Investing for the Future

PERA’s overall approach to investment stewardship is straightforward: Seek out quality investments that are expected to provide the best risk-adjusted returns to PERA’s portfolio over the long term. We break down this approach to financial sustainability into four parts.

**Protect**

Protect members’ assets by watching costs

**Integrate**

Integrate relevant factors into PERA’s investment process

**Advocate**

Advocate for stronger markets

**Evaluate**

Evaluate exposures and recognize limitations

---

**$45M**

Manage most assets internally at a cost of approximately 0.06% of those assets, saving an estimated $45 million per year

---

**$566M+**

Over $566 million invested in Colorado firms

---

**11**

Participate in 11 advocacy groups to advance best practices in the investment industry

---

**$3.3B**

Invest $3.3 billion in firms that source 100% of electricity from green power or have committed to do so by 2030

---

**68%**

Reduced costs for members to participate in the PERAPlus 401(k) Plan by 68% between 2011 and 2018

---

**>3M sq. ft.**

Directly own 3 million+ square feet of ENERGY STAR® certified property

---

**76%**

We sit on 76% of our eligible private investment fund boards

---

**31%**

Global Equity investments use 31% less carbon to produce each $1 of sales relative to the benchmark

---

**Top 50**

Recognized as a top 50 responsible pension investor globally by the Responsible Asset Allocator Initiative (RAAI) in 2019

---

**63K+**

Voted on 63,031 proposals related to corporate governance

---

**100%**

PERA is fully committed to fair and equitable markets because they are in the best interest of our members

---

**12%**

Only 12% of investors believe that companies adequately disclose their ESG risks*

---

* Ernst & Young, 2017

As of December 31, 2018 except where noted.
A MESSAGE FROM PERA MANAGEMENT

We are pleased to present the 2019 Colorado PERA Investment Stewardship Report. In this edition, we build on our foundational report released in 2018 and highlight PERA’s commitment to high-quality investments and long-term financial sustainability through investment cost stewardship.

PERA’s investment portfolio is managed for the sole benefit of our members. As we strive to uphold our fiduciary responsibility, PERA’s staff is perpetually engaged in making investment decisions to seek the best risk-adjusted returns. In evaluating the risks and opportunities that drive portfolio returns, PERA takes a holistic approach. Our investment philosophy is rooted in sound financial theory and ethical practice, and emphasizes the value of diversification, efficiency, expertise, and benefits that outweigh costs.

We highlight our stewardship of investment costs in this year’s report because we believe cost is one of the most impactful and fundamental factors for investors to consider. As the adages go, “it takes money to make money” and “a penny saved is a penny earned.” These sayings are seemingly contradictory, but they are in fact two sides of the same coin. While investing comes with inherent costs, those costs can be effectively managed to optimize returns. The less excess costs paid out, the more excess returns in an investor’s pocket.

PERA believes that the costs of investing should not outweigh the benefits of investing. Investment costs may be explicit or implicit, and should be clearly understood within the context of the benefits received in return. We diligently manage costs on behalf of our members throughout our investment strategies. In the following report we explore three avenues for PERA’s ongoing investment cost stewardship:

» Reducing fees for the investment options available to our members through PERA’s participant-directed defined contribution plans (also known as Capital Accumulation Plans, or CAPs)

» Managing assets internally while valuing the expertise of our external partners and managers

» Unbundling trading costs from research costs in public equity markets

Cost stewardship is part of PERA’s stewardship of the trust of our members. High-quality investments at the lowest possible costs translate into the retirement security we are charged with attaining for our members.

PERA will continue to evaluate the opportunities for financial sustainability through investment stewardship. As always, we remain steadfast in our commitment to quality, long-term investments that provide the best risk-adjusted returns. We hope you find the following report to be valuable in understanding our commitment to responsible investment stewardship on behalf of our members.

Sincerely,

Ron Baker
Executive Director

Amy C. McGarrity
Chief Investment Officer
Look for these symbols throughout the report for specific examples of how PERA's four-part stewardship approach is used to achieve financial sustainability over the long term.

<table>
<thead>
<tr>
<th>Protect</th>
<th>Integrate</th>
<th>Advocate</th>
<th>Evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protect members’ assets by watching costs</td>
<td>Integrate relevant factors into PERA’s investment strategy</td>
<td>Advocate for stronger markets</td>
<td>Evaluate exposures and recognize limitations</td>
</tr>
</tbody>
</table>
INTRODUCTION

Stewardship is the heart of PERA’s mission. We manage approximately $45 billion in assets on behalf of more than 600,000 members.1 That is a tremendous responsibility, and one we accept whole-heartedly. In fulfillment of our fiduciary duty, PERA’s investment stewardship is founded on our commitment to the long-term financial sustainability of the Fund for its beneficiaries.

This report explores PERA’s approach to seeking financial sustainability through investment stewardship. With increasing focus on environmental, social, and governance (ESG) considerations within the investment industry, we uphold PERA’s view of stewardship as a more integrative framework for achieving financial sustainability. Under this approach, we have found opportunities to invest in firms and partnerships that integrate quality ESG practices into their business models, without sacrificing long-term financial sustainability.

PERA’s stewardship approach adheres to our investment policies by maintaining our foundational focus on maximizing risk-adjusted returns across the Total Fund. Throughout this report we demonstrate how PERA uses the lens of stewardship to guide our decisions in the fulfillment of our fiduciary duty. We conclude with a discussion of industry perspectives on sustainable investing, and reflect on how they help inform PERA’s ongoing investment stewardship toward the ultimate financial sustainability of the Fund.

Financial Sustainability

- Invest in firms with sustainable business models for long-term profitability
- Invest in natural resource and economic development
- Vote shareholder proposals to promote sound corporate governance

Long-Term Investing

- Advocates for robust capital markets
- Develop and share best practices
- Advance standards and metrics for better disclosure

Evaluate

- Protect members' assets by watching costs
- Lower costs in individual investment accounts
- Provide high-quality returns at low costs using internal management
- Work to unbundle equity trading and research costs

Integrate relevant factors into PERA’s investment strategy

Integrate

- Use independent research
- Identify and measure sustainable exposures
- Recognize limitations of ESG data

Advocate for stronger markets

Advocate

- Protect members' assets by watching costs
- Lower costs in individual investment accounts
- Provide high-quality returns at low costs using internal management
- Work to unbundle equity trading and research costs

Evaluate exposures and recognize limitations

Evaluate
PERA’s Investment Stewardship Philosophy

PERA uses the term “stewardship” to describe our sustainable investing philosophy. We believe stewardship goes beyond ESG investing to encompass all risk and opportunity factors that are relevant to our investment decisions as fiduciaries. That means we may consider factors that fall into the ESG framework, but we will not limit our investment decisions to only those factors. Instead, we recognize that global sustainability practices are pieces in the mosaic of information necessary to determine an investment’s comprehensive value in our objective pursuit of financial sustainability.

As fiduciaries we have the foremost obligation to invest in opportunities that provide the best risk-adjusted returns. In accordance with prudence, we evaluate all appropriate investments that fall within the parameters set forth by the PERA Board of Trustees. Within those parameters there may be opportunities to invest in firms that offer financial sustainability and also practice environmental, social, and governance stewardship.

Companies that effectively manage stewardship risks and opportunities may demonstrate innovation, leadership, alignment with stakeholders, and financial success. These are qualities of companies that are built to last, and which present potential for increased financial value. Ultimately, we believe the best investments for long-term financial sustainability are found in quality companies and partnerships that practice strong stewardship over all aspects of business in order to provide strong investment returns.

What is ESG?

ESG is an acronym for environmental, social, and governance factors which investors may consider as part of their investment decision framework. Underlying each of these motifs are countless elements of sustainable practices. ESG is the most common label used to indicate global sustainability within the investment industry, but it is not the only label. Sustainable investing, socially responsible investing, and corporate social responsibility are also among the many terms investors may use to describe sustainable investing. Each designation can be underpinned by unique approaches and limitations, which investors may apply to their portfolios for alignment with their investment philosophies and policies.

