time, "Efforts to mitigate and adapt to climate change also produce opportunities for organizations, for example, through resource efficiency and cost savings, the adoption of low-emission energy sources, the development of new products and services, access to new markets, and building resilience along the supply chain."[25] The Task Force identified several areas of opportunity:[26]

Resource Efficiency	Energy Source	Products & Services	Markets	Resilience
Use of more efficient modes of transport Use of more efficient production and distribution processes Use of recycling Move to more efficient buildings Reduce water usage and consumption	Use of lower-emission sources of energy Use of supportive policy inventives Use of new technologies Participation in carbon market Shift toward decentralized energy generation	Development and/or expansion of low emission goods and services Development of climate adaptation and insurance risk solutions Development of new products or services through R&D and innovation Ability to diversify business activities Shift in consumer preferences	Access to new markets Use of public-sector incentives Access to new assets and locations needing insurance coverage	Participation in renewable energy programs and adoption of energy efficiency measures Resources substitutes/ diversification

Finally, in the figure below, these two areas are put into a larger framework. This may be used to inform the asset allocation process, and the specific sectors and/or securities that provide either risk or opportunity to the portfolio.[27] Staff expect to complete an analysis based on this framework over the next year within the context of the ongoing enterprise risk management project.

[25] Task Force on Climate-related Financial Disclosures, *Recommendations of the Task Force on Climate-related Financial Disclosures* (June 2017) at 6 (TCFD Report), *available at* https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf.
[26] IIGC Report, at 17.

[27] TCFD Report at 8.



Recommendation 4: **Consistent with the PCA recommendation, the Treasurer's Office recommends working with our third-party vendors to review the feasibility of developing reporting tools on ESG factors to further our monitoring efforts.**

Action Taken:

As we began this project, Treasury staff centered its activities on both identifying and categorizing the work of VPIC's investment managers and measuring progress on Vermont's efforts in corporate engagement. Several steps have been taken so far, beginning with the survey of investment managers on issues of ESG integration into the investment process and climate change. This is extremely important given that VPIC does not engage in directly selecting securities but rather delegates this to VPIC's investment managers.

As noted by the Institutional Investors Group on Climate Change (IIGCC):

> Trustees and boards need to be able to evaluate how well their external asset managers (and/or internal managers) are managing climate-related risks and engage forcefully with those managers where there is potential

to improve standards and reduce risk across portfolios.[28]

The results of these surveys are outlined in the appendices. Current outreach with investment managers is in the form of establishing a dialogue and gathering initial information. As we continue this dialogue, our goal is to establish a series of metrics based on the ESG policies and their implementation. The IIGCC provides a sample of how a matrix for this may look: [29]

[28] IIGCC Report at 31.
[29] *Id.*

Example of Questions	Responses – Graded from Poor to Excellent			
	Poor	Fair	Good	Excellent
Do you incorporate climate-related risks into your valuation and portfolio construction processes? If so, please provide examples to illustrate this.	No formal process of examples exists.	Integration of some climate-related risks in an ad-hoc manner, with limited evidence.	Integration of some climate-related risks (transition risks only) in a systematic way, with some evidence.	Integration of all climate-related risks (transition and physical) in a systematic way, with strong evidence.
Do you measure the carbon footprint of your portfolio, and if so, can you include this as part of your reporting on an annual basis?	No, and no intention to pursue this.	No, not measured at the portfolio level but willing to consider and discuss this further.	No, not measured at the portfolio level but is considered for some stocks assets, willing to discuss this further.	Yes, measured and reported at the portfolio level on an annual basis.
Do you know the exposure of your fund to fossil fuel assets, and are you willing to disclose them?	No, not relevant or meaningful.	No, too costly to pursue, case-by-case potential.	No, don't specifically measure the fossil fuel exposure but are willing to explore this and disclose.	Yes, the fossil fuel exposure is assessed and reported.
Have you estimated the potential risk of portfolio assets becoming stranded in a <2°C climate scenario? If not, would you be willing to undertake this exercise and report the outcomes?	No, not relevant or meaningful.	No, have considered this and concluded that the approach is too costly and not helpful.	Yes, willing to consider undertaking such analysis in the future.	Yes, considered this and willing to report it.
Do you undertake scenario analysis as part of your investment process, and if so, would you be willing to extend this to incorporate climate-related impacts, including alignment with the Paris Agreement?	No, not relevant or meaningful.	No, have considered this and concluded that the approach is too time consuming and not helpful.	Yes, willing to consider undertaking such analysis in the future.	Yes, already undertaking such analysis and willing to report.
What other initiatives or activates are you involved in to proactively mitigate the risk of climate change to the investment portfolio?	None specified.	Mention activities that impact on broader industry standards and practices.	Mention activities that impact on the organization-wide approach, not specific to the portfolio.	Mention activities that directly relate to the way the portfolio is invested.
Have you considered the risk of any of the assets held in your portfolio against the physical impacts of climate change? If not, would you be prepared to undertake such an analysis going forward and report this?	No, not relevant or meaningful.	No, have considered this and concluded that the approach is too costly and not helpful.	Yes, willing to consider undertaking such analysis in the future.	Yes, have measured some of the most at risk assets and willing to report findings.

Principles for Responsible Investment (PRI), has also provided a list of questions that will facilitate this effort. While these references provide useful sample questions, Treasury staff plans to engage environmental advocates/experts to further develop these and other metrics, possibly including but not limited to, carbon emissions, scenario analysis, impact metrics and adaption metrics whereby "asset owners can assess the preparedness of investee companies and entities to the physical impact risk associated with climate change."[30]

Our progress with shareholder engagement is also an important metric. Prior to 2015, Vermont had not co-filed any proxy proposal. From 2015 through 2018, VPIC has been a co-filer on 17 proxy submissions. We have also participated in direct engagement with companies, "sign-on" letters to companies directly, as well as "sign-on" letters to Congress, the SEC, and other regulatory bodies. This engagement has taken the form of promoting ESG initiatives directly to companies and urging Congress or the SEC not to limit shareholder rights. This year VPIC expects to become the lead filer on several proxy submissions.

Additionally, VPIC has become a signatory to the UN Principles for Responsible Investment (PRI) and continues to engage companies on ESG factors alongside other institutional investors through membership in the Council of Institutional Investors (CII), Ceres, Climate Action 100+, and Investors for Opioid Accountability.

VPIC is also a member of Sustainability Accounting Standards Board (SASB). SASB develops and maintains sustainability accounting standards for use by public-sector corporations. The standards provide evidence-based, industry specific, and materiality focused disclosure guidance for companies seeking to report on sustainability. Vermont utilizes membership of SASB as a tool when engaging with companies to help evaluate the company's reporting versus best disclosure practices as outlined by SASB. We expect SASB to be a useful resource on company data.

[30] IIGCC Report at 36 (referencing Global Investor Coalition on Climate Change, *Climate Change Investment Solutions: A Guide for Asset Owners* at 22-26 (2015), *available at* http://globalinvestorcoalition.org/wp-content/uploads/2015/04/Climate-Change-Investment-Solutions-GuideFINAL.pdf; IGCC/AIGCC, Transparency in Transition: A Guide to Investor Disclosure on Climate Change at 31-32 (2017), *available at* https://igcc.org.au/wp-content/uploads/2017/04/IGCC-TRANSPARENCY-in-TRANSITION-FINAL.pdf.

VPIC has experienced success in actively engaging with companies to mitigate ESG factor risk. In response to VPIC and other shareholder engagement efforts, a mid-stream oil and gas corporation committed in 2018 to begin reporting on climate and sustainability factor risks. Since this commitment, the Treasurer's Office has been participating in ongoing discussions with this corporation leading to the company's first ESG report published in October 2018, which made use of SASB guidelines.

The Treasurer's Office assessed this publication with the help of SASB, which provided both positive and constructive feedback for the company. SASB was able to confirm that the report was thorough, transparent, and in line with SASB's guidance, helping to establish an improved industry standard for sustainability reporting in that industry group. SASB was also able to provide recommendations for areas of improvement for future reporting, which the Treasurer's Office has shared with the company.

We hope to build on this effort, using even more developed approaches and metrics. SASB and the Climate Disclosure Standards Board (CDSB) teamed up in 2019 to provide practical approaches to implementing disclosures the Task Force on Climate-related Financial Disclosures (TCFD), which will assist companies and provide a framework for VPIC to evaluate and make informed investment decisions.[31]

VPIC hired Segal Marco for third-party proxy voting administration and corporate engagement services and to report on these activities. Segal Marco has assisted VPIC in developing and implementing a more robust active engagement strategy. Specifically, VPIC seeks to identify companies within the portfolio where there is potential to improve ESG risk mitigation so as to increase the long-term sustainability and value of the holding. VPIC has also finished a review of its proxy voting policies and is currently reviewing a draft of potential revisions.

As evident from the above, this is an area of significant development. The Treasurer's Office is taking a deliberate approach to metrics development through a review of current practices, engagement within ESG membership networks, retention of an expert consultant,

[31] CDSB & SASB, *TCFD Implementation Guide: Using SASB Standards and the CDSB Framework to Enhance Climate-Related Financial Disclosures in Mainstream Reporting* (May 2019), *available at* https://www.sasb.org/wp-content/uploads/2019/08/TCFD-Implementation-Guide.pdf.

and dialogue with private companies and advocates. It has also steadily increased its shareholder engagement over the past few years, in keeping with the ESG Policy.

Next Steps:

The current plan is to meet with environmental groups initially participating in the PCA Report and other experts to identify and/or fine tune the metrics to be gathered in the next annual survey of investment managers, scheduled for the second quarter of 2020, and to begin looking at other metrics, in concert with VPIC members and Treasury staff.

Recommendation 5: **VPIC should continue its dialogue with investment managers on climate change and ESG issues and prepare periodic updates.**

Action Taken:

As outlined in recommendations above, we have integrated ESG factors into our investment manager selection and evaluation process as we believe they are significant drivers of investment return and risk mitigation. Unsurprisingly, 11 out of 15 of the asset managers investing money for VPIC are signatories of the United Nations supported Principles for Responsible Investing (PRI), and another manager is currently working toward becoming a signatory, citing VPIC engagement as part of its decision-making process. Signatories must commit to integrating ESG into their investment processes, asset stewardship activities, and throughout their organization. PRI signatories commit to the following:

> As institutional investors, we have a duty to act in the best long-term interests of our beneficiaries. In this fiduciary role, we believe that environmental, social, and corporate governance (ESG) issues can affect the performance of investment portfolios (to varying degrees across companies, sectors, regions, asset classes and through time). We also recognize that applying these Principles may better align investors with broader objectives of society. Therefore, where consistent with our fiduciary responsibilities, we commit to the following:
>
> 1. We will incorporate ESG issues into investment analysis and decision-making processes.
> 2. We will be active owners and incorporate ESG issues into our ownership policies and practices.