See “Why Sustainability Matters to PERA’s Investors” on page 25
Stewardship
PERA’S INVESTMENT STEWARDSHIP APPROACH

PERA's approach to financial sustainability is guided by four practices for sound investment stewardship. We protect our members’ assets through cost conscious investment management. We integrate relevant and financially material factors into our investment decisions. We advocate for stronger capital markets and ethical investment practices. And we evaluate various exposures within our portfolios on an ongoing basis to cultivate a deeper understanding of their real and potential financial impacts.

In this section we highlight our work to preserve and enhance our members’ retirement assets through responsible investment stewardship. Within the context of our long-term investment horizon, we spotlight our ongoing cost stewardship to protect assets, and we discuss the opportunities we have found to integrate environmental, social, and governance stewardship into the portfolio while seeking enhanced returns. We also demonstrate PERA’s influence as the voice of our membership in the global marketplace through our focus on advocacy. We conclude this section with evaluations of various ESG exposures within our portfolios to reinforce our commitment to promoting objective analysis and increased disclosures for better stewardship.

BUILDING A PORTFOLIO WITH LONG-TERM SUSTAINABILITY

Meeting perpetual financial needs requires using PERA’s breadth of resources to design a sustainable framework on which to build a long-term investment portfolio. In constructing the portfolio, PERA has allocated assets across diverse public and private markets. We actively manage investments in public equity and debt instruments in both developed and emerging markets, residential and commercial real estate properties, private equity partnerships, and opportunistic interests. Allocating assets to diverse strategies allows PERA to maintain a broad investment portfolio, which is imperative for long-term financial success.

PERA’s long-term investment horizon provides time to not only identify, but to understand and anticipate changing market forces and their far-reaching impacts. This is especially advantageous as technology changes the quality of, and rate at which, information is disseminated and priced by markets. As new data become available, PERA is poised to thoughtfully evaluate broad consequences of information without compromising long-term gains with short-sighted decisions. This long-term vision helps PERA manage excess volatility created in public markets by investors reacting to short-term signals.

By looking deep into the investment horizon for diverse opportunity sets, PERA seeks to identify enduring companies that will contribute to thriving economies, while avoiding those that will be unable to compete in the long run. PERA believes companies with strategies built for longevity are high-quality firms that adapt their business models to meet stakeholder interests and provide strong risk-adjusted returns. Focusing on high-quality investments helps us to avoid the pitfalls of investing in companies that will rank in the bottom percentiles among their peers over time. In the long run, PERA’s focus on high-quality companies should boost performance of the Total Fund and contribute to its sustainability.

Target Asset Allocations (as of December 31, 2018)

- Global Equity: 53.5%
- Fixed Income: 23.5%
- Real Estate: 8.5%
- Private Equity: 8.5%
- Opportunity Fund: 5.0%
- Cash: 1.0%

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>53.5%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>23.5%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>8.5%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>8.5%</td>
</tr>
<tr>
<td>Opportunity Fund</td>
<td>5.0%</td>
</tr>
<tr>
<td>Cash</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Colorado PERA Stewardship Report
**COST STEWARDSHIP: OBTAINING HIGHER QUALITY AT LOWER COSTS**

PERA aims to earn risk-adjusted returns in an efficient, cost-effective manner without sacrificing our focus on quality investments. We acknowledge there are inherent monetary costs to investing. These costs may be explicit or implicit and may vary depending on factors such as market structures, investment needs and availability, relationship agreements, regulatory fees, operational efficiencies, and manager expertise. We advocate for cost transparency where we can, and seek the lowest possible costs to preserve risk-adjusted returns in both our defined contribution and defined benefit plans.

**REDUCED FEES FOR PERA'S CAPITAL ACCUMULATION PLANS**

PERA recognizes the value of saving for retirement. All PERA members have the option to invest for retirement through PERA’s 401(k) Plan, and members of affiliated employers have the option to participate in PERA’s 457 Deferred Compensation Plan. Additionally, the PERAchoice Program gives eligible members the option to forgo participation in the Defined Benefit (pension) Plan in favor of sole participation in the Defined Contribution Plan. The 401(k) Plan, 457 Deferred Compensation Plan, and the Defined Contribution Plan are collectively called the Capital Accumulation Plans (CAPs). These plans are separate from the Defined Benefit Plan, and provide the opportunity for PERA members to self-direct their own money across a wide variety of strategic funds to help meet their individual retirement savings goals.

The CAPs offer 17 PERAdvantage funds in which members may choose to invest their individual account assets. The options range from target date funds to funds specializing in specific asset classes and strategies. The costs to invest in each plan include a $1 flat participation fee per month ($12 per year per plan), and plan administration fees of 0.03 percent on assets. The low participation fee and low asset-based fees encourage PERA members to participate.

In an ongoing effort to reduce fees paid by participants, PERA has worked to reduce the CAP administration fees from 0.50 percent of assets in 1995 to 0.03 percent in 2018. PERA also internally manages a portion of the funds offered through the Plans, resulting in lower overall investment management fees. Reductions in administration and investment management fees have decreased the all-in costs of PERA’s 401(k) Plan down from 0.66 percent of assets in 2011 to 0.21 percent of assets in 2018. That’s a 68 percent decrease in fees. Those smaller investment costs equal bigger nest eggs for participants, and more efficient Plan management.

**LOW AGGREGATE INVESTMENT MANAGEMENT FEES**

As part of our cost stewardship within PERA’s Defined Benefit Plan, we emphasize low-cost, high-quality internal management of the majority of our assets, while selectively partnering with external experts where those relationships add value. As our assets have grown over the past 10 years, we have kept internal investment management costs consistently low. The lower costs of managing

---

**Lower Fees = More Savings**

<table>
<thead>
<tr>
<th>Year</th>
<th>All-in Fee Decrease in PERA's 401(k) Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>0.66%</td>
</tr>
<tr>
<td>2018</td>
<td>0.21%</td>
</tr>
</tbody>
</table>

68%
the majority of our assets internally help to offset the costs of managing assets externally. This enables PERA to provide higher quality returns at lower overall costs.

Within the public equity and fixed income asset classes, PERA’s experts manage the majority of assets in-house, resulting in significant overall cost savings. PERA’s internal investment experts have 18 years of combined average experience in investment management. Together we manage $27 billion of the Total Fund in-house at a cost of 0.06 percent. The internal management of PERA’s public equity and public fixed income investments saves PERA an estimated $45 million dollars over the expected cost to outsource the management of these assets to external managers.

PERA utilizes external experts for a portion of our public equity and fixed income investments, as well as for partnerships that help facilitate our private asset class investment strategies where they can produce compelling results. The complexity of private asset strategies necessitates deeper resources and specialized expertise to transform underlying assets to generate expected returns higher than those of public investments. Where we can, we negotiate with our external partners for lower management fees. In every partnership, we hold our managers to high standards, and select only those managers which we believe will add the greatest value on a risk-adjusted basis at fair cost.

We are advocates for increased disclosure and greater transparency of investment costs. While private asset management contracts generally restrict investors from fully disclosing most fee-related information to the general public, PERA staff has full access to this information and carefully evaluates fees paid on an ongoing basis. This fee information is also reviewed by PERA’s Board of Trustees Investment Committee. PERA continues to strive toward increased transparency within our contractual limits. To that end, we have adopted the Institutional Limited Partner Association’s (ILPA) Reporting Template which aims to standardize disclosures of fees, expenses, and carried interest costs within private asset partnerships. In joining our peers in the adoption of the ILPA Template, PERA endeavors to bring forth mainstream transparencies that address potential risks and promote efficiencies within private markets.

“Internal management produces competitive results at a tremendous cost savings to our membership and allows PERA to attract and retain talented investment professionals.”
—Mark Walter, Director of Fixed Income

**Internal Management Lowers Costs**
UNBUNDLING EQUITY RESEARCH AND TRANSACTION COSTS

PERA’s efforts to increase transparency and reduce investment costs go beyond product and management fees. As an institutional investor, PERA is also concerned with research and transaction costs, which have implications for large and small investors alike. These costs may add significant financial burdens to asset managers and owners. As part of PERA’s ongoing advocacy for fair markets and fair costs, we advocate the unbundling of sell-side research and trade execution costs.

The second iteration of the Markets in Financial Instruments Directive (MiFID II) is a European regulation which includes mandates regarding the transparency and unbundling of research and execution costs in equity markets. Investors (the buy-side) rely on broker-dealers (the sell-side) to provide them with both investment research and trade execution services. Traditionally, broker-dealers supply investment research reports to buy-side market participants using bundled arrangements which may be costly and opaque. Under the traditional model, the cost for research is rolled into the trade execution cost, making it virtually impossible for investors to disentangle research value from execution service value. Thus, in the bundled model, the end customer ultimately pays the price for execution and research through reduced returns.

The unbundling directive under MiFID II puts the onus on broker-dealers to unbundle fees for research reports and trade execution services. This unbundling initiative gives European buy-side participants the ability to better distinguish the costs of investing and their expected benefits. By unbundling research from execution costs, investors may choose to execute trades with broker-dealers separate from those that provide research.

Unbundling research costs from transaction costs is expected to make both services from broker-dealers more relevant and competitive, and reduce costs to investors as a result.

As investors on behalf of our beneficiaries, and as proponents of fair markets, PERA believes the unbundling model is advantageous for all investors. As of January 1, 2018, PERA has begun unbundling public equity research and transaction costs within its global equity portfolios. We have engaged with our broker-dealers and research providers on the sell-side to implement the unbundling of our costs. Our goal is to pay for equity trade execution and research fees separately to the best providers of each so that we can continue to manage costs to the greatest benefits. We are also engaged with the U.S. Securities and Exchange Commission in supplication of the removal of regulations that currently impede this unbundling in the U.S. Although unbundling is not required in the U.S., we believe unbundling will become a global standard as investors realize the transparency and cost advantages the initiative brings. Advocacy for fair costs and fair markets is a stronghold of PERA’s approach to investment stewardship.
INTEGRATE

ENVIRONMENTAL STEWARDSHIP: INVESTING IN NATURAL RESOURCES

As standards of practice and technologies advance, we recognize there are investment risks and opportunities in all forms of resource production and utilization—including both traditional and alternative resources. Our investment staff may consider factors of environmental stewardship in their fundamental analysis when evaluating public investment securities, or through due diligence when evaluating private investment properties and managers. Through our long-term, high-quality investment focus, PERA has found material financial value in companies and partnerships that integrate environmentally sustainable practices in their business models. Here we highlight some of our investment managers and holdings that utilize and produce renewable resources through their operations.

REFORESTATION AND LAND CONSERVATION

In PERA’s Opportunity Fund portfolio, our investment in timberland is also an investment in reforestation and land conservation efforts. Our timberland manager is committed to responsible natural resource management, and in 2018 they released their inaugural Report on Sustainability and Responsible Investing. In the report, they emphasize the importance of providing investment returns on wood fiber products while protecting ecological and social quality. Their sustainability initiatives help protect forests, watersheds, threatened species, and biodiversity. They engage with local indigenous communities to collaborate on ecosystem education and maintenance. Through ongoing forest population and management they contribute to carbon sequestration and have taken steps to measure and reduce their own operational greenhouse gas emissions. In 2002, they became the first timberland investment manager to have their North American timberland holdings certified as meeting the Sustainable Forestry Initiative® (SFI) standard. In 2015, they became a signatory to the Principles for Responsible Investment (PRI).

GREEN REAL ESTATE

In PERA’s Real Estate portfolio, we own properties that are certified as green buildings. We directly own over three million square feet of property that have earned the ENERGY STAR® by the United States Environmental Protection Agency. This designation ranks our certified buildings in the top quartile of peer buildings nationwide, based on performance metrics such as renewable energy sources and property usage.

PERA also directly owns properties that are LEED® Certified™. The U.S. Green Building Council’s LEED® green building program is the preeminent program for the design, construction, maintenance and operations of high-performance green buildings. The LEED certification program verifies these buildings’ resource and cost efficiency, and encourages higher lease rates through its emphasis on healthy buildings.

RENEWABLE ENERGY

PERA has exposure to renewable energy companies through our private equity and debt investments. The underlying companies we invest in through our private partnerships include producers and suppliers of eco-friendly energy. Many of these companies generate solar, wind, geothermal and hydro powered electricity. Other firms work to develop low-cost green technologies. Some of these technologies are used to produce biofuels by converting municipal solid waste and biomass into green chemicals.

PERA utilizes third party research data from MSCI, Inc., to help identify ESG exposures in our public equity and fixed income portfolios.
PERA has hundreds of millions of dollars invested in utility companies that use renewable resources to generate energy, and which take advantage of financial opportunities linked to the development of renewable power production. Many of these companies commercialize renewable energy equipment and offer customers the option to purchase power from green energy sources.

PERA currently invests in public companies that recognize the demand for decreasing carbon emissions, and which seek to mitigate their carbon emissions by managing energy consumption and improving the energy efficiency of their operations.

As consumer demands shift and technologies in energy production change, opportunities for company profitability evolve and present unique risks to investors. PERA will continue to manage the risks and opportunities across the energy spectrum, from traditional to alternative, and construct our portfolios around companies that provide the most attractive long-term return to risk profile.

SOCIAL STEWARDSHIP: INVESTING IN THE LOCAL ECONOMY

As steward of Colorado’s largest public pension plan, PERA takes pride in our contributions to Colorado’s economy. In 2012 we partnered to create the Colorado Mile High Fund, which earmarked capital for businesses that have a nexus to Colorado. We also employ hundreds of local employees, and provide retirement income for thousands of local retirees—all of whom contribute to Colorado’s economy.

THE COLORADO MILE HIGH FUND

In October 2012, PERA introduced the Colorado Mile High Fund, which focused on private equity and venture capital opportunities structured as co-investments with financial sponsors. The fund also considered uniquely structured capital formation opportunities from private equity and venture capital firms targeting Colorado-based opportunities. PERA used an outside manager to assist with the management of this fund, and adhered to the same stringent investment and underwriting criteria for this fund as applicable to its overall private equity program.

PERA and its adviser reviewed more than 75 investment opportunities resulting from an active deal sourcing effort that included discussions with scores of representatives from prospective investment opportunities. The Colorado Mile High Fund had committed approximately 60 percent of the fund’s total capital to six co-investments. Four co-investments were sold, generating gains in the portfolio. The two remaining co-investments are in the health care and consumer discretionary sectors. The fund closed to new investments on December 31, 2018 but will continue to manage the two existing investments. In addition, Colorado investment opportunities will continue to be reviewed by PERA’s adviser for fit within the broader context of PERA’s Private Equity program.

As part of its community outreach through the Colorado Mile High Fund, PERA has participated in events such as The Mountain Life Science Investor & Partnering Conference, Rocky Mountain Private Fund Advisers Summit, Boulder Business After Hours, Boulder Chamber’s Esprit Event, the Silicon Flatirons Fall Private Equity Conference, and the Rocky Mountain Corporate Growth Conference.

### Renewable Energy Efforts

- **$298 million** invested in utilities with some energy generation capacity coming from renewable sources that in turn generate 259,461 megawatts of renewable energy.
- **$532 million** invested in companies that are aggressively targeting reduced carbon emissions.
- **$312 million** invested in companies seeking profit through the development of renewable power production.
COLORADO INVESTMENTS

PERA values the opportunity to invest directly in Colorado companies. We have more than $566 million in Colorado investments. These investments include:

» Equity (both public and private) of companies headquartered in Colorado
» Bonds issued by the Colorado Housing and Finance Authority and by Colorado companies
» Real estate investments (both direct ownership and pooled investment capital)

All investments must meet rigorous investment criteria for inclusion in the PERA portfolio.

In addition to our direct and indirect Colorado investments, PERA has also found meaningful financial opportunities in social stewardship through our participation in Colorado’s economy. PERA employs more than 300 local Colorado citizens, and pays retirement benefits to more than 121,000 retired public employees and their beneficiaries, who in turn contribute to the local economy.