3. We will seek appropriate disclosure on ESG issues by the entities in which we invest.
4. We will promote acceptance and implementation of the Principles within the investment industry.
5. We will work together to enhance our effectiveness in implementing the Principles.
6. We will each report on our activities and progress towards implementing the Principles. [32]

As we move forward, we are conducting an annual survey of VPIC investment managers to better understand how they are incorporating ESG considerations into their investment processes. These ongoing surveys to investment managers not only comport with VPIC's ESG policy and PRI principles, they represent Vermont's values as a State that engages with, and does not turn away, from the challenges posed by climate change.

In August 2018, the Office of the Treasurer sent out an initial round of ESG questions to all investment managers that held VPIC assets. Managers were asked to provide their security selection, fund allocation decisions, and strategic fund initiatives. Subsequently in July 2019, the Treasurer sent out a follow-up survey to all VPIC investment managers, specifically asking for managers to detail and account for climate change risk and associated factors. The questions to and responses from investment managers to 2018 and 2019 surveys on climate risk and other ESG issues are included in an appendix to the report. These survey responses are a form of due diligence that will allow us to monitor and develop our work in the ESG space.

Next Steps:

We expect to perform an annual survey of investment managers with growing specificity and improved metrics. We will also continue to encourage managers to become UNPRI signatories.

[32] Principles for Responsible Investment, *Responsible Investment Policy in the US: A Briefing for PRI Signatories* at 2 (2018), *available at* https://www.unpri.org/download?ac=4310.

Investment Options in the Supplemental Retirement Plans

In addition to the Retirement System assets under management by VPIC, the three retirement boards offer optional supplemental retirement savings plans to State, Municipal, and School employees. These deferred compensation plans are intended to provide an option for supplementing retirement income in addition to the employee or retirees' defined benefit plan (DB). In addition, certain State and Municipal employees are eligible to participate in defined contribution (DC) plans.

Unlike the DB plan assets, VPIC does not manage the assets of the supplemental plans. Instead, the fund lineup in each of the supplemental plans is selected by the appropriate governing body, and the individual may select from that lineup based on his or her risk tolerance and preferences. Among the fund lineups for these plans, there are typically socially responsible investment (SRI) mutual funds that eligible participants may choose as an investment option. SRIs are specialized funds that invest only in companies that meet their defined criteria of ethical operations, social benefits and/or environmental standards.

As shown in the table below, the supplemental plans offer different SRIs to participants: Calvert Equity Fund Class I, PIMCO Total Return ESG Institutional, Vanguard FTSE Social Index I, and Pax World Global Environmental Markets Fund. These funds all follow a sustainable investing approach and adhere to ESG principles, while pursing their own tailored investment strategies.

In 2014, the Treasurer proposed, and the governing retirement trustee boards approved, the inclusion of a fossil free investment option in each of the deferred compensation plans and the two DC plans. Pax World Global Environmental Markets Fund (PGINX) was selected and added to the fund lineup in each of these plans. Pax describes this fund as "A global thematic strategy investing in companies that are developing innovative solutions to resource challenges in four key areas: energy; water; waste and resource recovery; and sustainable food, agriculture and forestry."[33] Pax's prospectus states that

[33] Pax World Funds website, *Pax Global Environmental Markets Fund (PGINX)* (last visited on Oct. 31, 2019), *available at* https://paxworld.com/funds/pax-global-environmental-markets-fund/.

"under normal market conditions, the Fund is expected to be fossil fuel-free (not invested in securities of companies that IAM[34] determines are significantly involved in the extraction and/or refining of fossil fuels)."[35]

As of June 30, 2019, participants in the supplemental plans had investments in the SRIs totaling $37.5 million, out of a total of $715 million invested in the supplemental and DC plans. We will continue to monitor participation in the SRI options, including the Pax fossil free option as noted below.

Plan # - Plan Name	Fund	Ticker	Assets as of 6/30/2019
403(b) Supplemental Plan - Total assets under management in this Plan: $116,386,162			
	Pax Global Environmental Mkts Instl	PGINX	$150,275
	Calvert Equity Fund Class I	CEYIX	$2,302,298
	PIMCO Total Return ESG Institutional	PTSAX	$4,764,056
State Defined Contribution Plan - Total assets under management in this Plan: $69,464,609			
	Pax Global Environmental Mkts Instl	PGINX	$70,949
	PIMCO Total Return ESG Institutional	PTSAX	$428,303
Muni Defined Contribution Plan - Total assets under management in this Plan: $24,097,430			
	Pax Global Environmental Mkts Instl	PGINX	$6,029
457 Supplemental Plan - Total assets under management in this Plan: $505,870,924			
	Pax Global Environmental Mkts Instl	PGINX	$1,887,280
	PIMCO Total Return ESG Institutional	PTSAX	$6,714,561
	Vanguard FTSE Social Index I	VFTNX	$18,942,220
	Pax Balanced Individual Investor	PAXWX	$2,299,841

[34] Impax Asset Management LLC (IAM) is the investment adviser to the Pax World Funds.
[35] Pax World Funds Prospectus (May 1, 2019) at 46, *available at* https://paxworld.com/assets/pdfs/general-documents/pax_world_prospectus.pdf?pwm=6856.

Other Environmental, Social and Governance Initiatives in the Treasurer's Office

In addition to the Treasurer's role on VPIC, the Treasurer's Office has embarked on several initiatives to address climate change and to transition to a low-carbon economy. The Treasurer's initiatives include projects in housing, clean water, and other important areas. These initiatives are outlined below.

10% in Vermont – Local Investment Advisory Committee (LIAC)

In November 2012, the Treasurer's Office convened a capital gaps/local investment working group to identify areas where capital was not being deployed in a way that matched the needs of Vermonters. Several successful proposals were developed as a result. Many of these were incorporated in Act 87 of 2013, called "An act relating to the establishment of the Vermont Clean Energy Loan Fund," which created the Vermont Sustainable Energy Loan Fund at the Vermont Economic Development Authority (VEDA). Among its provisions, the Act authorized the Treasurer to establish a short-term credit facility for the benefit of VEDA in an amount of up to $10 million and a credit authority of up to $6.5 million for financing energy efficiency improvements throughout Vermont.

The Act provided an opportunity to demonstrate the effectiveness of renewable energy and energy efficiency projects for a wide cross section of Vermont including single family residential, multi-family housing and commercial enterprises.

The success of this program led to an expansion referred to as the 10% in Vermont Program, in which "the Vermont State Treasurer shall have the authority to establish a credit facility of up to 10 percent of the State's average cash balance on terms acceptable to the State Treasurer consistent with the provisions of the Uniform Prudent Investor Act, 14A V.S.A. chapter 9."[36]

[36] Act 199 of 2014, An act relating to furthering economic development § 23, *available at* https://legislature.vermont.gov/Documents/2014/Docs/ACTS/ACT199/ACT199%20As%20Enacted.pdf.

The 10% in Vermont Program includes the development of a Local Investment Advisory Committee (LIAC) to advise the Treasurer on funding priorities. LIAC continues to build upon the success of the past five years and remains committed to the continued prudent investment of up to 10% of the State's average daily cash position in local projects across Vermont.[37]

Through this program, investments have been made with entities such as: NeighborWorks of Western Vermont, the Vermont Community Loan Fund, the Vermont Economic Development Authority, Vermont Housing Finance Agency, and Champlain Housing Trust.

These financing projects redirect funds that were previously invested primarily in out-of-state government agency securities and money market accounts at large financial institutions, to local investments. To date, the State Treasurer has overseen the commitment of over $33 million for local investment projects in energy improvements in residential housing, commercial energy projects, higher education, and the rehabilitation of State office buildings for energy efficiencies.

NeighborWorks of Western Vermont (NWWVT):

NWWVT participated in the initial program offered under Act 87 and received a loan of $2 million to facilitate loans to Vermonters for energy efficiency and improvements.

More recently, in 2018, another $5,000,000 was authorized for investment in weatherization and housing improvement. LIAC thereafter approved a solicitation to receive investment financing proposals that focus on decreasing greenhouse gas emissions, increasing job opportunities in the field of weatherization, enabling Vermonters to live in safer, healthier housing, increasing energy cost savings, and improving the quality of housing. In 2019, the program was amended to remove income limitations previously required for eligible loans. This change should allow for more requests of funds for weatherization projects in the future.

[37] For additional information, please see the Local Investment Advisory Committee (LIAC) webpage, *available at* https://www.vermonttreasurer.gov/content/local-investment-advisory-committee.

Pursuant to these recent authorizations, LIAC has approved a $0.5 million credit facility for NWWVT to fund energy efficiency and home rehabilitation loans. LIAC has also approved an addition of another $1 million under the original 2013 authorization.

NWWVT has been able to use funds authorized by Treasurer's Office to make the following loans:

- 21 Loans down payment assistance loans for $555,499
- 2 Landlord Rehab Loans for $295,000
- 33 Homeowner Rehab Loans for $640,809
- 2 Landlord Energy Loans for $25,500
- 156 Homeowner Energy Loans for $1,922,535

In 2019, LIAC's authorization of an additional $1 million under Act 87 of 2013 is expected to produce the following positive social impacts:

- 80 households will be able to access financing to make their homes safer, healthier, and more affordable to heat;
- Total carbon emissions will be reduced by over 400,000 pounds and aggregate energy savings will be over $80,000 per year; and
- An estimated 20 jobs earning $720,000 in labor income will be generated, according to economic impact modeling done using IMPLAN.

Vermont Community Loan Fund (VCLF):

Under state law, the Treasurer's Office has been authorized to lend up to $1 million to VCLF each year to assist in its ongoing lending programs in Vermont. Effective July 1, 2019, the limit was increased from $1 to $1.5 million.

Over the past year, VCLF leveraged Treasurer's Office dollars and other funding sources to lend $3,912,250, spread over 25 separate loans, resulting in 436 jobs created or retained, 40 affordable homes built or rehabilitated, and 103 early childcare slots created or retained. Additionally, these funds will build on recent investments supporting Vermonters through VCLF's Food, Farms, and Forests Fund. Since its inception in 2015, the Food, Farms, and Forests Fund has financed 27 working lands entrepreneurs, creating or preserving jobs for 222 Vermonters managing 1,473 acres of working landscape to produce almost 8 million pounds of local food. 2019 Food, Farms and Forests Fund projects include East Hardwick's Snug Valley Farm, Montpelier's North Branch Vineyards, and Barton's Drip Drop Acres.

As of December 31, 2018, VCLF held a total of 243 loans worth $30.5 million outstanding. These loans support direct employment for 2,240 Vermonters, affordable homes for 996 Vermont families, quality childcare for 1,323 Vermont children, and other essential services for 79,355 Vermonters.

Vermont Housing Finance Agency (VHFA):

In 2013, the Treasurer's Office partnered with VHFA on a $2.8 million promissory note. The loan was integral to VHFA's multifamily bond transaction which involved financing for 12 projects, representing 329 housing units. The $2.8 million was used for energy efficiency improvements for projects representing 111 units of housing in Shelburne and Rutland. The project also funded rehabilitation of properties in St. Albans and Richmond. The annual energy cost savings from these projects is estimated at $44,000, which translates to $362.00 per unit.