Beyond financial investments in Colorado, PERA is committed to social engagement in Colorado. We engage with all our stakeholders—from State Legislators, to employers and employees, to the members we serve on an ongoing basis about topics that impact all of us. We know that our success relies on the success of our stakeholders, and we believe we can empower success through public discourse and education.

Investments in Colorado (As of December 31, 2018)

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Fair Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Equity</td>
<td>$102,690,000</td>
</tr>
<tr>
<td>Bonds</td>
<td>$20,256,000</td>
</tr>
<tr>
<td>Bonds</td>
<td>$15,045,000</td>
</tr>
<tr>
<td>Colorado Housing Finance Authority</td>
<td>$5,211,000</td>
</tr>
<tr>
<td>Real Estate</td>
<td>$57,947,000</td>
</tr>
<tr>
<td>Private Equity</td>
<td>$283,439,000</td>
</tr>
<tr>
<td>Colorado Managers</td>
<td>$190,321,000</td>
</tr>
<tr>
<td>Committed to Future Funding</td>
<td>$93,118,000</td>
</tr>
<tr>
<td>Opportunity Fund</td>
<td>$102,586,000</td>
</tr>
<tr>
<td>Total Investments in Colorado</td>
<td>$566,918,000</td>
</tr>
</tbody>
</table>

Diversification of Investments in Colorado (As of December 31, 2018)
GOVERNANCE STEWARDSHIP: EXERCISING SHAREHOLDER RESPONSIBILITY TO STRENGTHEN CORPORATE GOVERNANCE

Of all the aspects of sustainable stewardship, corporate governance has been PERA's most in-depth and impactful focus. As part of PERA's commitment to our members' best interests, we encourage strong corporate governance through engagement with the companies and partnerships in which we invest. We believe companies with sustainable corporate governance practices will be more likely to provide sustainable financial returns to shareholders.

PERA has a dedicated team of corporate governance staff which fulfills the corporate governance policies and procedures set forth by PERA's Board of Trustees and its Shareholder Responsibility Committee. The fulfillment of these policies is supplemented with insights from our investment staff, as well as third-party governance experts such as Glass Lewis, Institutional Shareholder Services (ISS), and MSCI, Inc. Our corporate governance staff also partners with other pension funds and asset managers to help develop and share best practices.

DUAL CLASS SHARES

Over the last several years, there has been a trend towards some companies issuing shares with subordinate shareholder voting rights. PERA believes that shareholders should have voting rights that equal their economic interest. PERA has engaged with both individual companies and index providers to encourage fair representation to all shareholders.

PROXY VOTING

The ability of owners to have a say in the direction of their investments is a key cornerstone of our economic system, and a responsibility PERA takes seriously. One of the most significant ways for

PERA's Proxy Voting

In 2018 PERA staff voted proxies for 6,025 companies and 63,031 individual proposals.

<table>
<thead>
<tr>
<th>Proposal Type</th>
<th>Votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposals voted on company ballots (management proposals and shareholder proposals)</td>
<td>63,031 (62,264 management proposals and 767 shareholder proposals)</td>
</tr>
<tr>
<td>Company meetings voted (U.S. companies and non-U.S. companies)</td>
<td>6,025 (1,917 U.S. companies and 4,108 non-U.S. companies)</td>
</tr>
<tr>
<td>Votes cast against the election of directors (11.96 percent)</td>
<td>3,845</td>
</tr>
<tr>
<td>Votes cast against audit/financial management proposals</td>
<td>630</td>
</tr>
<tr>
<td>Votes cast against the management advisory votes on executive compensation (13.98 percent)</td>
<td>244</td>
</tr>
<tr>
<td>Proposals for shareholder governance supported</td>
<td>254</td>
</tr>
<tr>
<td>Proposals voted on mergers and acquisitions (M&amp;A), with 96.3 percent support for managements' position on the M&amp;A</td>
<td>322</td>
</tr>
<tr>
<td>Votes cast in support of management proposals</td>
<td>82.1%</td>
</tr>
<tr>
<td>Environmental shareholders proposals voted with 34.4 percent support in 2018 (compared to 34.2 percent in 2017 and 35.7 percent in 2016)</td>
<td>93</td>
</tr>
<tr>
<td>Collaborated and co-signed letters regarding shareholder rights with the Council of Institutional Investors (CII). Submitted comments letters regarding proposed rules to the SEC and PCAOB, as well as the Colorado U.S. House delegation and chairs of the Committee on Financial Services.</td>
<td>5</td>
</tr>
</tbody>
</table>
Colorado PERA addresses many issues through advocacy:

» We are proponents of proxy access as a tool for long-term shareholders to dissuade boards from perpetuating misalignment with shareholder interests.

» PERA supports majority voting policies that require a board nominee to receive more “For” votes than “Against” votes from investors.

» PERA has encouraged firms to either separate the chairman and CEO role or appoint a lead independent director.

» PERA supports declassified board structures that require members of governing boards to re-run for election every year.

We are supporters of declassified boards, where the role of CEO and Chair promotes greater management accountability and helps create a board atmosphere of independent leadership. The role of CEO and Chair should only be combined in very limited circumstances. In such circumstances, the board should provide a written statement in the proxy materials discussing why they combined the role, how it’s in the shareowner’s best interest, and should appoint a lead independent director. A lead independent director is a board member that serves as the leading voice of the other independent directors and has many of the same authorities as the Chair of the board, which can help improve the oversight of a CEO that is also the Chair. PERA has voted for numerous proposals that require the separation of the CEO and Chair positions. In situations where the CEO and Chair positions are combined, PERA has directly encouraged firms to appoint a lead independent director.

» Proxy Access—Standing members of a company’s Board of Directors typically select candidates for open board seats and provide the list of candidates to investors on a proxy ballot card prior to annual shareholder meetings. PERA believes long-term shareholders should have proxy access (the ability to place alternative, independent candidates on the proxy ballot card). We are proponents of proxy access as a tool for long-term shareholders to dissuade boards from perpetuating misalignment with shareholder interests. PERA has engaged management teams on this issue, and has voted for many shareholder proposals that would add proxy access to a firm’s by-laws. PERA generally supports proposals requiring at least three years of continuous ownership and 3 percent aggregate ownership.

» Majority Voting—Many corporations have plurality standards for their board elections, which allow board nominees with the most voting power to be elected to board seats, regardless of investor votes. In an uncontested board election, a plurality standard would allow a nominee to be seated on the Board of Directors, even if there were more investor votes against their designation than votes for their designation. PERA supports majority voting policies that require a board nominee to receive more “For” votes than “Against” votes from investors. PERA has a policy to vote for all majority voting proposals, and we actively encourage management teams to adopt these proposals.

» Independent Chair—An independent chair supports a board of directors in carrying out its primary duty, which is to monitor the management of the company on behalf of its shareowners. In the United States we often see the CEO of a corporation also serve as the Chair of the board. PERA believes this practice can lead to poor oversight, as it puts a CEO in the position of regulating his or her own performance. PERA also believes a board that has separate positions for CEO and Chair promotes greater management accountability and helps create a board atmosphere of independent leadership. The role of CEO and Chair should only be combined in very limited circumstances. In such circumstances, the board should provide a written statement in the proxy materials discussing why they combined the role, how it’s in the shareowner’s best interest, and should appoint a lead independent director. A lead independent director is a board member that serves as the leading voice of the other independent directors and has many of the same authorities as the Chair of the board, which can help improve the oversight of a CEO that is also the Chair. PERA has voted for numerous proposals that require the separation of the CEO and Chair positions. In situations where the CEO and Chair positions are combined, PERA has directly encouraged firms to appoint a lead independent director.

» Declassified Boards—Classified boards elect their Board of Directors every few years, and these elections are often staggered so that only a few seats are up for election every year. PERA supports declassified board structures that
require members of governing boards to re-run for election every year. This structure allows investors to quickly remove members of the board that are not fulfilling their fiduciary responsibilities. PERA votes for proposals that declassify boards, and we engage with the companies in which we invest on an ongoing basis to advocate for their declassification, if applicable.

In total, PERA voted against 12 percent of nominees to Boards of Directors in 2018. When considering director elections, PERA evaluates the independence and qualification of directors, the board structure, and the company performance.

As policy, PERA will vote “Against” or “Withhold” on director nominees who:

- Have attended less than 75 percent of board meetings and committee meetings
- Sit on an excessive number of boards
- Fail to maintain a majority independent board
- Show lack of board responsiveness to shareholders
- Have poor overall performance
- Present misaligned or excessive compensation issues
- Present audit issues

**SUSTAINABILITY DISCLOSURE**

With increasing awareness of the risks associated with climate change, social stewardship, and related regulations, PERA has adopted parameters for voting proxies pertaining to disclosure of sustainability metrics. PERA will generally support proposals requesting increased disclosure on how companies are planning to mitigate the risks associated with climate change and related regulations. On a case-by-case basis PERA will also vote on environmental issues such as fracking disclosure. Over the past two years, PERA has voted for 77 shareholder proposals requesting increased disclosure of risks surrounding environmental sustainability.

PERA’s *Proxy Voting Policy* reinforces our commitment to strong corporate governance. Whether voting on issues related to board appointments, compensation structures, financial transparency, social impact, or increased disclosure on the impact of climate change regulations, PERA remains actively engaged. We believe we can increase accountability through our engagement. More accountability means higher standards of corporate governance. And better governance can mean stronger financial sustainability.

**PERA’s Director Election Voting Record**

<table>
<thead>
<tr>
<th>Year</th>
<th>For Votes</th>
<th>Against Votes</th>
<th>Abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>84%</td>
<td>13%</td>
<td>3%</td>
</tr>
<tr>
<td>2017</td>
<td>83%</td>
<td>14%</td>
<td>3%</td>
</tr>
<tr>
<td>2018</td>
<td>84%</td>
<td>12%</td>
<td>3%</td>
</tr>
</tbody>
</table>

**PERA’s Environmental Sustainability Disclosure Voting Record**

<table>
<thead>
<tr>
<th></th>
<th>Total Shareholder Proposals</th>
<th>Percentage of Votes For</th>
<th>Percentage of Votes Against/Abstain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change</td>
<td>10</td>
<td>19</td>
<td>60%</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions</td>
<td>10</td>
<td>8</td>
<td>30%</td>
</tr>
<tr>
<td>Sustainability Reports</td>
<td>10</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
PERA's advocacy philosophy is centered on three principles:

**Fair Markets**—We believe markets that treat participants in a fair and equitable manner are beneficial to all long-term investors.

**Alignment**—We believe aligned interests of companies and investors are paramount to company success in the long run.

**Disclosure**—We believe that as owners and creditors of a business, investors deserve robust and accurate information on financial and operational results.

### FAIR MARKET ADVOCACY

PERA believes that fair and equitable markets are in the best interest of our members. Given PERA’s size and reputation, we can have a meaningful impact in creating markets that are designed for the benefit of investors. We make tremendous efforts to advocate for all investors by engaging with global regulatory bodies, supporting investor-friendly legislation, and participating in advisory groups to develop and share best practices.

In our efforts to help improve global capital markets for investors, our staff and Board members provide their expertise to various regulatory boards and capital market organizations. In 2018, PERA collaborated with our main advocacy group, CII, to create and co-sign several letters regarding shareholder rights. CII is a nonprofit, nonpartisan association of pension funds, employee benefit funds, endowments, and foundations, with combined assets that exceed $3.5 trillion. Ron Baker, PERA’s Executive Director, was re-elected to CII’s Board of Directors in 2019.

#### Advisory Group Involvement

<table>
<thead>
<tr>
<th>Advisory Group</th>
<th>Why PERA is Involved</th>
<th>Who Represents PERA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Accounting Standards Board (SASB) Standards Advisory Group</td>
<td>SASB develops standardized metrics to help investors analyze a company’s ability to operate sustainably, and to better evaluate the financial materiality of sustainable practices. PERA believes the sustainable measurement standards that SASB is setting now will have considerable impact on how the investment industry thinks about sustainability in the future.</td>
<td>“SASB’s focus on both disclosure and economic materiality aligns with PERA’s fiduciary responsibilities, making us natural partners.” —Jared Goodman, CFA Senior Equity Portfolio Manager</td>
</tr>
<tr>
<td>Harvard Institutional Investor Forum Advisory Council</td>
<td>The Harvard Law School Institutional Investor Forum Advisory Council brings together a diverse group of institutional investors in an effort to contribute to discourse, policy making, and education around institutional investment interests. As a large fiduciary, PERA has a responsibility to advocate for efficient markets and long-term economic growth.</td>
<td>“Participating in the forum has been a great opportunity to interact with prominent decision-makers in the exchange of ideas about corporate governance.” —Luz Rodriguez Director of Corporate Governance and Legal Services</td>
</tr>
<tr>
<td>University of Colorado Burridge Center for Finance Board</td>
<td>The Burridge Center focuses on educating and preparing students of the University of Colorado to be responsible investment professionals. PERA values the opportunity to engage with Colorado students in fostering education for best practices in the investment industry.</td>
<td>“I love the idea of returning to my alma mater to introduce talented people to the investment profession. Partnering with Burridge Center gives me the chance to encourage students, and especially women, to find the same excitement and fulfillment in a finance career that I have found at PERA.” —Bessie Conty, CFA Manager of Fixed Income</td>
</tr>
</tbody>
</table>
ALIGNMENT ADVOCACY

Ideally, company interests are aligned with investors’ interests through sound corporate governance. However, the temptation for management to act in ways that benefit themselves over their investors is always present. If company management is not acting in the best interests of long-term shareholders, investment returns will suffer. Academic research has estimated corporate fraud costs the U.S. economy between $180 and $360 billion a year. This has a significant impact on shareholder value.

PERA’s advocacy for alignment of management actions with stakeholder interests involves engaging with companies on a wide range of issues that may impact investor value. PERA aims to invest in partners with a history of strong corporate governance, and we monitor our partners on an ongoing basis to ensure they continue to act in the best interest of their investors. To that end, we hold meetings with corporate management, vote proxies, review external managers, analyze management track records, and hold positions as board members of our investment partnerships.

DISCLOSURE ADVOCACY

Investors require accurate and timely information from companies in order to adequately assess and project the overall performance of their investments. Regulatory policies for financial reporting may vary by country, sector, or industry. Furthermore, the true financial value of intangible assets can be difficult to identify and quantify. These disclosure gaps create obstacles for investors to navigate in pursuit of reliable valuations.

As PERA continues to advocate for stronger capital markets, we recognize the need for increased availability and quality of financially material disclosures. Our investors lend their expertise to various accounting standards boards to develop and promote transparent and accurate disclosures regarding companies’ operations and financial positions.

NDCAVOCAC

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As PERA continues to advocate for stronger capital markets, we recognize the need for increased availability and quality of financially material disclosures. Our investors lend their expertise to various accounting standards boards to develop and promote transparent and accurate disclosures regarding companies’ operations and financial positions.