Champlain Housing Trust (CHT):

In 2015, CHT identified the value of short- and medium-term interest only loans to its real estate development activities. To this end, CHT established the LIFT (Local Investment Financing Trust). Funds from LIFT support CHT's mission in the preservation, acquisition and stabilization of multifamily and single-family housing and community facilities for the benefit of low, moderate- and median-income families and individuals.

The Treasurer's Office provided the first funding for this program ($2 million). Since then, prompted in part by that initial investment, others have followed suit, including The Vermont Community Foundation, the University of Vermont Medical Center, the Kresge Foundation and a private investor for an additional $5.84 million.

Vermont Economic Development Authority (VEDA):

At the end of fiscal 2013, the General Assembly authorized the formation of a multi-faceted "Energy Loan and Guarantee Program" at VEDA. The purpose of the new program was to promote alternative energy generation across the State and energy efficiency at businesses and farms in Vermont. The legislature authorized the Treasurer to loan up to $10 million of State funds to VEDA to provide a portion of the funding VEDA would need to make the direct loans for energy generation and efficiency.

VEDA received the $10 million loan from the State in February 2014. Since that time, VEDA has made 85 loans to 62 companies totaling $46.3 million. The aggregate energy projects VEDA participated in totaled $116.6 million in the five years since the State's loan to VEDA.

State Energy Revolving Fund (SERF)

Act 178 of 2014[38] established the State Energy Management Program (SEMP) within Department of Buildings and General Services (BGS.) The SEMP is implemented through the State Resource Management Revolving Fund and the State Energy Revolving Fund (SERF).

The SERF consists of funds available through a credit facility maintained by the Treasurer's Office and operated through a partnership with the Agency of Administration and BGS. The credit facility functions within the 10% in Vermont Program, and is overseen by the Treasurer and LIAC.

The Treasurer is authorized to establish a credit facility of up to $8 million in total for energy efficiency and renewable energy projects at state buildings and facilities—properties owned wholly by the State. Projects are approved on a case by case basis, at terms acceptable to the Treasurer, and they are managed through a partnership with the Agency of Administration and BGS, which oversees project management via an energy savings performance contracting model.

In total, eleven projects have received funding through the SERF. Nine projects have been completed and two projects were approved for funding in 2019.

Water Quality

Act 64 of 2015,[39] also known as the Vermont Clean Water Act, strengthened statutory

[38] Act 178 of 2014, An act relating to capital construction and State bonding budget adjustment, *available at* https://legislature.vermont.gov/Documents/2014/Docs/ACTS/ACT178/ACT178%20As%20Enacted.pdf.
[39] Act 64 of 2015, An act relating to improving the quality of State waters, *available at* https://legislature.vermont.gov/Documents/2016/Docs/ACTS/ACT064/ACT064%20As%20Enacted.pdf. *See also* Act 64: An Act Relating to Improving the Quality of State Waters: Bullet Point Summary, *available at*

authorities aimed at reducing water pollution in the State's waterways. It also established a Clean Water Fund to help municipalities, farmers, and others implement actions to reduce pollution and comply with clean water regulations.

The Act provided initial funding (using a surcharge on the Property Transfer Tax) to support the Clean Water Fund for three years. Recognizing that these funds did not meet either state or federal (EPA) requirements for the development of a long-term funding source for the clean water initiatives, the Act directed the Treasurer's Office to prepare, in cooperation with other agencies and stakeholders, a report to make financing and funding recommendations to the General Assembly to continue to fund the Clean Water Fund and support clean water initiatives across the State. The report was to include the following:

1. Proposed revenue sources;
2. Recommendations for incentivizing Best Management Practices;
3. The estimated amount of revenue to be generated by source;
4. A summary of how each source will be administered, collected and enforced;
5. An assessment of whether the State should use bonds to finance water quality improvements; and,
6. Legislative proposals to implement each of the proposed revenue sources.

After the passage of Act 64, in 2016, the U.S. Environmental Protection Agency (EPA) put in place a pollution budget – also referred to as a total maximum daily load or TMDL – for Lake Champlain to address water quality concerns, including periodic harmful algal blooms. The Lake Champlain TMDL includes an Accountability Framework with a suite of 28 milestones the State of Vermont needed to meet by certain dates. The most significant milestone was a commitment to provide sustainable, long-term funding needed to support this important work.[40]

https://legislature.vermont.gov/Documents/2018/WorkGroups/House%20Natural/Natural%20Resources%20101/Act%2064%20of%202015/W~Michael%20O'Grady~Act%2064%20Bullet%20Point%20Summary~1-10-2017.pdf

[40] State of Vermont, *2019 Series A & B General Obligation Bond Issuance, Official Statement*, at 77, *available at* https://www.vermonttreasurer.gov/sites/treasurer/files/debt/pdf/2019%20Series%20A%20and%20B%20Official%20Statement.pdf (describing the State's clean water initiatives, including the passage of funding legislation in the 2019 legislative session).

In order to better understand the requirements of the Lake Champlain TMDL, and to benefit from the technical expertise and perspectives of a wide range of stakeholders, the Treasurer's Office employed an open and collaborative process to develop the Act 64 Report.

Invaluable assistance was provided by the Agency of Natural Resources, particularly the Department of Environmental Conservation (DEC), the Agency of Administration, the Department of Taxes, the Agency of Transportation, Agency of Commerce and Economic Development, and the Agency of Agriculture. The Report was also informed by ideas and dialogue with approximately 1,000 participants from more than 23 stakeholder meetings and public outreach events that took place from March to November 2016. And it built on two prior legislative reports on clean water improvement plans – the Water Quality Remediation, Implementation and Funding Report (the Act 138 Report) and the Vermont's Clean Water Initiative (Act 97 Report).

The Act 64 Report was completed and submitted on January 15, 2017.[41] The Report identified a long-term funding need of $2.3 billion to fund water quality improvements. Of that amount, $1.06 billion was already funded with existing resources, leaving us with $1.25 billion of funding gap. This resulted in a gap of $62.4 million/year, of which top tier, "must do" items amounted to $48.5 million/year. These are "all in" costs from the private sector, businesses, farmers, municipalities, and the State. To assist in meeting meet this need, the Act 64 Report recommended a target of $25 million/year in additional revenue to be contributed by the State.

Tier 2 costs are not required for compliance with the new legal obligations facing Vermont. They represent the costs that support, enhance, catalyze and accelerate compliance, such as capital equipment assistance for agricultural and municipal stormwater runoff controls. Annual Tier 2 costs are $33.43 million. After subtracting annual Tier 2 revenues ($19.57 million), an annual "gap" of $13.86 million remains. While these figures did not include 100 percent of the costs needed for water quality improvements (e.g., with some exceptions, O&M and labor costs were generally not included), the collaborative Act 64

[41] Vermont State Treasurer's Office, *Clean Water Report: Required by Act 64 of 2015* (Jan. 15, 2017), *available at* https://www.vermonttreasurer.gov/sites/treasurer/files/committees-and-reports/_FINAL_CleanWaterReport_2017.pdf.

process established a strong baseline funding need that identifies the scope of the problem and allows the State to get to work on solutions.[42]

The Clean Water Fund was established as a mechanism for financing the improvement of Vermont's waters. The Administration and the Legislature worked together in the 2019 session on S.96 which commits nearly $15 million in revenue in the coming fiscal year and more than $20 million in the out years to the Clean Water Fund. Beyond the Clean Water Fund, the State dedicates significant other revenues to clean water work each year.

This funding will be invested in thousands of modest, yet important, projects throughout Vermont – both in service of water quality and making our landscape more resilient. These include improvements in nutrient removal at wastewater treatment facilities, stormwater management practices, conservation initiatives on Vermont farms, and natural resource restoration projects. S.96 also puts in place a framework which ensures that the projects needed to achieve Vermont's clean water goals are maintained and stewarded for the long-term.[43]

Green Bonds

Green bonds are financial instruments used to finance environment-friendly or "green" projects, including mitigation of climate change, improvement of water quality, renewable energy, clean transportation, and sustainable water management. The global green bond market continues to expand, reaching $155 billion in 2017.[44] To date the pricing benefit of green bonds has been modest. However, there is some evidence that it has expanded the investor base for certain municipal issuers. With the expectation for greater investor demand for impact bonds in the future and with increasing municipal market rates, green bonds may have greater pricing benefits in the future.

The State of Vermont issued $28.5 million in general obligation green bonds in 2015. Proceeds from the bond were used to fund projects within Vermont, including energy

[42] Memorandum from Beth Pearce, Vermont State Treasurer, to David Deen, Chair, House Committee on Fish, Wildlife and Water Resources (Mar. 23, 2018).
[43] Per discussion with Julie Moore, Secretary, Agency of Natural Resources.
[44] Nina Chestney, *Global green bond issuance hit record $155.5 billion in 2017*, Reuters (Jan. 10, 2018), *available at* https://www.reuters.com/article/greenbonds-issuance/global-green-bond-issuance-hit-record-155-5-billion-in-2017-data-idUSL8N1P5335.

efficiency and conservation projects in State buildings, clean water, wastewater and waste management projects, climate change mitigation and resilience, and forest conservation, ecosystem restoration and protection. The bond was structured with maturities ranging between 1 and 15 years, and coupons of between 2% and 5%.[45]

[45] In the bond issuance for 2015 (green bonds) and 2017 (mention of projects), we made mention of this focus. The press releases for the two bond issuances are available at https://www.vermonttreasurer.gov/press-release/115-million-bonds-successfully-sold-state-vermont (2015 issuance) & https://www.vermonttreasurer.gov/press-releases/state-treasurer-beth-pearce-announces-successful-bond-sale-106-million (2017 issuance),

Recommendations for Next Steps

As noted above, the risks posed by climate change demand serious action by all branches of government, as well as the private sector. The Office of the State Treasurer, in its management of operating funds and pension funds, is committed to doing its part in that effort. To help inform and guide that work, the Treasurer's Office presents the following recommendations for next steps to build upon the body of work detailed in this report.

Pension Funds and ESG Efforts

With respect to investment of the Retirement Systems' assets, VPIC and the Treasurer's Office will continue their respective efforts to address and manage climate and other ESG-related risks and stay engaged with changing assessments of risks and approaches to managing liabilities.

As the Treasurer's Office and VPIC move forward on shareholder engagement, we expect that VPIC will take the lead role in filing several shareholder proposals in the 2019-2020 season. VPIC is considering filings in several areas, including executive compensation, deforestation from palm oil development, independent chair and governance, board diversity, and the opioid epidemic. Links to memos from the Treasurer on planned ESG activities for the upcoming proxy season are included in the appendix. That plan was adopted by VPIC in September 2019.

VPIC has made real change by filing shareholder resolutions, partnering with other investors on sign-on letters, and voting our proxies. Vermont values are always at the forefront, and we need to keep the pressure on. Despite our small size, Vermont must continue to engage with our investment managers because managers hold assets and invest on behalf of many institutional actors. If Vermont and like-minded institutional investors can change the behavior of even just one manager who may hold assets that are ten-fold that of Vermont, then we can create a positive ripple that will be felt far beyond Vermont.

We must also continue to broaden the scope of ESG advocacy. Over the past year we have seen an increase in investor awareness of important health issues like the opioid epidemic as well as a more serious approach by governments to align their investment policies with their social and environmental goals.

VPIC has made substantial and measurable progress and expects to fully implement the five recommendations discussed above. We will continue to explore alternatives in response to Recommendation 2 (development of a pooled investment vehicle), potentially with other states/municipalities/plans. Treasury staff is committed to working with various environmental groups to participate in the steps outlined in this report, continuing its collaborative effort.

The VPIC and Treasurer's Office Will Oppose Threats to the Proxy Process

The success of shareholder activism has had the effect of creating opposition among some interest groups. In 2016, HR 5311 (114th Congress) was introduced with the "aim to tighten regulation on proxy advisor firms to the detriment of investors, lessen the fiduciary obligation of proxy advisors to investor clients, and weaken public corporate governance."[46] A similar bill, HR 4015 (115th Congress) was introduced in 2017. This was opposed by the National Association of State Treasurers, and a number of public and Taft-Hartley plans including the New York State Comptroller, AFL-CIO, the California state and teachers plans (CALPERS, CALSTERS), National Conference on Public Retirement Systems (NCPERS), State Teachers Retirement System of Ohio, the UNPRI, the Consumer Federation of America, and many others.

A recent Presidential Executive Order dealing with energy and infrastructure, also included a section requiring a review of proxy voting guidance. The general belief is that there is no immediate impact from this Executive Order, but it may result in additional guidance and/or regulations in the future.[47] In fact, that may be happening right now. The SEC is reported to be taking up proposed rules in early November 2019 to limit shareholders' ability to call for change at companies.[48]

[46] National Association of State Treasurers, Resolution Regarding HR 5311 in the 114th Congress (Sept. 12, 2016).
[47] Groom Law Group, *DOL to Review ESG Investing, Proxy Voting Rules* (Apr. 15, 2019), *available at* https://www.groom.com/resources/dol-to-review-esg-investing-proxy-voting-rules/.
[48] Katanga Johnson & Ross Kerber, *U.S. SEC to vote on new regulations for proxy advisers*, Reuters (Oct. 26, 2019), *available at* https://www.reuters.com/article/us-sec-proxy-advisers-idUSKBN1X41XX.

The Treasurer's Office, working with national associations and other pension plans, will vigorously oppose efforts to limit the power of our proxy vote and shareholder engagement.

Use of Local Investment Dollars

The LIAC, or 10% in Vermont Program has provided an access point where public dollars are put to work here in Vermont. From housing to renewable energy, we must continue to focus our goals on making each dollar count.

Going forward, it is critical that Vermont do more to focus on the transportation sector, which accounts for 37% of Vermont's total energy use and 45% of its greenhouse gas emissions. The Treasurer's Office believes that there may be an opportunity for the creative use of state operating funds in financing transportation projects through the LIAC, which could create a win-win for the Vermont taxpayer while maintaining our fiduciary responsibility to achieve a positive return and the best possible value to the State.

Energy Efficiency Projects for State Buildings

Vermont must do more to invest in energy improvements for our aging buildings and infrastructure. Government should be the example of energy efficiency, weatherization, and renewable energy. While the SERF Program has seen excellent results, it is limited by the very nature of the LIAC investments. Given that LIAC is intended for short-term and intermediate-term investments (up to seven years), Vermont may need to look to other options for funding energy projects when the payback period exceeds that maturity.

The Treasurer's Office recommends that longer-term and larger projects that exceed the 7-year scope should be included in more comprehensive Statewide plan to update our State buildings and infrastructure. Longer-term and larger energy efficiency and weatherization projects should, at the discretion of the General Assembly and BGS, be incorporated within the funds managed already by BGS each year from the annual capital bill, within the limits set by the Capital Debt Affordability Advisory Committee.

In addition, the Treasurer's Office suggests that dollars for maintenance and upkeep of state buildings should always, and automatically, include weatherization and energy efficiency considerations as a matter of course. Weatherization of state buildings and reducing the carbon footprint of the State is a win-win. Not only will it result in future energy cost savings, it will also reduce the State's energy use, carbon footprint, and align with the State's long-term goals.

Revolving Fund for School Building Energy Improvements

During the recent legislative session, considerable discussion took place on the issues of school capital needs, the current state of the infrastructure, needs for capital assessment and aid for schools. While there are significant funding issues to be resolved, the creation of a revolving fund, modeled on the SERF program, could assist local school districts as they deal with both aging infrastructure and the need for consolidation projects. This would require a seed appropriation. As renovations are made or school construction is contemplated, the state should encourage high energy standards and provide a mechanism to finance such upgrades.

The Treasurer's Office would be pleased to work with the Administration and the General Assembly on this effort.

Treasury Shareholder or Corporate Activism

For the most part, shareholder resolutions cited in the appendix as well as various sign-on letters to advocate changes in practice in the corporate world that impact ESG issues are jointly filed by VPIC and the Treasurer's Office. There are some specific initiatives sponsored by the Treasurer's Office that are not part of the VPIC initiatives. These primarily relate to procedural/regulatory issues at the federal level. Examples include:

- Challenges to the proxy process: Recent corporate efforts, and proposals in Congress, have been focused on limiting proxy shareholder activities by either restriction on the vendors who provide these services or changing the bar as it relates to the filing of shareholder resolutions. The Treasurer's office will continue to oppose such efforts and work with VPIC on any future resolutions.

- Federal efforts to roll back environmental regulation: Treasurer Pearce wrote in opposition to the March 2017 Presidential Executive Order on Promoting Energy

Independence and Economic Growth, which permits the EPA administrator to dismantle the Clean Power Plan. Treasurer Pearce and eight other state treasurers/comptrollers urged the EPA and Highway Safety Administrators to reconsider rollback of vehicle emission standards.

State Preparedness for Climate Change

A 2015 study by the nonprofit organization Climate Central compared U.S. states' exposure to and preparedness for climate risks, including extreme heat, drought, wildfires, and inland and coastal flooding with an emphasis on risks of vulnerable populations. The organization assigned grades ranging from A to F for each state. The State of Vermont received an overall score of C+.

While California encounters some of the most severe climate risks, it received an A, due to its deemed climate control readiness. In 2014, the state published *Safeguarding California*, which is a comprehensive climate change adaptation planning approach.[49]

While the federal government plays a key role in providing disaster relief to state and local governments, it has done very little to prepare for the challenges associated with climate change. This burden has fallen to state and local governments. Fitch has found that state and local governments are partnering with one another, as well as other agencies, research institutions, and nonprofit networks in order to pool resources and improve the efficiency of planning, research, and cost. Some strategies adopted have included raising environmental awareness in the community, modernizing and fortifying essential infrastructure such as mass transit, storm water and drinking water, embracing sustainability for its economic growth potential, promoting clean energy, reducing carbon emissions, exploring innovative financing tools, and strengthening partnerships with other agencies that would also be impacted by the effects of a natural disaster.

In Vermont, we are still experiencing the after-effects of Tropical Storm Irene. Meanwhile, our agricultural and tourism businesses are facing more volatile weather patterns. Beyond the business interests at risk, increased climate-change weather volatility

[49] Calif. Natural Resources Agency, *Safeguarding California in Action: Climate Change Adaptation Examples from State Agencies*, *available at* http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-ca-in-action-examples.pdf.

and dramatic temperature variation will adversely impact our water quality and other important public infrastructure. Vermont's action or inaction in preparing for the effects of climate change will acutely impact our most vulnerable citizens.

The Treasurer's Office looks forward to assisting with these challenges and partnering with other state agencies to address these threats.

Appendix A: Links to VPIC Materials

- **2015 ESG Report:** https://www.vermonttreasurer.gov/sites/treasurer/files/Reports/2015/Sustainability%20Report_TRE_4.27.15.pdf

- **VPIC ESG Policy:** https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/2017/VPIC_ESG_Policy_Addopted_20170627.pdf

- **Five Recommendations Cover Letter:** https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/2017/Cover_Letter_from_Beth_PCA_Final_Report_20170207.pdf

- **2017 PCA Climate Divestment Report:** https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/2017/PCA_Climate_Divestment_Report_for_VPIC.pdf

- **VPIC Domestic Proxy Voting Policy:** https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/ProxyPolicyDomesticCLEANapproved25Nov2014.pdf

- **VPIC International Proxy Voting Policy:** https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/Vermont_INTERNATIONAL_Guidelines_2013%20May%2028_FINAL.pdf

Appendix B: ESG Focus Area Recommendation Memo

2019:

https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/2019/5_Treasurers_ESG_Report%20-%20Copy%20For%20Minutes.pdf

2018:

https://www.vermonttreasurer.gov/sites/treasurer/files/VPIC/PDF/2018/Treasurer_Report_2018.pdf

Appendix C: ESG Partnerships/Member Organizations

VPIC and the Office of the State Treasurer participate in many organizations and efforts alongside other institutional investors to encourage integration of ESG considerations into companies' business models and to advocate for corporate policies and regulations that enhance long-term profitability. Vermont, with the support of various membership affiliations and networks, has taken a leadership role on ESG issues and climate risk. Our memberships with various organizations provide organizational structure, research and guidance, strategy and support in engaging on ESG-related risks and opportunities. Memberships and affiliations include:

Investor Network on Climate Risk and Sustainability: Vermont was a founding member of INCR, a non-profit organization advocating for sustainability. INCR has since evolved into a network of 170 institutional investors representing more than $26 trillion in assets under management, pooling their collective efforts for joint action on climate risk. The Investor Network is committed to addressing risks and opportunities associated with climate change and sustainability. The Vermont Treasurer's office is an active member of several working groups, including those focused on shareholder activism, climate risk disclosure, and policy.

Sustainability Accounting Standards Board (SASB): Vermont joined SASB in 2018. SASB develops and maintains evidence-based, industry specific, and materiality focused sustainability disclosure guidelines. The standards provide guidance for companies and investors seeking to report on sustainability.

Investors for Opioid Accountability (IOA): VPIC joined Investors for IOA in 2018. The coalition of Treasurers, asset managers, and retirement funds engages with companies in the pharmaceutical industry on risks related to the opioid epidemic.

Principles for Responsible Investment (PRI): The Treasurer's Office received approval from the VPIC to join PRI. Supported by the United Nations, PRI is the world's leading proponent of responsible investment. PRI provides research and guidance on

ESG issues, a platform for collaboration among signatories, opportunities for training, and annual assessment of signatories ESG reporting and initiatives.