Advocacy Groups in Which PERA Participates

<table>
<thead>
<tr>
<th>Organization</th>
<th>Group</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Securities &amp; Exchange Commission (SEC)</td>
<td>Fixed Income Market Structure Advisory Committee</td>
<td>Fixed Income Markets</td>
</tr>
<tr>
<td>Public Company Accounting Oversight Board (PCAOB)</td>
<td>Investor Advisory Group</td>
<td>Auditor Regulation</td>
</tr>
<tr>
<td>Harvard Institutional Investor Forum</td>
<td>Advisory Council</td>
<td>Institutional Investors</td>
</tr>
<tr>
<td>Sustainable Accounting Standards Board (SASB)</td>
<td>Standards Advisory Group</td>
<td>Sustainable Disclosure</td>
</tr>
<tr>
<td>United Kingdom’s Financial Reporting Council (FRC)</td>
<td>Performance Metrics Working Group</td>
<td>Financial Regulation</td>
</tr>
<tr>
<td>Financial Accounting Standards Board (FASB)</td>
<td>Disaggregation Working Group</td>
<td>Accounting Standards</td>
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<tr>
<td>Council of Institutional Investor (CII)</td>
<td>Proxy Voter Group</td>
<td>Investor Engagement</td>
</tr>
<tr>
<td>University of Colorado Burridge Center for Finance</td>
<td>Advisory Committee</td>
<td>Professional Investor Education</td>
</tr>
<tr>
<td>Colorado Venture Capital Authority</td>
<td>Advisory Board</td>
<td>Venture Capital Investing</td>
</tr>
<tr>
<td>Institutional Real Estate, Inc. (IREI)</td>
<td>Americas Editorial Board</td>
<td>Institutional Investors</td>
</tr>
<tr>
<td>Chartered Financial Analyst Institute (CFA)</td>
<td>Diversity and Inclusion Steering Committee</td>
<td>Inclusive Human Capital</td>
</tr>
</tbody>
</table>

PERA staff sit on the advisory boards of the majority of eligible private investment funds:

» Private Equity: 83%
» Real Estate: 77%
» Opportunity Fund: 86%
Evaluate

SUSTAINABLE INVESTMENT BENCHMARKING

As PERA continues to examine the ways in which ESG stewardship can have financial impact, we have begun to evaluate the exposure to sustainability factors within our public portfolios. While we recognize there are limitations to the sustainability data currently available to investors in formulating their investment decisions, we also recognize the importance of assessing risks and opportunities within our portfolios on a continual basis with available tools. Our initial ESG benchmarking evaluations give us a snapshot of the sustainability exposures in our portfolios, and how those compare to exposures in our benchmarks. These snapshots can then be used to help us assess sustainability factors to which we may be exposed, as part of the overall feedback loop of our ongoing portfolio analysis.

OBJECTIVE ANALYSIS

PERA has engaged with MSCI, an independent data provider, to objectively evaluate the environmental, social, and governance sustainability profile of our public equity investments. MSCI conducts detailed research on over 7,000 companies and scores them based on their sustainability risks, and their effectiveness in managing those risks. MSCI takes the sustainability scores of investments we hold in our portfolios, weights the scores based on the size of the position of those investments in our funds, and then compares the weighted scores of our portfolios to their respective benchmarks. The ESG scores are dynamic and fluctuate through time based on MSCI’s research and scoring methodologies. In general, MSCI asserts that companies that score more highly are expected to have a greater ability to manage and mitigate company-specific risks, and to be more resilient when confronted with fluctuations in financial markets and regulatory policy.11

On completion of this analysis, our public investment managers receive reports showing overall portfolio sustainability scores, benchmark scores, and score trends. The reports also demonstrate sub-categories of risk exposure based on sustainability factors such as carbon emissions and corporate governance risks. These comparisons help us evaluate whether our investments contribute to portfolios that are more sustainable than the broad market opportunities we are seeking to capture. Our portfolio managers may use these benchmarking results to identify some ESG exposures on a relative basis, however our analysts evaluate material factors pertaining to a company’s sustainability throughout their fundamental analysis leading up to, and through, security ownership. As PERA actively manages assets with consideration to all material factors, the composition of our portfolios may change over time, resulting in score fluctuations relative to each appropriate benchmark.

In the following exhibits, we provide some of the benchmarking results for PERA’s total Global Equity portfolio along with two of our largest actively managed internal public equity portfolios: PERA Large Cap Core (representing U.S. large-cap equities with a market value of $4.6 billion) and PERA All Country (representing global large-cap and mid-cap equities with a market value of $2.5 billion).
MSCI ESG QUALITY SCORES

MSCI's analysts research companies and designate ESG Quality scores based on each company's risks of industry-specific sustainability issues, and their ability to manage these risks. The ratings are based on quantitative as well as subjective analyses. ESG Quality scores range from 0–10, with a higher ESG score implying a higher measure of ESG Quality.

The chart below represents the overall ESG Quality scores of PERA’s total Global Equity portfolio, Large Cap Core portfolio, and All Country portfolio, with each compared to its respective benchmark’s ESG Quality scores. The Global Equity asset class has higher ESG scores relative to its respective benchmark, as of December 31, 2018. As aforementioned, we do not target a specific ESG metric in selecting securities for our portfolios, rather we include these scores as input to a much broader mosaic of understanding a company’s fundamental business. As such, these scores are expected to vary on both absolute and relative bases.

MSCI ESG Quality Scores* of PERA’s Portfolios vs. Benchmarks (As of December 31, 2018)

- PERA Global Equity
- Benchmark MSCI ACWI
- PERA Large Cap Core
- Benchmark S&P 500
- PERA All Country
- Benchmark MSCI ACWI

$481 million invested in companies that score highly* for greenhouse gas mitigation strategies including use of cleaner sources of energy, energy consumption management and operational efficiency enhancements.

* Includes companies with scores of 80 percent or higher as evaluated by MSCI.

*MSCI ESG Quality scores range from 0-10.
MSCI ESG RATINGS DISTRIBUTION

Portfolio level ESG Quality scores are a helpful tool for evaluating the overall sustainability profile of our investments, but we must also understand what factors are driving these scores. By examining ESG Ratings Distributions, we can come to a better understanding of drivers for our overall sustainability profile. The ratings distributions show firms categorized as laggards (low ESG Quality scores), leaders (high ESG Quality scores), or average in terms of their individual sustainability profiles. These distributions allow us to identify where we have the greatest risk and reward opportunities through firms practicing global stewardship within our portfolios.

The chart below illustrates the mix of ESG Quality leaders and laggards for PERA’s total Global Equity, Large Cap Core, and All Country portfolios. These are each compared to the ESG Ratings Distributions of their respective benchmarks. In general, the portfolios shown below are in line with their respective benchmarks’ Quality Ratings Distribution. The distribution for the PERA All Country fund indicates a higher exposure to “Leaders” versus its benchmark.

MSCI ESG Ratings Distribution (As of December 31, 2018)

$667 million invested in the top quartile* of energy companies that measure and reduce carbon emissions of their products throughout the value chain and implement programs with their suppliers to reduce their carbon footprint.

* MSCI quartile rankings are relative to companies in the relevant ESG rating industry that are constituents of the MSCI ACWI.
**MSCI ESG RATINGS MOMENTUM**

Sustainability encompasses a dynamic and fluid mosaic of factors for investors to continuously monitor. MSCI’s ESG Ratings Momentum demonstrates the improving or degrading sustainability profiles of the companies in which we invest. By evaluating ESG quality movement, we can further analyze the risks and opportunities of firms as they continue to practice global stewardship in dynamic markets.

The following chart compares the MSCI ESG Ratings Momentum of our portfolios to the Momentum of their respective benchmarks. These results show that our Global Equity investments’ ratings demonstrate more downward moves relative to holdings of the respective benchmarks, as of December 31, 2018. We expect short-term volatilities to be reflected in these scores for our portfolios, and we remain committed to our long-term investment objectives.

**MSCI ESG Ratings Momentum (As of December 31, 2018)**

|$\boldsymbol{\text{PERA Global Equity}}$ | $\boldsymbol{\text{Benchmark MSCI ACWI IMI}}$ | $\boldsymbol{\text{PERA Large Cap Core}}$ | $\boldsymbol{\text{Benchmark S&P 500}}$ | $\boldsymbol{\text{PERA All Country}}$ | $\boldsymbol{\text{Benchmark MSCI ACWI}}$
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<tbody>
<tr>
<td>13.7%</td>
<td>15.1%</td>
<td>18.9%</td>
<td>19.4%</td>
<td>7.0%</td>
<td>16.0%</td>
</tr>
</tbody>
</table>
|75.2%|75.1%|74.5%|74.0%|78.8%|77.2%
|6.2%|5.7%|6.6%|6.5%|9.6%|6.3%
|4.9%|4.1%|6.6%|6.5%|4.6%|0.5%|

$8.7$ billion invested in stocks of companies in the MSCI World ESG Leaders Index.
MSCI CARBON RISK

MSCI also provides PERA an assessment of our portfolios’ carbon risk by measuring our investments based on their carbon dioxide (CO₂) emissions relative to their total sales. As shown in the chart below, PERA’s Global Equity, Large Cap Core, and the All Country portfolios have between 31 percent and 59 percent less carbon emissions relative to their sales, versus their respective benchmarks.