Ceres: The Vermont State Treasurer's Office is an active member of Ceres, a non-profit organization that coordinates and supports the work of investors and stakeholders in engaging with companies, policy makers, and other market players on issues related to environmental sustainability, human rights, corporate governance, and policy. Additionally, Ceres provides members with trainings, pertinent news updates, and research briefings, keeping the Treasurer's Office apprised of current events and opportunities for engagement.

Climate Action 100+: Climate Action 100+ is a five-year initiative to achieve the goals of the Paris Climate Agreement through shareholder engagement with companies contributing most to greenhouse gas emissions globally.

Council of Institutional Investors (CII): The Council of Institutional Investors (CII) is a nonprofit, nonpartisan association of corporate, public and union employee pension and benefit funds, endowments, and foundations with combined assets exceeding $4 trillion. CII advocates for policies that enhance long-term value for U.S. institutional asset owners and their beneficiaries including effective corporate governance, strong shareholder rights, and vibrant, transparent, and fair capital markets.

Vermont Energy Action Network (EAN) / The Vermont Clean Energy Finance Collaborative (CEFC): The Treasurer is a member of the Energy Action Network (EAN) and The Clean Energy Finance Collaborative (CEFC), a network of nonprofit, business, and government leaders working to transform Vermont's energy economy. The Treasurer's Office works with these important partners to promote and create financing models to support the State's Comprehensive Energy Plan. The Vermont Public Service Department (PSD) announced the formation of the Clean Energy Finance Collaborative in 2017 and included the Treasurer's Office as a founding member. The collaborative is a voluntary group formed to improve the effectiveness of and significantly increase the state's capacity for clean energy finance necessary to advance Vermont's clean energy goals.

Investor Summit on Climate Risk: Hosted every two years by the United Nations and Ceres, the Treasurer has served as a convener in 2014, 2016, and 2018. On behalf of Vermont, the Treasurer shared ideas on how governments can augment state dollars to lower the cost of financing for thermal efficiency and clean energy projects. Constructive engagement strategies were discussed, developing the various policy approaches available to states as they press for environmental change by leveraging their assets.

Investor Alliance for Human Rights: In May of 2018 the Treasurer's Office joined the Investor Alliance for Human Rights, a collective action network designed to facilitate investor and stakeholder engagement on labor and human rights issues. We believe that corporate due diligence on human rights and labor issues in both operations and supply chain management is vital to protecting the health and safety of workers, and managing legal, reputational, and financial risks associated with working conditions.

Majority Action: Majority Action is a non-profit, non-partisan organization working to utilize the power of investors to promote climate responsibility on corporate boards and accelerate economy-wide decarbonization. It merged in 2018 with the 50/50 Climate Project. Its stated goal is to get the twenty largest U.S. publicly traded electric power generators, which combined produce nearly 50 percent of the U.S. electric power sector's CO2 emissions, to commit to zero net emissions by 2050.

Northeast Investors' Diversity Initiative: This initiative builds on the work of MIDI, the mid-west diversity initiative, that focuses on regional companies by regional investors to bring diversity to corporate boards of directors. The goal is to outreach to 20 northeast regional companies, with a focus on small to mid-cap companies, that lack board diversity with less than two women or with no board members self-identifying as a member of a minority group on the board.

Appendix D: Investment Manager Survey Questions

1. **ESG Survey One (sent out August 2018):**

1) *We are seeking information regarding ESG considerations for the portfolio and firmwide.*
    a. *Please provide an overview of how your portfolio management team integrates Environmental, Social, and Governance (ESG) considerations into the investment process for the fund(s) VPIC is invested.*
    b. *Please provide an overview of how your firm incorporates ESG factors into your business model and operations.*
    c. *Is your firm an UN PRI signatory? If so, please provide your PRI scorecard(s) from the last three years, if available. If you are unable to provide the scorecard, please explain why.*
    d. *If your firm integrates ESG factors into its business model and operations, are there targets or goals that have been set for the future that you hope to achieve? Please explain. If you do not integrate ESG considerations, do you anticipate this to be a goal for the firm? If so, what steps have been taken to achieve this goal?*
2) *Please provide your firm's discrimination policy and the anti-harassment policy (or policy addressing these topic areas). Do you have any Committees or internal programs that address the education or support of these policies you would like to report to the VPIC?*

2. **ESG Survey Two, on Climate-Change specifically (sent out July 2019):**

The VPIC recognizes that environmental, social and governance (ESG) issues are among core factors when assessing the risks and opportunities of an asset and should be fully integrated into the investment process by VPIC and its managers.

Specifically, we are requesting that you provide information on how you integrate risk assessment of climate change factors into your investment process.

Please also provide an overview of how you integrate climate change factors into your evaluation of specific companies that you are considering, or reviewing, for investment.

Please also provide any other relevant information regarding how you integrate climate change factors into your overall risk assessment.

For reference, please reference the VPIC's ESG Policy.

Appendix E: Investment Manager Survey Responses

The following manager summaries are adaptations from responses received by Treasurer's Office staff from managers responding to survey questions.

Acadian

The firm manages 2.5% of VPIC assets in an International Equities fund. The total assets under management as of September 30, 2019 was $112,418,814.37.

1. **ESG Survey One (Sent out August 2018):**

Acadian believes that non-financial considerations have the ability to impact investment returns and risk over time. As such, they incorporate ESG factors into their quantitative investment process as a means of enhancing their security return forecasts and to better mitigate risk. ESG factors integrated into the Acadian model comprise those related to governance quality, sociopolitical risk, among other considerations.

Acadian pursues an active research agenda, which includes ESG factors that demonstrate predictive benefits to the portfolio when integrated into their systematic model. For example, Acadian places a carbon tax in its valuation models for high emitting companies presenting climate risk concerns, which in turn leans the portfolio away from high emitting companies. As the first quantitative manager to sign the United Nations Principles for Responsible Investment in 2009, Acadian's engagement policy is to prioritize engagements that improve competencies in portfolio management and active stewardship. Acadian engages where they have significant holdings and believe there is an opportunity to improve corporate behavior on environmental, social, and governance issues.

2. ESG Survey Two, on Climate-Change specifically (Sent out July 2019):

Acadian is a quantitatively focused investment manager that leverages a multifactor approach to investment allocation, including the use of a proprietary model. The firm believes that global policy changes, motivated by climate change concerns, are impacting corporate fundamentals. To reflect this in their model Acadian incorporates earnings factors supplied by sell side fundamental analysts, which they believe capture the impact policy changes related to climate change or pollution control would have on a company's future earnings potential. ESG integration in the investment analysis process is focused on specific and material factors where the investment team has completed thorough research to determine a meaningful positive contribution to the investment objectives of the portfolio. In addition to the factors capturing climate specific risks, Acadian applies an implied carbon tax level on companies with high carbon emissions to "decarbonize" their future earnings. By applying this adjustment, the firm leans portfolios away from companies that contribute to climate change and, therefore, has the potential to underperform industry peers in a transition to a low carbon economy.

Acadian is committed to investing in environmental, quantitative research efforts and incorporating more environmental factors into their model as data sources improve and more history and precise metrics become available. To improve disclosure and transparency of carbon data the firm participates in Active Ownership campaigns, where they encourage companies to be more transparent alongside other investors. Acadian also participates in policy initiatives, such as supporting the Paris Agreement letter that was sent to G20 leaders and requesting regulators reconsider fossil fuel subsidies and the adoption of the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. As a quantitatively focused investment firm, Acadian is continually researching new environmental factors that are consistently reported across sectors and industries to improve its risk mitigation capabilities.

Artisan

The firm manages a commingled Global Equities strategy, which the VPIC invests 4.5% of its portfolio. The total assets under management as of September 30, 2019 was $207,283,548.82.

1. **ESG Survey One (Sent out August 2018):**

For the Artisan Partners Growth Team, the consideration of environmental, social and governance practices has historically been an implicit part of the team's investment process, which is focused on identifying high-quality franchises. As part of its stock-selection criteria, the team performs extensive fundamental research, including an independent evaluation of the investment prospect's franchise characteristics, the long-term sustainability of its business model, the background, depth and experience of the executive management team and the board of directors' composition. It also evaluates a variety of business factors, both internal and external, including ESG factors considered broadly applicable across industries as well as those considered relevant more specifically to the industry in which the investment candidate operates.

As part of this due-diligence process, the team gains a deeper understanding of a company's ESG policies and practices through direct contact with company management, suppliers and competitors. These meetings help the team confirm their research findings, as well as provide an opportunity to discuss and discover relevant ESG issues. With hundreds of meetings with management teams each year, this is an important component of the team's research process.

While this activity occurs as part of the team's existing process, the team is in the process of broadening its ESG framework, which will more explicitly formalize the qualitative ESG assessments within the existing process while adding a quantitative component to the assessment that is supported by, but not fully comprised of, third-party information services vendor scoring.

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

The Artisan Partners Growth Team is in the early stages of incorporating the consideration of climate change risk factors into its investment process. The team has made a commitment to broaden and deepen its ESG framework to more explicitly integrate ESG factors—including climate change—into its stock-selection and risk-assessment activities.

BlackRock

The firm oversees the passive index strategy for the VPIC, which comprises 62.2% of the portfolio. The total assets under management as of September 30, 2019 was $2,853,132,348.33.

1. **ESG Survey One (Sent out August 2018):**

While the funds are passively invested, the oversight is not. BlackRock believes that companies with sound corporate governance practices, including how they manage the environmental and social aspects of their operations, better mitigate risk over the long term, offer greater risk-adjusted returns, and experience better long-term financial performance. As such, BlackRock engages with companies held in index and active portfolios alike to encourage them to adopt robust business practices consistent with sustainable long-term performance. These "Investment Stewardship" efforts include direct engagement efforts and active proxy voting policies to encourage companies to deliver long-term, sustainable growth and returns for clients that mitigate ESG risks.

The firm's analysts provide its investment teams with data and insights to keep them informed of ESG considerations at the issuer-level through their proprietary, internal risk management system, "Aladdin," which BlackRock portfolio managers use to make investment decisions and to monitor portfolios. As a result, BlackRock's global portfolio managers have available to them ESG metrics that can inform the investment process universally by identifying long-term risks and value drivers. ESG information is integrated into the investment process as any other financial input would be, through discounting or emphasizing the information in a company's valuation.

As a large investor, BlackRock monitors companies in which they invest and engages with them constructively and privately. As a fiduciary, BlackRock evaluates how companies manage the material sustainability-related risks and opportunities within their businesses. Engagement helps build mutual understanding on any issues where they are concerned that a company's practices fall short of operational excellence. It also helps BlackRock assess a company's approach to governance in the context of its specific circumstances.

Last year, the stewardship program engaged with about 1,600 companies to discuss governance practices and business model sustainability. BlackRock plans to double the size of the Investment Stewardship team over the next three years to enable it to foster more effective engagement by building a framework for deeper, more frequent, and more productive conversations with companies. In 2019 the firm noted its priorities are: governance, including board diversity; corporate strategy and capital allocation; compensation that promotes long-termism; environmental risks and opportunities; and human capital management. BlackRock has been a signatory to the PRI since 2008. Integration of ESG metrics into the investment process is supported at the highest levels of the firm. The CEO, Larry Fink, posted publicly a letter to CEOs in 2019 that noted the value of integration of ESG factors across the entire investment platform at BlackRock and capital expenditure into engagement with companies to ensure long-term sustainable financial performance for the companies BlackRock invests.[50]

[50] https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

In recent years, BlackRock has adapted their research and core investment processes to account for climate change and sustainability factors. The firm believes that incorporating environmental factors into investment decisions enhances risk-adjusted returns. For example, they have found global companies that have improved efficiency by reducing their carbon footprints (annual carbon emissions divide by sales) have better performance than carbon laggards in most years.

BlackRock has developed a "Transition Readiness" framework that they believe goes beyond measuring specific environmental outcomes in a portfolio, such as fossil fuel or carbon exposure, and instead aims to evaluate each company's readiness for a low carbon economy transition incorporating a variety of data sources and proprietary BlackRock insights. This framework evaluates a company's exposure to carbon risks and opportunities through five core "Transition Readiness" pillars: energy production, carbon efficient technology, energy management, water management, and waste management. The pillars provide insight into a company's involvement in the generation of carbon emissions, use of renewable energy sources, energy efficiency, green building, electricity consumption, recycling practices, waste generation, toxic emission management, among others. Information collection through the framework is then combined and weighed into a single investment score assigned to each company.

The firm aims to integrate ESG insights uniquely into each team covering an asset class, such that the EMD team will integrate an ESG Scorecard into its standard Corporate Credit Scorecard template which differs from how the Private Equity team incorporates an ESG assessment into its standard investment materials required of companies they are evaluating for investment.

Further BlackRock has invested in the integration of ESG factors across the firm by employing a Sustainable Investing team of 21 professionals across 6 global offices. The firm participated in over 2,000 company engagements last year, published its Mission Statement on Sustainability in May 2019, and in July 2019 adopted an ESG Investment Statement. BlackRock participates in ESG market initiatives through several organizations, including those that VPIC participates such as Ceres Investor Network on Climate Risk, Council of Institutional Investors, CDP, SASB, and Principles for Responsible Investment (PRI).

In 2019 VPIC conducted an RFP through its investment consultant to consolidate the passive investments in the portfolio to gain economies of scale and reduce the fee load. As part of this process, the VPIC requested materials detailing each firm's integration of ESG factors into their investment process and evaluated each as part of the overall decision. VPIC determined through its RFP process that BlackRock was taking steps toward ensuring its portfolios were prepared for a low carbon economy. A few actions noted were BlackRock's capital investment in a sustainability team, integration of ESG factors in each investment team's process, and ongoing environmental advocacy with companies' leadership teams to improve long-term shareholder value.

BlueBay Asset Management

The firm manages an international private debt fund, which the VPIC has committed $70mm, with a total invested as of September 30, 2019 of $19,922,116.05 or 0.4% of assets under management.

1. **ESG Survey One (Sent out August 2018):**

BlueBay believes that ESG factors can have a material impact on a borrower's long-term financial performance. Poorly mitigated ESG risks can lead to inefficiencies, operational disruption, litigation and *reputational damage, which may ultimately impact a borrower's ability to meet their financial responsibilities. This is particularly relevant given the illiquid nature of the loans and the long-term credit view taken on borrowers by BlueBay. As such, the firm incorporates ESG-related reviews with traditional financial analysis with the belief that it is not only prudent but also in line with BlueBay's fiduciary duty to optimize investor returns.*

BlueBay integrates ESG into its investment strategy and engagement with corporate borrowers. As part of its investment process the firm monitors ESG trends and developments at a regional/country level in terms of political, legal and regulatory risks, and at the industry level regarding management and performance trends.

As part of its investment research process, BlueBay's investment team meets with issuers regularly providing opportunity for dialogue, which may include discussion on subject matters relating to ESG. Outside of routine dialogue, BlueBay uses a risk-based approach to guide its ESG engagements such that the materiality of the concern, size of investment, and duration of the position within the portfolio determine the priority of the engagement effort as to maximize impact to the portfolio. Specifically, BlueBay's ESG criteria have led them to reject investment opportunities linked with concerns regarding the mistreatment of animals, the unknown health impacts of vaping, and the potential exploitation of desperate borrowers by payday lenders. In contrast, BlueBay has utilized its ESG policy in lending relationships to improve governance of family-owned businesses, ensure ethical treatment of manufacturing workers, and establish environmentally responsible practices at a clothing retailer.

BlueBay became a PRI signatory in 2013.

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

BlueBay assesses exposure to climate change risks as part of their evaluation of ESG investment risks in an investment opportunity. The European small to mid-market cap businesses that BlueBay's private debt group invests is not heavily exposed to carbon intensive industries, which mitigates the fund's exposure to environmental risks associated with climate change. Regardless, BlueBay carefully reviews the regulatory compliance track record of all companies they invest, as well as the nature of each company's services. The firm is cognizant of exposure to climate change and monitors the associated risk closely with a formalized three stage process consisting of: pre-investment company analysis, post-investment monitoring & engagement, and post-investment reporting.

Benefit Street Partners (BSP)

The firm manages a private debt fund, which the VPIC has committed $140mm, with a total invested as of September 30, 2019 of $64,310,183.03 or 1.4% of assets under management.

1. **ESG Survey One (Sent out August 2018):**

Benefit Street Partners (BSP) implemented Responsible Investment Guidelines in 2009, which consider a range of environmental, health, safety, labor, governance and social issues. In addition, the firm is in the process of working with an ESG consultant to re-evaluate how they might better fully integrate the Guidelines into their business operations.

The team evaluates ESG risks through their standard due diligence process as it relates to new investments. If during their due diligence, they have reason to suspect there was a recognizable ESG factor *risk within the investment opportunity they would engage with the issuer before proceeding with an investment. If during their due diligence, they had reason to suspect there was a recognizable offense or violation across the following areas: environmental, human rights, corporate governance, labor rights, etc, BSP would err on the side of caution before proceeding. ESG risks are examined at all stages of the diligence process: initial review, prescreening with a member of the investment committee, pre-investment committee and at final investment committee. An example given by BSP is that the firm does not believe revenues from Tobacco to be a sustainable investment, so they reduce exposure to companies whose business models sustain on revenues derived from the sale or production of tobacco.*

In terms of monitoring, BSP is in regular contact with companies and receive frequent updates to track the performance of each. As part of this monitoring, BSP has regular discussions with management teams to review in detail the financial, operating and strategic performance of the portfolio investments. If there were any apparent concerns around ESG, they would have the ability to address these issues at these meetings.

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

BSP recognizes climate change as one of the most pressing environmental issues facing investors. The firm's investment professionals evaluate factors related to climate such as emissions, water usage, energy efficiency, land use, safety records and environmental incidents (occurrences, leadership, and insurance levels). Information about these factors are gathered throughout all stages of the diligence process. Within the private credit businesses, the data can come directly from the company through a formal or informal ESG assessment, intermediaries, sponsors' data rooms or through conversations with the management team.

BSP was acquired by Franklin Templeton in early 2019. Since that time, Franklin's Head of ESG has worked closely with BSP to refine its ESG integration processes and leverage the best practices that Franklin employs as a UN PRI signatory. In addition, BSP is in the process of obtaining access to Franklin's centralized ESG data platform to further enhance its existing diligence processes.

Brookfield

The firm manages a fund focusing on real estate to which VPIC has committed $100mm, with a total invested as of September 30, 2019 of $24,894,532.00 or 0.5% of assets under management.

1. **ESG Survey One (Sent out August 2018):**

Brookfield incorporates ESG issues within its investment process. As part of its financial and operational due diligence when reviewing real estate investment opportunities, the underwriting process incorporates identification and assessment of key risks and opportunities including those that have an ESG component. When prudent Brookfield engages external experts and consultants to review relevant aspects of a transaction to supplement their standard ESG related work stream. These experts include engineering, legal, human resources, security, environmental, and financial.

Brookfield believes that acting responsibly toward the environment and its stakeholders is fundamental to operating productive, profitable businesses over the long run. Brookfield's ESG principles are embedded across its operations and business model.

Brookfield has undertaken a number of ESG-related initiatives both at the asset management level and the corporate level. For example, several of the firm's business groups are in the process of identifying and tracking

KPIs that are relevant to their business. Brookfield's renewable power group will begin reporting on its previously identified KPIs in early 2019. On the asset management side, Brookfield continues to leverage its ESG due diligence guideline as part of the investment due diligence process. Brookfield also holds regular ESG calls and meetings to share best practices across business groups.

Brookfield is not a signatory to PRI or referenced organizations. Brookfield seeks to ensure that all assets and portfolio companies have labor policies in place that are in accordance with all applicable laws, regulations and local requirements and to proactively assess potential changes to these laws, regulations and standards where practicable, so that early adoption of new programs can be completed where desirable. Brookfield continues to monitor the standards and policies of PRI and may choose to adopt them in the future.

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

Brookfield acknowledges that climate change is undeniable, and its effects pose a serious threat to global communities, businesses, and ecosystems. The firm supports climate change mitigation throughout their operations by implementing steps to understand its potential physical effects on their portfolio. Additionally, Brookfield is working on being well positioned with respect to the opportunities that are expected to rise as the world transitions to a low-carbon economy. While the firm expects the global economy will continue to rely on fossil fuel-related energy sources in the near term, they believe the transition toward a low-carbon economy is underway and likely to accelerate.

The key components of their approach to climate change mitigation are to measure and reduce greenhouse gas emissions in the operations of their investments, to conduct climate change risk assessments as part of their due diligence, and to offer solutions that support the transition toward a low-carbon economy.

Champlain

The firm manages 2.9% of VPIC assets in a Small / Mid-Cap Equity Fund. The total assets under management as of September 30, 2019 was $131,033,066.14.

1. **ESG Survey One (Sent out August 2018):**

Champlain does not have a formal policy integrating ESG factors into the investment process. However, the firm incorporate ESG beliefs into the investment analysis and decision-making processes in step two of the investment process (company attributes). During that step, the team reviews how management is compensated, who is on the board, and the company's corporate governance practices to determine if management's interests are aligned with their shareholders. Champlain believes the most sustainable companies exercise sound governance practices and create good alignment between management, shareholders, and customers. The firm has found businesses that practice good governance and are well-managed are more likely to be successful long-term investments for its clients and have better risk-adjusted performance. They also tend to attract above-average employees. Champlain utilizes the research services of ISS and Glass Lewis to assist Champlain's analysts with their proxy voting decisions. These research providers' recommendations are used as a supplement to the firm's own research as the Firm votes every proposal on a case-by-case basis.