$716 million invested in the top quartile* of companies with significant carbon footprints that are proactively investing in low-carbon technologies and increasing the carbon efficiency of their facilities.

$3.7 billion invested in the top quartile* of companies with comprehensive privacy policies and data security management systems and companies that do not have business models reliant on trafficking in personal data.

* MSCI quartile rankings are relative to companies in the relevant ESG rating industry that are constituents of the MSCI ACWI.
MSCI GOVERNANCE RISK RATINGS

Evaluating the quality of corporate governance is a complex and detailed process. MSCI’s Governance Risk Ratings give us a top-down view of our portfolios’ performance on corporate governance. MSCI also provides supplemental insights on firms they have identified to have particular strengths or weaknesses in their corporate governance.

As shown in the chart below, PERA’s Global Equity, Large Cap Core, and All Country portfolios have investments in companies demonstrating exceptional corporate governance.

The research, ratings, and analysis provided by MSCI are valuable tools for PERA in monitoring the environmental, social, and corporate sustainability profiles of our public portfolios. By comparing the sustainability scores of our investments, the distribution and momentum of sustainable quality, as well as particular ESG factors of our portfolios and their benchmarks, we can begin to identify where the greatest risks and opportunities lie within our overall investment sustainability profile.

MSCI Governance Risk Ratings Distribution (As of December 31, 2018)

$3.7 billion invested in the top quartile* of companies with comprehensive privacy policies and data security management systems and companies that do not have business models reliant on trafficking in personal data.

* MSCI quartile rankings are relative to companies in the relevant ESG rating industry that are constituents of the MSCI ACWI.
INDUSTRY PERSPECTIVES ON SUSTAINABLE INVESTING

In this section we take a look at the broader context of sustainable investing themes and practices, and how these may inform PERA’s investment stewardship. We discuss why sustainability matters to investors, approaches to sustainable investing that investors may take in meeting their unique objectives, and obstacles that investors encounter in effectively evaluating the financial impact of sustainable investing.

WHY SUSTAINABILITY MATTERS TO INVESTORS

Sustainable business practices are increasingly viewed as integral to long-term success. With potential to impact innovation and competitive advantages, investors are increasing their awareness on ESG factors. As a result, sustainable investing is a growing theme within the industry. In turn, companies may seek alignment with their investors through enhanced sustainability.

SUSTAINABLE INVESTING IS A GROWING COMPONENT OF THE GLOBAL ECONOMY

As market climates evolve across changing political, social, environmental, and economic landscapes, sustainability is a growing theme in the investment industry. Investors, consumers, regulatory authorities, and businesses are becoming increasingly interested in sustainability factors and how they correspond to best practices for successful firms.

Sustainability factors that could affect the success of a firm may include: carbon emissions, labor rights, natural resource utility, executive oversight, animal welfare, corporate culture, and social impact, among a host of others.

The relevance of global stewardship in business practice varies by firm and industry, and is also tied to various government regulations. As countries adopt or reject standards for sustainable practices, businesses may adapt to meet those regulations in order to remain competitive.

With increased awareness on sustainable technologies and practices, market participants are becoming interested in investments that promote global stewardship while providing strong returns. There is rising demand from consumers, investors, and company executives for corporate alignment with sustainable interests. The economic impact of interest in sustainable investing has been significant in the U.S. The Forum for Sustainable and Responsible Investment reported a 38 percent increase in assets under management in sustainability aligned investment strategies from 2016 to 2018, and a 17 fold increase during the period from 1995 to 2018. These data demonstrate that sustainable investing is not a passing fad, but rather an integral component of global markets in the long run.

Investment Strategies Incorporating ESG Factors 1995-2018*

* Source: US SIF. The chart combines two SRI strategies measured by US SIF: ESG incorporation and shareholder resolution filings on ESG issues.
**SUSTAINABILITY MAY SIGNAL QUALITY AND LONGEVITY**

As market participants become more interested in sustainable practices, companies have opportunities to meet evolving demand in new ways. Firms that are adept at managing risks and seizing opportunities, including those presented by sustainability, may maintain competitive advantages in changing market climates.

Consider a firm that invests in manufacturing equipment to meet consumer demand. If the firm invests in new technology designed to decrease carbon emissions and increase operator safety, the firm can boost productivity while mitigating risks to the well-being of its employees and the environment. These stewardship efforts may also mitigate financial risks as sustainable technologies might be cost-saving for the firm in the long run. Investing in sustainable technology may also help the firm avoid punitive financial damages that could be assessed through legal and regulatory fines resulting from potentially negligent business operations.

Beyond managing risks, global stewardship can create new opportunities for companies to maintain competitive advantages. For example, buildings that meet requirements for sustainable certifications can maintain significantly higher occupancy rates while receiving higher rent revenues than buildings without sustainable operations.14 Sustainable buildings may include grand features to capture renewable energy, or smaller scale features that minimize energy use within the building. These efforts can improve the quality of building environments, attract tenants, and efficiently meet tenant demands over the long run.

Sustainable practices also encompass the core competencies of an organization. Company culture, executive oversight, board independence, community investment, innovative intellectual capital, and alignment with stakeholders are examples of stewardship factors that can drive long-term success. Firms that foster organizational sustainability can attract and retain high-quality talent, increase productivity, reinforce ethical and professional standards, and improve client satisfaction. In this way, the integration of sustainability efforts may signal a company’s quality and capacity for longevity.

Sustainable technologies and practices may maximize operational efficiency, improve production, attract consumers and investors, and increase revenues. Global stewardship efforts can also decrease operational costs and consumer price sensitivities. Combined, these factors may significantly boost profits. When stewardship efforts impact a firm’s financial success, they become financially meaningful to stakeholders.

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**WHY SUSTAINABILITY MATTERS TO PERA’S INVESTORS**

As an institutional investor, PERA keeps a pulse on changes in business and markets that may affect the long-term profitability of the companies in which we invest. As we seek the best risk-adjusted returns throughout our investible universe, it is imperative that we recognize and understand how changes in sustainable technologies and practices can influence long-term profitability. Our investors are experts in their field and fully consider regulatory frameworks, supply and demand shifts, as well as advancements in technology and ethical practices when evaluating investment risks and opportunities. We invest in companies with long-term competitive advantages which can offer financial rewards that outweigh risks.

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“We believe there are investment opportunities that achieve sustainability objectives and long-term attractive returns.”

—Gary Ratliff, Director of PERA’s Opportunity Fund
HOW INVESTORS INTEGRATE SUSTAINABILITY INTO PORTFOLIOS

The magnitude of vernacular used to describe sustainability is almost as complex as the multitude of approaches to integrating sustainability within the investment industry. Even as ESG investing becomes more prominent within the investment industry, there is no one-size-fits-all terminology or approach. Because investment objectives vary widely among investors, investors may choose to implement any combination of options along a broad spectrum of approaches to ESG investing. As investors seek new ways to identify and measure ESG exposures within their unique portfolios, applications for understanding and effectively integrating sustainable investing become increasingly murky.

A SIMPLISTIC VIEW OF THE ESG SCREENING SPECTRUM

In simplified terms, approaches to ESG investing may range from negative screening to positive screening. There are infinite points along the spectrum where investors may combine elements of either or both of these approaches to meet their objectives. Using negative screening approaches, investors may choose to exclude certain types of investments from their portfolios based on one or more ESG factors. On the other end of the spectrum, investors may employ positive screening approaches to include certain types of investments in their portfolios based on one or more ESG factors.