2. ESG Survey Two, on Climate-Change specifically (Sent out July 2019):

The firm has found that businesses that practice good governance and are well-managed are more likely to have better risk-adjusted, long-term performance. While their investment framework doesn't explicitly factor in the risks associated with climate change, their focus on owning quality companies causes them to gravitate toward businesses that are incorporating sustainability into all aspects of business, including addressing the risks associated with climate change. During the investment process analysts focus on the capital allocation policy of the company and its culture of corporate governance. Champlain believes good capital allocators can be adaptive and responsive to changes in an industry, which generally leads to more sustainable excess returns.

HarbourVest

The firm manages several private equity limited partnerships, which VPIC has committed $495mm, with a total invested as of September 30, 2019 of $ 136,292,862.65 or 3% of assets under management.

1. **ESG Survey One (Sent out August 2018):**

As a PRI signatory, HarbourVest integrates ESG considerations into their due diligence process, including primary partnerships, secondary investments, and direct co-investments. Through their ESG scorecard process, HarbourVest engages with General Partners in the underlying portfolios on a number of ESG issues. For example, regarding environmental issues, the firm seeks to encourage managers to think about maximizing returns and lowering risks by focusing on responsible consumption and use of natural resources. The VPIC gains exposure to "Cleantech", which includes renewable energy investment opportunities through this manager. As of June 30, 2018, the total investment into this type of technology was $2.4mm.

HarbourVest views ESG as an integral part of its investment process, and the Firm has adopted an ESG Policy. The firm strives to ensure that it operates in an aligned and ethical fashion that considers the potential impact its investment and operational decisions may have.

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

HarbourVest is a fund-of-funds manager that invests in private equity funds and co-invests directly in operating companies on behalf of limited partners. VPIC is a limited partner in several HarbourVest funds to achieve economies of scale with other institutional investors and gains access to a diversified portfolio of high-quality, private equity fund managers.

HarbourVest views climate change factors as key considerations when investing directly into operating companies and when working alongside other general partners (GPs). Their teams strive to fully understand companies' and GPs' policies regarding environmental considerations and how they communicate and prioritize these issues with their stakeholders. The firm also analyzes company-specific climate change-related factors based on business models, geographies, stages, and other metrics, and many of HarbourVest's direct investments provide operating capital to a wide range of companies focused on providing climate change-related solutions.

HarbourVest believes that responsible investing is essential to creating value for their clients. Accordingly, climate change serves as a key factor in their due diligence process surrounding real asset-

focused investments. Their investment team is acutely aware of the impact investments in areas such as infrastructure, power, energy, and natural resources can have on the environment, and actively considers these impacts as part of its investment process.

The firm also invests in venture capital and growth equity investments in innovative technologies driving global sustainability, also known as "Clean Technologies." VPIC has invested $2.9 million in this industry through its HarbourVest funds. VPIC anticipates that this investment in Clean Technologies will increase over time, as the remaining 62% of the $495 million in capital committed is called and invested by HarbourVest.

Mondrian

The VPIC invests 2.4% with the manager in an International Equity mandate. The total assets under management as of September 30, 2019 was $107,937,281.03.

1. **ESG Survey One (Sent out August 2018):**

Mondrian is a long-term, value-oriented manager with a research process that is driven by bottom-up fundamental company analysis. This process includes a program of meeting with management teams of current and prospective holdings. The firm believes that the value of any equity security is equal to the present value of its future cash flows to the investor, which are primarily dividends. The principal focus of the firm's investment professionals is constructing long-term forecasts for cash flows utilizing a dividend discount methodology. Mondrian aims to consider all material factors that could influence future cash flows, including the ESG risks and opportunities as a normal part of the valuation process.

To better analyze the underlying risks in an investment, Mondrian utilizes scenario analysis to capture the potential range of expected outcomes for each investment. Every valuation consists of a base case expected return, as well as best- and worst-case returns, within which the impact of material ESG factors on forecast earnings and cash flow generation assumptions are analyzed over the short, medium, and long term. ESG risks and opportunities are reflected in the portfolio in so much as they affect the long-term valuations of the constituent companies and the conviction the team has in the ability of companies to achieve the projections that are embedded in the valuation scenarios. The firm became a PRI signatory in 2016.

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

Mondrian recognizes that climate change is a risk to the long-term future of economies and individual businesses. Mondrian uses a forward-looking dividend discount methodology to estimate the future dividend stream (both current levels and future growth rates) to value each company. Since Mondrian's inception, the firm aimed to consider all material factors that could influence a company's cash flows in its analysis, including ESG risks and opportunities. All companies are assessed against a consistent set of ESG values (climate change, human capital, and corporate governance), as well as a changing group of company-specific concerns. In instances when climate change, carbon emissions, water usage, and energy usage have been identified as potential risk factors, analysts will conduct further investigation into the extent of the risks as well as how they can be mitigated. These factors can also provide opportunities for companies, such as those focused on low emission technologies or renewable energy generation to value more favorably among their more carbon intensive industry peers.

PIMCO

The firm manages 6.2% of VPIC assets within a Core Plus fixed income mandate. The total assets under management as of September 30, 2019 was $284,049,589.80.

1. **ESG Survey One (Sent out August 2018):**

PIMCO's global credit research team and portfolio managers evaluate ESG-related factors across all issuers that they cover as part of their credit analysis and capital allocation decision-making processes. The investment manager strives to consider and model, where possible, all variables that could potentially impact a bond's future value.

For example, in the case of evaluating the medium-to-long term themes that will most impact economic growth, PIMCO also closely considers ESG-related issues such as natural resource utilization, population dynamics, and social inequality. The firm's objective is both to capitalize on the key sustainability themes that will shape growth and ensure that clients are sufficiently compensated for the ESG-related risks embedded in their portfolios. This approach is risk-based and is implemented across all PIMCO portfolios. PIMCO has been a PRI signatory since 2011.

Below are key areas of focus for PIMCO's ESG investment platform for the coming years:

- *Further build-out and enhancement of engagement platform/capabilities*
- *Further enhancement of reporting based on continued feedback from clients*
- *Thought leadership and investor education initiatives intended to raise awareness of sustainable investing in the fixed income space (e.g. ESG investor summit)*

Industry partnerships designed to enhance the efficacy of our ESG investment efforts, particularly with respect to issuer reporting (e.g. carbon footprint)

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

PIMCO integrates into their fixed income investment process seven proprietary tools that help portfolio managers better manage and mitigate climate-related credit risks. The firm believes that climate-related factors have material impacts on issuers' credit quality affecting the full range of fixed income and related asset classes, and poses two types of risk: transition risk, such as carbon regulation and energy-related technology changes; and physical risk, such as extreme weather events and rising mean temperatures and sea levels.

PIMCO's seven climate tools: risk analysis in practice:

Figure 2: Summary of PIMCO's seven tools for climate risk analysis and management

OBJECTIVE	TOOL #	FOCUS	PIMCO TOOL NAME	KEY QUESTION
Lower credit risk	1	Economic Impacts (Top-down)	Climate Macro Tracker	How to assess and decrease portfolio exposure to financial risks brought about by climate change
	2	Credit Risk Impacts (Bottom-up)	Portfolio Climate Risk Heat Map	
	3		Issuer Climate Risk Score	
Reduce carbon emissions	4	Brown Bonds	Energy and Technology mix compared with the Paris Agreement (IEA Scenarios)	How to reduce portfolio exposure to activities contributing to global warming
	5	Carbon Intensity	Portfolio Carbon Intensity Analysis	How to reduce portfolio's carbon footprint
	6	Green Bonds	Green Bonds Score	How to increase portfolio's exposure to activities that help mitigate global warming
Both objectives	7	Engagement	Expectations toward issuers on climate change	How to influence companies' strategy

For illustrative purposes only. Source: PIMCO as of July 2019

Tool #1: Climate Macro Tracker – To ensure we have a robust long-term, top-down perspective on climate risk, PIMCO designed and developed our own Climate Macro Tracker. This tool monitors the broad momentum in climate change across key themes and scenarios, and measures the gap between the real-world metrics and global climate goals.

Tool #2: Portfolio Climate Risk Heat Map – PIMCO's Portfolio Climate Risk Heat Map gives a high level overview of exposure to climate risk (both transition and physical) among relevant sectors and assets. This includes a "heat map" of select corporate sectors' exposure, from low risk (green) to high risk (red), along with examples of relevant climate risks within each sector. Looking across the range of risks in a portfolio helps a portfolio manager assess and fine-tune exposures.

Tool #3: Issuer Climate Risk Score – PIMCO's Issuer Climate Risk Score assesses climate change risks for a wide range of relevant sectors and issuers. In the auto sector, for example, we explore climate change in the broader context of stricter legislation covering air pollution, while for the food and agriculture sectors, carbon risks should not, in our view, be disentangled from steps taken by issuers to mitigate the underlying commodities' water or land footprint.

Tool #4: Portfolio Energy and Technology Mix Measured Against the Paris Agreement – PIMCO's Energy and Technology mix compared with the Paris Agreement assesses the average technology and energy mix of a portfolio compared with global energy scenarios modeled by the International Energy Agency (IEA), including the potential impact of green bonds, considering their specific environmental *features and issuer-level data. Figure 6 compares PIMCO's ESG portfolio with current and future IEA estimates of Paris-aligned portfolios.*

Tool #5: Portfolio Carbon Intensity Analysis – As part of PIMCO's Portfolio Carbon Intensity Analysis, we have developed high-level portfolio screens that allow comparison of carbon intensity of different portfolios and benchmarks based on the weighted average sum of both direct greenhouse gas emissions and greenhouse gas emissions due to purchases of electricity, heating, and cooling (i.e., scope 1 + scope 2 emissions in tonnes of carbon dioxide equivalent, or tCO2e / revenues in USD (weighted based on percentage of market value)).

Tool #6: Green Bonds Score – Green bonds and other debt instruments geared toward sustainability are proliferating in the global marketplace. Our ESG process integrates analysis of debt instruments geared toward climate solutions via our proprietary Green Bonds Score. We assess green bond instruments both prior to and after issuance, mapping them across a spectrum based on strategic fit, potential impact, red flags, and reporting, resulting in PIMCO's impact score for green, social, or SDG bonds. PIMCO's green bond scores aid the investment process and security selection, allowing for stronger differentiation among green bond issuers and frameworks.

Tool #7: Engagement With Issuers on Climate Change – We engage with bond issuers both to bolster their Paris Agreement alignment and to help them improve their management of the underlying credit risks, moving from awareness to readiness, and ultimately commitment. PIMCO is part of Climate Action 100+, an investor-led climate engagement coalition that works with selected issuers among the largest carbon emitters in a broad range of sectors.

PIMCO engages with bond issuers to guide their alignment with the Paris Agreement and to help them improve their climate readiness and their commitment to being consistent with global climate goals. The firm is a part of the investor collaborative engagement group Climate Action 100+.

Siguler Guff

The firm manages a private equity fund and non-core real estate fund to which VPIC has committed $105mm, with a total invested as of September 30, 2019 of $ 40,533,268.28 or 0.9% of assets under management.

1. **ESG Survey One (Sent out August 2018):**

Siguler Guff considers ESG issues in the firm's investment processes with the belief that ESG-compliant investments have a superior risk-reward profile. For this reason, the firm incorporates ESG considerations into its due diligence process on all prospective investments. Siguler Guff's ESG policy, formalized in 2013 with the firm becoming a signatory of the PRI, requires the consideration of ESG factors throughout the investment process and addresses management of investment-related ESG issues. Following the implementation of their ESG policy, the firm also formed an ESG Committee responsible for strengthening the ESG program and proposing improvements to procedures and policy as needed.

As part of the investment process, Siguler Guff considers whether ESG issues might add risk to an investment or pose reputational risks to the firm or its clients. Siguler Guff considers structural integration *of ESG factors, risk, and management in selection of fund investments, including a fund manager's engagement with portfolio companies and processes to address ESG issues.*

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

Siguler Guff has long considered climate change and several other environmental issues in its investment theses and processes. In 2013, the firm formalized its ESG policy by adopting a Responsible Investment Policy to address guidelines on management of ESG issues relating to investments. The firm employs an ESG Due Diligence Questionnaire across all its portfolios when considering investments.

The small buyout and real estate investment teams implement ESG considerations through sourcing, due diligence, and monitoring of investments. In particular, the firm aims to mitigate instances in which factors relating to climate change add risk to an investment or the firm's reputation, or when such factors make a potential investment incompatible with the firm's values.

The firm's small buyout investment team has a strong track record of investing in companies that Siguler Guff considers having a positive impact on climate change and sustainability efforts, and label "sustainable-themed investments". Examples of such investments include a UK-based manufacturer that distributes high strength industrial parts that are distributed to wind towers, a company offering mobile truck fleet washing services that recycles the wastewater after the cleaning process, and a vertically integrated textile waste recycling company.

The firm's distressed real estate team invests directly in several commercial properties that hold Silver, Gold, and Platinum LEED certifications and other recognized sustainability certifications. In addition, the team has invested in fund vehicles that demonstrate commitments to being socially and environmentally conscious through their capital expenditures, such as through evaluating sustainability factors (such as energy, waste, and materials use) in building refurbishment plans.

Strategic Global Advisors (SGA)

The firm manages a commingled International Small Cap Equity fund, which the VPIC invests 1.9% of its portfolio. The total assets under management as of September 30, 2019 was $86,552,349.92.

1. **ESG Survey One (Sent out August 2018):**

Strategic Global Advisors' bottom-up approach to investing seeks to understand the long-term sustainability of a company's business model, and how ESG issues can impact an investment opportunity's risk and return characteristics. SGA's fundamental team considers ESG risks in conjunction with business risk, credit risk, etc. while taking a holistic approach in analyzing companies.

Daily, SGA fundamental analysts generate ESG reports on stocks suggested as buys produced by the quantitative model in addition to current portfolio holdings. Analysts then incorporate the information into their analysis and seek to identify factors exogenous to company fundamentals (i.e. reputation risk, legal risk, governance risk) that could potentially impact future returns. Analysts use these resources in conjunction with other research to override the quantitative model and exclude these stocks from inclusion eligibility in SGA portfolios.

2. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

SGA employs a quantitative, proprietary model that incorporates multiple factors to help evaluate stocks. The opportunity set in the model's output is then evaluated by the firm's fundamental security analysts who overlay a bottom-up analysis to the model's output.

The analysts utilize third-party resources to flag potential ESG risks for companies in the portfolio or those the model identifies as candidates for future investment. The analysts seek to identify which business models are at a heightened risk in a low carbon transition and understand the effects of climate change on the long-term sustainability of a company's business model, along with other factors. SGA's ESG integration process incorporates company activities that directly impact climate risk, including issues such as:

1) Failure to mitigate climate change impacts
2) Failure to prevent oil spill
3) Failure to prevent air pollution
4) Failure to prevent water pollution
5) Failure to prevent soil pollution
6) Failure to assess environment tal impacts
7) Opposition to climate change mitigation
8) Poor waste management

SGA views climate change as an opportunity for high quality companies to integrate sustainability into their business plan. SGA's fundamental analysts have noticed an increasing amount of companies that have made climate change a focus.

UBS

The firm manages a commingled, core US real estate mandate, Trumbull Property Fund, which the VPIC invests 4.7% of its portfolio. The total assets under management as of September 30, 2019 was $217,084,419.04.

1. **ESG Survey One (Sent out August 2018):**

UBS has adopted a corporate sustainability mission in which ESG plays a major role. The firm integrates sustainability considerations into its investment process for the fund and addresses environmental impacts through enhancements of property operations in the underlying holdings of the fund.

At the property level, UBS has registered all their Fund's applicable office buildings under the EPA Energy Star program. They have also focused property management companies, vendors and contractors on cost-effective ways to achieve energy savings and implement responsible green procedures. UBS has pursued LEED (Leadership in Energy and Environmental Design) certification wherever cost effective. As of June 30, 2018, 97% of the Fund's urban office assets were LEED certified. The firm believes that an environmentally friendly management strategy supports the firm's ideals and when implemented carefully can also result in higher investment returns. Many of the changes made at properties to reduce environmental impacts offered a corresponding reduction in operating expenses, such as decreased utility costs and improved Energy Star ratings.

UBS is a founding member and signatory of the United Nations Environmental Program Finance Initiative (1992) and UBS Asset Management has been a signatory of the PRI since 2009.

The firm has set quantitative goals, which include a 20% reduction of greenhouse gas emissions and a 10% reduction of the energy consumption at their properties every 5 years on a rolling basis. Other quantitative goals include reducing residual waste, increasing the recycling rate above 50% and reducing the water consumption of properties by monitoring consumption and developing specific water saving measures.

In November 2018, the VPIC engaged with UBS to request the manager support employees of a specific property in the Trumbull Property Fund to a fair process by which the employees are able to decide on unionization in an environment free from intimidation or threats. UBS responded with a letter to all investors in the Trumbull Property Fund noting that they are "fully supportive of the Hotel employees' right to unionize in a fair process conducted in accordance with the National Labor Relations Act and all other laws governing these matters." In addition, UBS acknowledged that they were in contact with the owner of the hotel and the body representing the employees to encourage a resolution. UBS employs a Responsible Contractor policy with its property managers to ensure that managers providing services at their properties are acting in a responsible manner and are paying employees fair wages and fair benefits. UBS reminds their property managers of this obligation annually.

The VPIC also contacted the owner of the hotel, a publicly traded company for which the portfolio invests, to notify them that the VPIC was concerned about the labor relations at the hotel. In May 2019 employees at the hotel voted to be represented by the union.

1. **ESG Survey Two, on Climate-Change specifically (Sent out July 2019):**

UBS supports the efforts to both mitigate climate risk and respond to climate change by including methods in their investment and asset management strategies. The firm has publicly voiced its belief that the transition to a low carbon economy is vital for the success of both UBS and their clients, is committed to the UN Sustainable Development Goals (SDGs), and is a leader among peers on adopting reporting recommendations from the Task Force on Climate-related Financial Disclosures (TCFD).

UBS's climate strategy includes the evaluation and communication of the three pillars of climate risk: transition, physical, and social. This strategy allows the firm to analyze various scenarios to ensure they are investing responsibly and that they are recognizing how climate change may impact an asset over the long-term. In addition to this, UBS ensures that their assets meet strict due diligence requirements during evaluation, such as sustainability ratings, renewable energy, lighting and plumbing, site conditions, electrical/HVAC systems, climate change risks, and socio-economic risks. Together, these strategies allow the firm's asset management groups to align with their goals of mitigating climate related risks.

Wellington

The firm manages a commingled Emerging Market Debt strategy, which the VPIC invests 4.4% of its portfolio. The total assets under management as of September 30, 2019 was $200,946,601.44.

1. **ESG Survey One (Sent out August 2018):**

Wellington formally established an in-house ESG research team in 2011 to assist portfolio managers and analysts in integrating ESG considerations into the investment and proxy voting processes. This team was nearly doubled in 2017 to seven full-time staff members. Climate change is among the firm's ESG Research team's top three engagement and research priorities, and the team is closely monitoring company *climate risk reports. Wellington is a PRI signatory and publicly supports the Task Force for Climate-Related Financial Disclosures.*

In the firm's Emerging Market Debt portfolio that VPIC invests in, ESG factors have long been embedded in the country research process used to assess the relative credit strength of all the countries under coverage. Wellington views a country's social stability and the quality of governance – political stability, quality of policies, and strength of institutions – as critically important factors in assessing both the probability of default and the relative value of government debt. Both external data and internal assessments are used to evaluate governance risks. The portfolio management team does not use ESG as a screening tool, but rather they believe incorporating ESG factors into valuation helps to ensure the portfolios are compensated sufficiently for material ESG risks.

2. ESG Survey Two, on Climate-Change specifically (Sent out July 2019):

Wellington recognizes that an international transition toward a lower-carbon economy is underway and believes this is important for the sustainability of financial markets, the global economy, and the planet. As part of the investment process, the firm provides proprietary ESG ratings on companies incorporating a range of factors, such as greenhouse gas emissions, renewable energy use, and water scarcity management. The portfolio management team integrates these factors, including those related to climate change, into its investment process to ensure it is adequately compensated for identifiable risks before investing in an issuer. The EMD team embeds ESG factors in the country research process used to assess the relative credit strength of countries. Environmental and climate change factors are of particular importance when they have an impact on a company's economic growth, fiscal management, or political stability.

In addition to transition risks, as acute weather events become increasingly more severe and frequent, Wellington seeks to incorporate physical risks associated with climate change into investment decisions. To assess the resilience planning and adaptive capacity of portfolio holdings, Wellington is engaging in a long-term partnership agreement with Woods Hole Research Center, a leading independent climate research institute, to bring a deeper understanding of climate science to the investment dialogue and develop investment tools focused on physical risks. The firm noted the physical risk disclosure reports that have been published by companies to date provide a starting point to compare efforts to peers in regions and topographies with similar vulnerabilities.

Wellington also engages directly with companies on the impact of a changing climate to the firms' business model. These meetings illuminate a company's exposure to climate-related events, as well as management's awareness and risk-management approach, while also encouraging the adoption of best practices. An example of such encouragement includes adoption of the TCFD recommendations. Wellington has been monitoring published company reports on climate risk, specifically seeking verification that companies are working to create shareholder value by addressing climate risks to physical assets and mitigate transition risks stemming from changing regulation and technology. To assess climate change, they look for evidence that companies are adopting near-term and long-term targets for reducing total emissions or emissions intensity, detailing progress toward those targets, and tying capital allocation decisions to those targets.

As a complement to direct company dialogue, Wellington believes proxy voting can be a powerful tool for managing climate-related risks, providing leverage in company management discussions, and directly influencing corporate policy. Wellington generally supports shareholder-sponsored proposals focused on *improved assessment and disclosure of climate risks, particularly when it seems management has not sufficiently addressed their materiality to the company's long-term performance.*