PERSONAL VALUES-BASED INVESTING

Both divestment and impact investing are personal values-based approaches to ESG investing. The aim of divestment is to withhold financing from firms that do not adhere to an investor’s personal values. Vice versa, the aim of impact investing is to supply financing to firms that adhere to an investor’s personal values. As such, the subject of divestment or impact investing may have more emotional benefits than material financial implications for individual investors. That is, investors may choose to sacrifice traditional investment theory and potential investment gains in favor of maintaining their personal ideals about the natural environment, society, or business governance.

A popular example of negative screening is divestment. In the context of ESG investing, divestment refers to selling and abstaining from investments in firms or products that are deemed adverse to an overriding philosophical ideal, based on one or more ESG factors.

A popular example of positive screening is impact investing. In the context of ESG investing, impact investing refers to investing in firms or products that are deemed to align with an overriding philosophical ideal, based on one or more ESG factors.
PERA VALUES FINANCIAL SUSTAINABILITY FIRST AND FOREMOST

We use divestment and impact investing as examples at either end of the spectrum to illustrate how these approaches do not suit the objectives of all investors. While many investors may tailor their portfolios to suit their personal values, PERA invests on behalf of more than 600,000 individuals who rely on our professional investment expertise to ensure their retirement security. As such, we do not invest to suit the personal beliefs of any individual entity. An investment strategy based on personal value systems may be impossible to implement in a way that reflects all our members’ individual beliefs. Furthermore, such a strategy would be imprudent in fulfilling our fiduciary responsibility due to high implementation costs and imposed limits on PERA’s ability to effectively seek the best risk-adjusted returns. Instead of investing based on personal values, PERA invests according to strong financial diligence.

PERA’s Divestment Policy

The PERA Board of Trustees explains the issue of divestment in their [Statement on Divestment](#), which was updated in January 2019, and begins:

“The world faces many critical issues today including genocide, pollution, terrorism, human and animal rights violations, and public health crises. As individual Americans we enjoy the political and philosophical freedom to speak out against atrocities and join in those causes which are aligned with our personal beliefs. As an organization however, PERA does not have the authority to determine social policy, foreign policy, economic policy, or any other policy beyond the operation of the retirement system. PERA serves the singular purpose of ensuring the retirement security of Colorado’s current and former public servants. Because global issues are difficult to prioritize and proper recourse falls beyond the duty of the retirement system, PERA will implement the divestment mandates passed by the Colorado General Assembly but would recommend the legislature thoughtfully consider such proposals with caution and fiduciary care.”

The [Statement on Divestment](#) provides further discussion on PERA’s fiduciary duty, divestment costs, as well as the “slippery slope” perspective of divestment and its potential limitations. PERA believes there are approaches beyond the scope of impact investing or divestment which may better help us achieve our investment objectives and long-term financial sustainability.

THE PERADVANTAGE SOCIALLY RESPONSIBLE INVESTING FUND

In pace with growing economic interest in global stewardship, PERA launched its first fund dedicated to socially responsible investing (SRI) in 2007. The PERAdvantage SRI Fund is an investment vehicle available through our 401(k), 457 Deferred Compensation, and Defined Contribution Plans (CAPs). As a retirement tool for our members, the fund is designed for long-term performance through investments in financially sustainable companies that also demonstrate quality global stewardship.
OBSTACLES TO EVALUATING THE FINANCIAL IMPACT OF SUSTAINABILITY

As investors increasingly seek ways to integrate sustainability into their portfolios, standardized data and metrics to measure sustainability have struggled to keep up. Although researchers are developing methodologies for assessing sustainable business practices, the material financial impacts of sustainability are still difficult to calculate. More research and stronger methodologies for evaluating sustainability metrics will be needed in order for investors to better integrate them into their portfolios.

In part, calculating financial impact may be difficult because sustainable practices can have intangible value that may be challenging for investors to measure. International reporting mandates may or may not include compulsory non-financial disclosures pertaining to sustainable practices in business. Intangible assets are also qualitative and subjective in nature, so objective and quantitative data demonstrating their impact on a firm may be unavailable to investors. These obstacles are amplified by traditional accounting standards that have struggled to keep pace with market participants in valuing non-financial assets.

In the absence of reports that standardize metrics for the value of sustainable intangibles, investors may turn to metrics of stewardship published by individual firms. In instances where firms do not proactively enact or report sustainable practices, some investors may exercise ownership rights to encourage firms to do so. As responsible investors engage with firms to evaluate how corporate stewardship impacts firm quality, responsible firms should in turn react to stakeholder demand by establishing or reiterating material stewardship and publishing metrics on its financial impact. This feedback loop can be an important way for investors to overcome reporting deficiencies to effectively value material sustainability. Likewise, it can be a powerful tool for quality firms to align themselves with stakeholders’ interests for long-term success.

Because sustainable investing is a relatively new theme within the industry, there is still a dearth of clarity, consensus, and disclosure surrounding ESG factors and their real or potential impacts to investors. It is difficult to effectively identify and measure the impacts of sustainable investing with a persistent lack of standardized data and metrics. As more investors seek material sustainability, we expect new approaches and metrics will become available to help inform investment decisions.

PERA WORKS TO STANDARDIZE FINANCIALLY MATERIAL SUSTAINABILITY DISCLOSURE

PERA is actively engaged in setting standards for efficient disclosure. Because there are obstacles in quantifiably measuring sustainable business practices, there are also obstacles in standardizing reporting of these practices. In addressing these obstacles, PERA has been a long-term supporter of the Sustainable Accounting Standards Board (SASB). This board is actively developing a set of standardized metrics to help investors analyze a firm’s ability to operate in a sustainable fashion. PERA participates in SASB’s mission through working groups to discuss, evaluate, and propose sustainable accounting standards. PERA also encourages the management teams of our public investments to adopt the SASB reporting structure. We believe that standardized reporting metrics will go a long way in helping investors weigh the financial impacts of global sustainability on business.
ONGOING STEWARDSHIP FOR A FINANCIALLY SUSTAINABLE FUTURE

PERA believes the path of stewardship is actively created, rather than achieved. As sustainable technologies evolve, they shape the way market participants develop sound business practice, and in turn these practices inform new technologies. Evolving technologies and practices raise awareness of the impact of stewardship on the environment, society, and the economy.

With that awareness, financial and regulatory boards may continue to develop standards that integrate the intangible values of stewardship, while holding firms accountable to their role in natural resource management and social wellness. That accountability translates into transparency and publicly available information. In turn, these yield knowledgeable investors, stronger competition, healthier markets, and profitable stakeholder gains.

As conversations around global stewardship evolve, PERA continues to focus on our investment stewardship. In fulfilling our fiduciary duty to our members, we remain committed to seeking the best risk-adjusted returns in diverse asset classes for long-term financial sustainability. We continue to weigh the risks and opportunities for reward presented by global stewardship. We remain vigilant in first-hand engagement with our investment partners to advocate for higher governance standards that may lead to stronger returns. In so doing we uphold financial sustainability as our top priority in our investment stewardship. Financial sustainability of the Fund will ultimately ensure the retirement success of all our members.

“We don’t look one or two years down the road; we look out 15 or 20 years, and concentrate on the long-term viability of a company’s business model.”
—Jared Goodman, Senior Equity Portfolio Manager
DISCLOSURES

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ENDNOTES

1 Data throughout the report is as of December 31, 2018, unless otherwise noted.

2 Costs are calculated as a weighted average of investment management fees and administration fees across all funds offered in the PERA 401(k) Plan. 2011 costs are represented as a percentage of average investments at fair value between January 1, 2011 and September 30, 2011, prior to the inception of the white label fund structure. Costs for 2018 are represented as a percentage of average investments at fair value between January 1, 2018 and December 31, 2018.

3 Internal assets under management and costs to manage those assets are as of December 31, 2018. Costs include investment department compensation/benefits, other investment department budget items, and PERA overhead, so will not tie out to the figures in the 2018 CAFR.

4 Estimates of costs to outsource the management of these assets to external managers are based on eVestment median fee analysis provided by Aon Hewitt.

5 https://ilpa.org/reporting-template/.

6 See for example:
   » www.sec.gov/comments/mfidii/ci5-4919382-178351.pdf


9 Learn more at usgbc.org/LEED.


12 See for example:


