

# EXTRACTING FOSSIL FUELS FROM YOUR PORTFOLIO<sup>SM</sup>:

An UPDATED Guide to  
Personal Divestment and Reinvestment



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## ABOUT THE AUTHORS

**350.org** is a global network inspiring the world to rise to the challenge of the climate crisis. Since its inception in 2008, their online campaigns, grassroots organizing, and mass public actions have been led from the bottom up by people in 188 countries.

350 means climate safety. To preserve our planet, scientists tell us we must reduce the amount of CO<sub>2</sub> in the atmosphere from its current levels of 400 parts per million to below 350 ppm. 350 is more than a number — it's a symbol of where we need to head as a planet.

350 works in a new way — everywhere at once using online tools to facilitate strategic offline action — under the belief that if a global grassroots movement holds our leaders accountable to the realities of science and principles of justice, we can realize the solutions that will ensure a better future for all. As part of this mission, one of the campaigns is “Fossil Free: Divest from Fossil Fuels,” and this guide is a part of the newly launched Personal Divestment campaign.

**For more information** [click here](#) for 350.org or [click here](#) for the Go Fossil Free campaign or visit [www.350.org](http://www.350.org) or [www.gofossilfree.org](http://www.gofossilfree.org).

**Green Century Capital Management (Green Century)** is the investment advisory firm of the first family of fossil fuel free, responsible, and diversified mutual funds. In addition to being divested from coal, oil and gas companies in both its Balanced Fund and Equity Fund, Green Century leverages its clout as a shareholder to press companies to improve their environmental policies to protect our forests, water, and air.

100% of Green Century's profits earned for managing the Green Century Funds belong to the founding group of environmental non-profit organizations, the Public Interest Research Groups (PIRGs), that started Green Century in 1991.

Since 2005, Green Century's Balanced Fund has been 100% fossil fuel free; it is an actively managed fund made up of the stocks and bonds of well-managed companies. The Balanced Fund is almost 50% less carbon intensive than the S&P 500® Index as measured by the international data and analysis firm Trucost.<sup>1</sup> The Green Century Equity Fund, which is also fossil fuel free, invests in the longest running sustainability index minus the fossil fuel companies in that index.

**For more information**, [click here](#) or visit [www.greencentury.com](http://www.greencentury.com)

**Trillium Asset Management, LLC** has two fossil fuel free investment strategies. Trillium's Fossil Fuel Free Core meets the need for a core investment portfolio without direct fossil fuel exposure. Trillium's Sustainable Opportunities strategy focuses on companies whose core business addresses one of three themes: Green Solutions, Economic Empowerment, and Healthy Living. This strategy has been fossil fuel free since its inception.

Trillium also serves as the investment sub-advisor to the Green Century Balanced Fund, which has been fossil fuel free since 2005.

**For more information** visit [www.trilliuminvest.com/trillium-investment-strategies/sustainable-opportunities/](http://www.trilliuminvest.com/trillium-investment-strategies/sustainable-opportunities/)

**Acknowledgements:** This report was prepared with the help of Meghan Goodwin.

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## FOREWORD: BILL MCKIBBEN



If it's wrong to wreck the climate, then it's wrong to profit from that wreckage. I have repeated that message often as I've traveled the U.S. and the globe in the last year and a half in support of the Go Fossil Free campaign, which calls on institutions to divest from the largest 200 coal, oil, and gas companies holding the most proven carbon reserves.

Fossil fuel divestment takes the fossil fuel industry to task for its culpability in the climate crisis. By naming this industry's singularly destructive influence — and by highlighting the moral dimensions of climate change — we hope that the fossil fuel divestment movement can help break the hold that the fossil fuel industry has on our economy and our governments.

So far, the response is more than we could have hoped for, with over 400 colleges, cities, and churches joining the campaign, from Stanford University to the United Church of Christ. Through the campaign, we have also heard from countless individuals — educators, parents, young professionals — who want to use their power as individual investors to stop climate change.

This guide is designed for you—the individual investor who wants to learn more and take action.

If you are reading this, then you know that climate change is no longer a far-off threat. It is already here. That means that the clock is ticking to protect our children and the planet from the consequences of this rapidly unfolding crisis.

Investors have an important and special role to play in the climate change movement. I hope this guide will help you find yours.

Onwards,

**Bill McKibben**

*Bill McKibben is an internationally recognized environmentalist and bestselling author. He is the co-founder of 350.org and Schumann Distinguished Scholar at Middlebury College in Vermont.*

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## INTRODUCTION: MATT PATSKY AND LESLIE SAMUELRIK



In the year since we first published this guide, we have been inspired by and privileged to work with more individuals, university administrators, and faith and business leaders who have voiced their concern about climate change and increased their individual and collective actions to address it. There is no place that the growth and potential for change is more evident than in the divestment and reinvestment movement.

In addition to aligning your investments with your values, avoiding fossil fuel companies as part of a public divestment campaign sends a powerful message that “business as usual” by the fossil fuel industry is not acceptable. In the last year, there also have been a record number of studies analyzing the financial impacts of staying invested or avoiding fossil fuels — and the results demonstrate that investors can seek competitive returns while potentially experiencing advantages such as reducing their risk of holding potentially devalued assets.

It is no wonder that with the ethical, political and potential financial advantages, more people are looking for information on how to go fossil fuel free.

We hope this guide:

- » Helps you better understand the ethical, political and financial reasons to consider fossil fuel divestment
- » Provides clear steps to move your money out of coal, oil, and gas companies; and
- » Offers steps on how to proactively invest in sustainable companies and investment vehicles.

There are many ways to participate in this growing movement — with your individual investments, your company's retirement plan and the endowments of the institutions you support.

We encourage you to use this guide and the resources in the appendix to educate yourself, your family, your friends, or your financial planner to go fossil fuel free.

Thank you for taking the first step.

Matt Patsky is the CEO of Trillium Asset Management and Leslie Samuelrich is the President of Green Century Capital Management.

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## BACKGROUND: CLIMATE CHANGE AND THE FOSSIL FUEL DIVESTMENT MOVEMENT

As policy progress to address climate change has stalled at the international and national levels, new strategies and tactics have emerged at the local level to expose and reduce the power that the fossil fuel industry has on policy and regulations. One of these strategies is the fossil fuel divestment campaign developed by 350.org.

350.org was established in 2008 to call for immediate and concrete steps to address climate change. The number 350 represents the parts per million (ppm) that many scientists, climate experts, and national governments say is the safe upper limit for the concentration of CO<sub>2</sub> in our atmosphere. Sadly, as a global community, we recently crossed the critical threshold of 400 ppm<sup>2</sup>.

In the fall of 2012, 350.org, As You Sow, Green Corps, and the Responsible Endowment Coalition launched a joint campaign, one that harnessed the power of investors to expose and pressure the fossil fuel industry. This campaign, inspired by the successful South African divestment campaign (which used investor pressure to protest Apartheid in the 1980s) calls on educational, religious, and other institutions, and city and state governments to divest from companies with exposure to large fossil fuel reserves. Soon thereafter, Bill McKibben held a 21-city sold out speaking tour that spread the campaign nationally. By winter 2012, more than 300 campuses were organizing divestment campaigns, and Unity College in Maine became the first school to go fossil fuel free, followed shortly by the cities of Seattle and San Francisco. By mid-2014, a total of 13 colleges and universities had committed to divesting from fossil fuels. The campaign has received media attention across major national media outlets including the *New York Times*, *Forbes*, and *National Public Radio*.

The campaign's demands to the fossil fuel industry are the following:

- » Stop exploring for new hydrocarbons
- » Stop lobbying in Washington and state capitals across the country to preserve their special breaks
- » Most importantly, pledge to keep 80% of their current reserves underground forever

In order to achieve these demands, the campaign aims to inspire political pressure through the simple but profound statement of divestment.



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"We must stop climate change. And we can, if we use the tactics that worked in South Africa against the worst carbon emitters."<sup>3</sup>

— *Archbishop of South Africa Desmond Tutu*

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## SECTION 1: WHY DIVEST

### There are four primary reasons to divest:

#### 1. An investment portfolio that reflect your values

Many believe that climate change poses the greatest single threat to our families, our communities, and the world. If you want to keep your assets out of the industry that is at the center of climate change, then divesting may be the right course for you.

There is a long history of investors aligning their investments with their values. For over 100 years, many religious and other investors have shunned “sin” stocks, such as companies involved in alcohol or gambling. With the exposure of the tobacco industry’s role in nicotine addiction in the early 1980s, many investors divested their money from that industry. The divestment movement that most inspires the current campaign was the anti-Apartheid movement that achieved critical

mass in the late 1980s. This divestment movement was an important tool in helping to bring about the end of Apartheid. The role that divestment activists played was so critical that President Nelson Mandela’s first meeting in the U.S. after the fall of Apartheid was with students from UC/Berkeley — specifically to thank them for their leadership role in the campus divestment campaign.

Today, many investors believe that they have an ethical obligation to employ this same divestment approach with companies involved in fossil fuels. A diverse group of investors believe it is simply not acceptable to profit from a business inherently designed to accelerate climate change.

#### 2. To shape public policy and limit influence by energy companies

For decades, fossil fuel companies have spent millions of dollars to influence legislation in state capitals and Congress and have been very successful in their efforts to secure preferential tax breaks, block carbon emission goals, and cut off support for clean and renewable energy sources.<sup>4</sup> To put sensible solutions in place, the political climate needs to change. Divesting sends a signal that these efforts are not supported by investors and can erode the political influence on which these companies depend.

Divesting also helps you add the clout of investors to the national climate change movement — a movement that is critical in building the media exposure and support needed to secure policy progress, including new state solar energy goals or the proposed national cap on carbon emissions from power plants. In addition, joining the growing ranks of investors who are moving their money helps gain media attention for the issue and educates others.



### 3. To potentially reduce your financial risk

Divestment may reduce your risk of holding devalued — and stranded — carbon assets. Carbon assets are the reserves of fossil fuels that oil, gas, and coal mining companies plan to use. The reserves are counted as positive assets on a company's balance sheet under the assumption that all listed reserves will be able to be extracted, sold, and burnt.

One important financial indicator is a fossil fuel company's level of capital expenditures, which is approximately how much money it spends seeking and developing new ways to extract fossil fuels. An analysis by Carbon Tracker Initiative shows that the top 200 fossil fuel companies (by reserves) had adjusted capital expenditures of \$674 billion between 2013 and 2014.<sup>5</sup> **In contrast, these same companies paid** only \$126 billion in dividends to their shareholders over the same period. What does this mean? Oil and gas companies are pouring the vast majority of their profits into projects to access even more oil, gas, and coal.

However, according to the International Energy Agency,<sup>6</sup> the burning of these fuels will exceed the carbon levels regarded as safe. And if governments act to restrict carbon emissions, companies owning fossil fuel reserves may experience severe devaluation. In this scenario, companies may have to take a loss on stranded assets, and investors would likely suffer. Divesting now could allow investors to reduce their exposure to a possible collapse of the so-called "carbon bubble."

In addition, many fossil fuel companies are pursuing expensive and environmentally dangerous projects such as drilling in deeper waters, frozen Arctic fields and Tar Sands. BP\* is back to drilling in the Gulf of Mexico at even deeper depths and Exxon,\* BP, Shell,\* Chevron Corp.\* and Total SA\* have tripled capital spending in the last five years,<sup>7</sup> pouring more of their profits into exploration, rather than their shareholders' pockets.

#### NEXT GENERATION INVESTORS

**Colleges and Universities:** More than a dozen colleges, including Pitzer College and Stanford University in California, the University of Dayton in Ohio and College of the Atlantic in Maine, have committed to divestment. There are active and sophisticated campaigns at another 301 colleges — from Georgetown University to the University of Chicago. There's a good chance a campaign is active at a nearby school or your alma mater.

**Faith Institutions:** Churches, synagogues, mosques, and other places of worship are perhaps the fastest growing segment of the divestment movement. The World Council of Churches, the Unitarian Universalist and the United Church of Christ denominations, as well as dozens of individual faith centers have voted to divest their endowments.

**Cities:** Across the country, 27 cities, several of them technology and innovation hubs (such as Cambridge, Mass. and San Francisco), have made commitments to go fossil fuel free, with the belief that these actions will serve to attract new graduates to live and work in their cities.



**The Millennial Generation:** As wealth is handed down between generations, millennials expect it to be managed in a manner that aligns with their own values. If investment managers and advisors fail to develop and adopt fossil free investment strategies, they run the risk of losing this generation of investors.

#### 4. To reallocate investment to companies leading the transition to a more sustainable economy

By divesting from companies ignoring the costs and risks associated with fossil fuels, you free up money that can then be reinvested in companies that are identifying new market opportunities related to clean energy and the move to a more sustainable economy. These companies will be the beneficiaries as the incentives change to support a low-carbon future.

In a recent survey, the Bureau of Labor Statistics (BLS) reported that greener industries are growing faster than the overall economy. In fact, according to the BLS, from 2010 to 2011 green jobs grew at a rate of 4.9%, almost four times the rate of overall jobs.<sup>8</sup>

## SECTION 2: HOW TO DIVEST

Divestment is the process of removing certain investments from a portfolio based on moral values or political beliefs or motivations. You can divest by following these three steps:

### Step One: Learn what you own

Whether you intended to or not, it is likely you hold investments in fossil fuel companies. For example, 8 cents of every dollar invested in the S&P 500® goes to companies on our list of the 200 largest holders of fossil fuel reserves<sup>9</sup> (see Appendix 2). Many if not most mutual funds and portfolios invest in some of the energy, materials, or utility companies on this list. Luckily, there are many options for fossil fuel free investing, so keep reading.

When reviewing your portfolio, begin with your investments in publicly traded companies (stocks and corporate bonds). This is often the largest part of an individual investment portfolio and the place where divestment is arguably the easiest to implement.<sup>10</sup>

If you do your own investing and own stocks and securities directly, compile a list of all the stocks and other securities that you own. While it is likely that

you are invested in fossil fuel companies, the overall percentage you hold may be higher than you think. For example, the S&P 1500 held about 10% in the energy sector as of June 30, 2013.<sup>11</sup>

If you own mutual funds, whether directly or through your 401(k), you can find the list of companies held in the mutual fund in the fund's latest annual or semi-annual report. You can find the reports on the mutual fund's website or you can call your mutual fund to request a copy of the report or a list of the current holdings in the fund. Pay attention to how much your funds have in the "energy sector" since this investment term roughly translates to "fossil fuel companies."

If you work with a financial advisor, ask for a list of all your investments in fossil fuel companies. See page 11 for more tips on working with financial advisors.

### Step Two: Decide what you want to exclude and sell your fossil fuel investments.

350.org asks institutions and individuals to stop investing in the 200 companies with the largest fossil fuel reserves (see Appendix 2 for an updated list). Some investors use this list as their starting point and choose to exclude any coal, oil, and gas companies.

After you decide what you want to divest, sell them. If you own a mutual fund that holds these companies, sell your Fund shares by contacting your mutual fund directly or your financial advisor.\*\*

#### TOP 10 LARGEST US COMPANIES BY FOSSIL FUEL RESERVES:<sup>12</sup>

Peabody Energy Corp.*	Coal
ExxonMobil Corp.*	Oil/Gas
Arch Coal Inc.*	Coal
Alpha Natural Resources Inc.*	Coal
Consol Energy Inc.*	Coal
Cloud Peak Energy Inc.*	Coal
ConocoPhillips Corp.*	Oil/Gas
Nacco Industries Inc.*	Coal
Alliance Resource Partners L.P.*	Coal
Occidental Petroleum Corp.*	Oil/Gas

Source: Fossil Free Indexes

\*\*The sale of a stock, bond or mutual fund may produce a capital gain for tax purposes. Please consult your tax adviser to determine what is appropriate for your individual tax situation. The views expressed are those of the authors at the time this material was created. These views may not be relied upon as investment advice or as indication of trading intent on behalf of any Green Century Fund or the Distributor and should not be construed as an offer to sell or a solicitation of an offer to buy securities or any product mentioned in this guide.

## WORKING WITH AN ADVISOR:

Many individuals work with financial advisors who help guide their investment choices. Many advisors will be able to answer questions about fossil fuel free investment options.

Advisors should understand your values, support reaching your goals, and find appropriate investments for you. Some advisors may hold outdated notions about Socially Responsible Investing (SRI), so you may need to be clear and firm in your intentions. Don't simply ask if you can divest; tell your advisor

that is what you want to do. See Appendix 3 for a sample letter that can be adapted for use as an email or talking points.

If your advisor does not offer you any options in fossil fuel free investing, consider finding a new advisor who has knowledge of this important issue and can meet your needs. You can find a list of SRI advisors compiled by US SIF [www.ussif.org/AF\\_MemberDirectory.asp](http://www.ussif.org/AF_MemberDirectory.asp).

## Step Three: Identify and Invest in Fossil Fuel Free Investments

In addition to Green Century's Balanced Fund, Green Century's Equity Fund and Trillium Asset Management's fossil fuel free strategies,<sup>13</sup> there are several other fossil fuel free investment options. See Appendix 1: Fossil Fuel Free Investment Strategies Available to the Individual Investor. You may also seek to invest in individual stocks with a positive sustainability story (see Chapter 3, Reinvestment).

As you evaluate these various options, it is important to consider:

**Portfolio Manager Quality** — Look for investment professionals with a substantial history of investing and relevant credentials, such as the Chartered Financial Analyst (CFA) designation.

**Portfolio Manager Track Record** — Look for managers who have a track record of successfully integrating sustainability factors into the investment process and who have an established fossil fuel free track record of at least three years. Managers who use strategies that simply exclude fossil fuel free companies without any other portfolio adjustments or that only offer single sector exposure (such as an alternative energy sector fund) may not provide the risk mitigation of a diversified and optimized approach.

**Fees** — Most investment managers will not charge extra for a fossil fuel free approach, but confirm that overall fees are not out of line with industry peers.



**Commitment to Shareholder Advocacy** — Some fossil fuel free investment options include a shareholder advocacy component that encourages companies to adopt more sustainable business practices. Pay attention to the concrete and measurable results achieved through the advocacy programs to evaluate effectiveness.

**Carbon Footprint Analysis** — Ask your mutual fund or investment manager if they have done a carbon footprint analysis of their fund or your portfolio. A carbon footprint analysis will help you understand the carbon impact of your investments. (visit [www.trucost.com/portfolio-audits](http://www.trucost.com/portfolio-audits) to see carbon footprint reports done by Trucost, an international data and analysis firm.)

## ADVOCATE FOR A FOSSIL FUEL FREE OPTION IN YOUR RETIREMENT PLAN OR 401(K)

### For Employees

Talk to your HR or Payroll department, and find out who makes decisions about which options are available through the plan. (Sometimes it's an investment committee, or several trustees, or the business owner. In every case, this responsibility is delegated and there should be a specific person who handles such requests. We'll refer to this person as the decision maker.)

Ask the plan administrator — the third-party company that manages the retirement plan accounts — if employees can self-select funds that are not currently on the offered list of investments. This is sometimes called a “window” option.

If self-selecting is not an option, ask the decision maker about the process by which employees can suggest a fund be added to the employer-approved list. Don't be discouraged if she or he is not enthusiastic.

The decision maker may be apprehensive about socially responsible investment options. Let him or her know that these options have been ruled acceptable within ERISA-governed plans.<sup>14</sup>

Provide materials about the Funds you are interested in adding. We recommend providing Fund Briefs and a Prospectus. Find other interested colleagues. Companies have reported that demand from plan participants is a major driver in adopting sustainable investment options.<sup>15</sup> So at your next meeting with the retirement plan decision maker, bring another colleague or two, or a statement of interest signed by several colleagues.

Most importantly, follow up. Keep making your case until you secure the options you want.

### For Employers

If you are the proprietor or decision maker for your company's or organization's retirement plan, it's a little easier to get going!

Contact your retirement plan administrator. (This is the company that manages the accounts and sends statements to employees.)

Ask your retirement plan administrator if the fund(s) you want to access are available through their brokerage.

If the fund(s) are available, find out what it takes to change the options you're offering to employees.

- » If the fund(s) aren't available, you have several choices:
- » First, ask the administrator if employees can self-select funds that are not currently on the offered list of investments. This is sometimes called a “window” option.
- » Second, you could request that the administrator request the brokerage to sign a selling or other agreement with a fossil fuel free option.
- » Third, you could switch to a new retirement plan administrator that does offer the fund(s) you want. Suggesting this may give you more leverage with your current administrator.

Most importantly, follow up. You are the administrator's customer. If the administrator values the business you provide, you are likely to have some leverage to get what you want.

## Will divestment impact returns?

Divestment may have an impact on investment risk and return. In general, the level of impact depends on:

- » how many companies are excluded
- » how these exclusions are managed across the portfolio — including identifying appropriate replacements

In its 2013 report “Do the Investment Math: Building a Carbon-Free Portfolio,” Aperio Group concluded that divesting from fossil fuel companies could have a negligible impact on a portfolio’s performance and tracking error, a measure of portfolio volatility versus a benchmark and an indication of portfolio risk. For example, while the exclusion of the entire “Oil, Gas & Consumable Fuels” industry from the Russell 3000 had some impact on the risk and returns of portfolios, the impact was “far less significant than presumed.”<sup>16</sup> Aperio determined in a back test that over rolling 10 year periods from 1988 to 2012, such a “carbon-free” portfolio resulted in a hypothetical tracking error of just 0.78% versus the benchmark and outperformed its benchmark 73% of the time.<sup>17</sup>

In a December 2013 study,<sup>18</sup> MSCI, a leading provider of investment decision support tools, observed that fossil fuel divestment has the potential to reduce overall portfolio risk because it removes the volatility of the energy sector, which MSCI found to be among the most risky sectors this past decade.

MSCI also looked at the impact of excluding companies owning carbon reserves from the MSCI All Country World Index (MSCI ACWI). It determined that over a five-year period the active return differential was 1.2% better for the same index without the fossil fuel investments — with a tracking error of just 1.9%. To quote MSCI: “one-

three- and five-year results were consistent between the two MSCI time series analyses, showing modest risk-adjusted outperformance from divestment over those time periods. Ten-year results showed modest risk-adjusted underperformance from divestment, primarily as a result of high oil prices in the early years of the time series.”<sup>19</sup>

While the first two studies evaluated the impact on risk and return of a fossil fuel free portfolio, Impax Asset Management’s “Beyond Fossil Fuels: The Investment Case for Fossil Fuel Divestment” study looked at four different approaches ranging from basic divestment to divestment plus reinvestment of funds in sustainable reinvestment options. Impax concluded that all four approaches “would have improved returns with limited tracking error during the time periods reviewed (generally the last seven years).”<sup>20</sup> The best performing strategy was one that proactively included leaders in the area of environmental opportunities to offset the traditional energy exclusion.

Actual fossil fuel free investment strategies have also shown competitive long-term returns. One such strategy is Trillium Asset Management’s Fossil Fuel Free Core. Since Inception from January 1st, 2007 to September 30th, 2014, the annual return net of fees was 6.5% compared to 6.8% for its benchmark, the S&P 1500.<sup>13</sup> Over a seven year period also ending September 30th, 2014 the annual return net of fees was 6.0% compared to 6.2% for the S&P 1500 benchmark. Two notable measures of risk, standard deviation and beta, were both lower over the 7 year period for the Fossil Fuel Free Core relative to its benchmark.

(When comparing overall performance between investment strategies or mutual funds, remember fees are deducted from net return calculations for strategies and mutual funds but not from benchmarks and indices.)

\*\*The performance quoted does not represent the performance for any Green Century Fund, including the Green Century Balanced Fund.

## SECTION 3: AN INTRODUCTION TO REINVESTMENT

### Why is Reinvestment Important?

The other side of divestment is reinvestment — taking the money from divestment to actively support companies involved in the transition to a more sustainable economy. As noted earlier, many fossil fuel free investment options already include a reinvestment approach.

### Opportunities for Reinvestment

Opportunities for reinvestment can be found across asset classes, but this report will focus on publicly traded companies.<sup>21</sup>

Energy efficiency, power generation, and storage and distribution represent the most obvious categories of companies involved in clean technology. However, every company has an impact on climate change and is impacted by climate change. Understanding how companies are identifying and managing climate risks can help determine which ones are appropriate for your portfolio. Companies that proactively address climate change through products and services offered, operations, and supply chain may be better positioned to succeed in the new economy.

BELOW ARE THE SEVEN PILLARS OF REINVESTMENT.



## ENERGY EFFICIENCY



### Pillar 1 Energy Efficiency

#### Sector Overview

Energy efficiency includes technology, products, and services such as power systems that operate more efficiently, demand response technology, energy reduction in data centers, energy efficient buildings and retrofits, and automotive

technologies that improve fuel economy. Energy efficiency is a powerful, immediate theme in green investment as it represents the lowest hanging fruit with clear near-term as well as long-term financial and climate change impacts. Many of the companies involved in energy efficiency are long-standing companies that have changed their product and service portfolios to focus on providing efficiency solutions. *Improved energy efficiency through the adoption of new technology or the retrofitting of existing technology reduces energy demand and carbon pollution emitted.*

#### Value to Shareholders

Energy efficiency offers more diversification to investors as they can choose from a range of companies that provide products and services (**Johnson Controls Inc.\***) and the end users who integrate those technologies into their operations (**Liberty Property Trust\***). Traditional industrial companies (**ABB Ltd.\***) are the leaders in this area. While not the most glamorous of the seven pillars,

Energy Efficiency gives companies the biggest bang for their buck with the infrastructure they currently have in place through new technologies (**EMC Corp.\***) and components (**BorgWarner\***) that improve efficiencies.

**Johnson Controls Inc. (NYSE:JCI)**, historically involved in facilities management as well as the automotive industry, took an early lead in energy efficiency retrofits and demand response. Through its Empire State Building project, the company is demonstrating how to reduce energy use and use the cost savings to pay for the retrofitted infrastructure. (see sidebar).

**Liberty Property Trust (NYSE:LRY)**, a developer of green office, industrial, and warehouse facilities, is also a leader in retrofitting buildings for energy efficiency.

**ABB Ltd. (NYSE:ABB)** supplies “smart grid” components that increase energy efficiency, allow for the integration of low-carbon energy sources into the existing power network, and provide demand response technology, which not only balances electrical consumption with supply, but allows for the integration of new technologies to enable energy storage devices.

**EMC Corporation (NYSE:EMC)** provides energy reduction technologies for data centers.

**BorgWarner, Inc. (NYSE:BWA)** develops automotive powertrain technologies that not only improve fuel economy but also reduce emissions.

#### CASE STUDY: JOHNSON CONTROLS AND THE EMPIRE STATE BUILDING

Johnson Controls, in collaboration with Jones Lang LaSalle, the Rocky Mountain Institute, and the Clinton Climate Initiative, participated in a project to retrofit the Empire State Building with a goal to reduce the building’s energy use by 38% on an annual basis. “The project reduces energy demand through addressing the building envelope (via the window and

radiator projects) and through tenant energy use (via tenant space design and energy management), as opposed to simply just focusing on traditional heating, ventilating, and air conditioning (HVAC) equipment replacements.”<sup>22</sup> If successful, the Empire State Building will be in the top quartile of the most energy efficient U.S. office buildings.

## POWER GENERATION



## Pillar 2 Power Generation

### Sector Overview

Power generation includes solar, wind, geothermal, biofuels, and other technologies used to create electricity. There are multiple competing factors both driving and pulling back alternative power generation.

While wind and solar have

successfully reduced costs, they face a moving bar of low natural gas prices. However in certain regions of the United States, solar and wind are already competitive, and with more and more states adopting renewable energy portfolio standards, demand continues to grow. One alternative power generation source that is competitive with current energy prices is geothermal. Alternatives in newer areas, such as biofuels using new alternative feed stocks (e.g., algae) that do not compete with traditional food stocks (e.g., corn), have high hurdles to overcome making them not quite ready for traditional investment by the retail market today. *We can dramatically reduce CO<sub>2</sub> emissions by billions of tons annually simply by adopting and using alternative power generation from wind, solar, and other sources.*

### Value to Shareholders

Despite the challenges currently facing alternative power generation, renewable energy, including wind, biomass, geothermal, and especially solar, accounted for 37% of new capacity added in the U.S. in 2013.<sup>23</sup> Demand is driven by states adopting clean energy mandates, stricter regulations on emissions from traditional coal burning plants, nuclear power plants approaching end of life, and companies purchasing renewable energy credits and installing alternative energy sources to generate electricity onsite. Investors can look at companies supplying alternative power generation technologies (**First Solar Inc.**,\* **Ormat Technologies\***), installing and financing renewables (**SolarCity\***) and investing in onsite alternative energy projects (**Google Inc.\***).

**SolarCity, Corp. (NASDAQ:SCTY)** is the national leader in installing and financing rooftop solar photovoltaic (PV) systems.

**First Solar, Inc. (NASDAQ:FSLR)** manufactures and sells thin-film photovoltaic (PV) solar modules. It also designs and constructs PV solar power systems.

**Ormat Technologies, Inc. (NYSE:ORA)** is a key player offering development and operations of geothermal and recovered energy-based power plants.

**Google Inc. (NASDAQ:GOOG)** has invested more than \$1 billion in global wind and solar projects.

### CASE STUDY: FIRST SOLAR-DEVELOPING SOLAR ENERGY

First Solar, a solar panel manufacturing company, recently announced that it developed a thin film photovoltaic cell with an efficiency of 21%, beating its own record set earlier in 2012. The company, which

has been offering an alternative to fossil fuel energy generation since 1999, is also the first solar company to offer a PV cell recycling service.

## Pillar 3 Storage and Distribution

## Sector Overview

Storage (via batteries, fuel cells, and flywheels) and distribution (the electrical grid) play a critical role by serving as the backbone that will enable broad scale application of wind and solar power. Two of the biggest challenges facing wind and

solar are location (wind farms generally are located far away from the urban areas they serve) and intermittent power generation (solar is only available during the day). Just five years ago, unused renewable energy was wasted; however, new developments in fuel cells, flywheels, and batteries now allow for that energy to be stored. The loss of power during transmission from generation site to location of use can be addressed through the adoption of smart grids. Finally, demand response services can reduce demand at peak times thereby reducing the need for excess capacity. *Storage and distribution helps curb climate change in a variety of ways from supporting alternative power generation to reducing power loss during distribution.*

## Value to Shareholders

As demand for alternative power generation increases, the demand to get that power to market in an efficient manner and to store it off peak will continue to grow. Companies investing in these areas now will have a competitive advantage in the future. Currently there

is a lot of consolidation in the energy storage sector with many of the large players buying the smaller players. Investors can look to companies that focus on storage and distribution (**EnerNOC, Inc.\***), traditional infrastructure companies (**Quanta Services\***), highly diversified industrial companies, or specialty players (**Polypore International\***).

**EnerNOC, Inc. (NASDAQ:ENOC)** provides energy management applications, services and products for the smart grid, including demand response and data-driven energy efficiency. Customers include commercial, institutional, and industrial end-users of energy as well as electric power grid operators and utilities.

**Quanta Services (NYSE:PWR)** is a leader in electric grid infrastructure maintenance, looking for ways to connect renewable energy to markets and reduce the amount of energy lost during transmission.

**Polypore International, Inc. (NYSE:PPO)** is a high-technology filtration company that develops specialized microporous membranes used in energy storage.

*“The fact is that wind and solar have joined a long list of clean energy technologies...which can be fully competitive with fossil fuels in the right circumstances. What is even more important is that the cost reductions that have led to this point are set to continue inexorably, far out into the future.”<sup>22</sup>*

— Michael Liebreich is founder and CEO,  
Bloomberg New Energy Finance

## TRANSPORTATION



### Pillar 4 Transportation

#### Sector Overview

Companies are looking for new ways to reduce their transportation footprints. Railroads represent one of the most energy efficient modes of transportation. Intermodal transportation systems (using containers that can be easily moved

between ships, trains, and trucks) provide door-to-door, truck-like service that can take advantage of the efficiency of railroads while serving areas without direct access to railroads. Automobile manufacturers, supported by auto-supply companies, are developing more efficient hybrid and electric vehicles. Even manufacturers of sea vessels are jumping on the hybrid wagon (**Rolls-Royce\***). Finally, mass transit use is seeing a revival as younger generations postpone the purchase of their first car and older generations take advantage of the cost savings as gas prices remain high. *Transportation is the second largest contributor to greenhouse gas emissions in the U.S. after electricity.*

#### Value to Shareholders

While it is nearly impossible to find leaders in addressing climate change in the transportation sector that are also pure plays with zero exposure to fossil fuel, this is an important sector in the transformation to a low-carbon economy. By making current transportation systems more efficient (**Wabtec\***), whether they serve cargo or people (**Tesla\***), companies can not only reduce air pollution but see real cost savings.

**Wabtec Corp. (NYSE:WAB)** provides products, services, and systems to the rail and intercity passenger transit industries.

**Tesla Motors, Inc. (NASDAQ:TSLA)** is a fast growing electric car company that is rapidly gaining a reputation as the luxury sports car for eco-focused consumers.

**Rolls-Royce Holding PLC (LON:RR)** recently launched a hybrid system for offshore, merchant, and fishing vessels that increases efficiency and reduces CO<sub>2</sub> and NO<sub>x</sub> emissions.

#### CASE STUDY: TESLA MOTORS

In June 2014, Tesla's Supercharger network delivered more than 1 GWh of energy to Model S vehicles in a single month — the equivalent of 168,000 gallons of gasoline saved and the daily CO<sub>2</sub> emissions of 73,684

Americans. Tesla is offering more SuperChargers worldwide and projects that there will be a SuperCharger within 100 miles of 98% of the U.S. population by the end of 2014.<sup>24</sup>

## SUSTAINABLE AGRICULTURE



## Pillar 5 Sustainable Agriculture

### Sector Overview

Sustainable agriculture, including organic farming, involves the practice of efficient use of non-renewable resources and the integration of natural biological cycles such as integrated pest management.<sup>25</sup> Modern

farming techniques are fossil fuel intensive with the manufacture of inorganic fertilizer accounting for over 30% of farming energy consumption according to the Organic Consumers Association.<sup>26</sup> Organics use less resources to create the same products. Reducing the distance products travel to market is another way to reduce the carbon footprint, and the buy-local movement is a large part of the sustainable food system that advocates organic agriculture and consumption of locally raised produce and other food. Agriculture is one of the biggest contributors to climate change and at the same time it is one of the most vulnerable industries to extreme weather associated with climate change.

### Value to Shareholders

Sustainable agriculture is also an important field that may benefit in a resource-constrained world. Investors can find companies that focus on more efficient irrigation (**Valmont Industries\***) and farm management processes (**Trimble Navigation\***). Organic and natural foods

represent a high-growth area in the consumer space. There are opportunities for investors in distribution (**United Natural Foods\***), specialty supermarkets (**Whole Foods Market, Inc.\***), and producers (**The Hain-Celestial Group Inc.\***).

**Valmont Industries, Inc. (NYSE: VMI)** is the world's largest irrigation equipment company, providing highly efficient and reliable water application in arid areas.

**Trimble Navigation, Ltd. (NASDAQ: TRMB)** provides an integrated information management system for farms to track rainfall, field operations, and fleet locations to help improve farm efficiency.

**United Natural Foods, Inc. (NASDAQ: UNFI)** is the largest distributor of natural, organic and specialty foods in the U.S. The company has implemented several Green Initiatives each year and produces a sustainability report that includes carbon emissions, water usage and efficiency data. It also has committed to building LEED certified warehouses and using solar power wherever possible.

**Whole Foods Market, Inc. (NASDAQ: WFM)** offers a wide variety of organic and natural products, has a Local Producer Loan Program, labels where its produce comes from, and promotes the sale of other local products in its stores.

**The Hain-Celestial Group Inc. (NASDAQ: HAIN)** offers over 50 brands of natural and organic food and personal-care products.

### CASE STUDY: VALMONT

Valmont Industries, the world's largest supplier of irrigation equipment, produces mechanized equipment that conserves water without sacrificing crop yield.

Its equipment can save up to 70% of the water used by less efficient methods of irrigation as it prevents salinity problems and water contamination.

## WATER

### Pillar 6 Water

#### Sector Overview

Water technology and water treatment is a growing business area. Using water in the most efficient manner possible while properly treating wastewater are the two key components to water management. Smart meters, water treatment

systems, and technology that supports efficient water management can help companies reduce both costs and risks. Climate change can impact the availability and quality of water, a finite and vital resource that is an essential input to many industries. Industries that rely heavily on water usage include biotechnology, food and beverage, agriculture, and utilities. *In the last five years, nearly every region of the country has experienced water shortages.*<sup>27</sup>



#### Value to Shareholders

The growing awareness of water as a critical business issue is reflected by the fact that signatories to the Carbon Disclosure Project's water program have almost quadrupled over three years to 530 signatories with \$57 trillion in assets.<sup>28</sup> Due to widespread water shortages, investors should look to companies that offer products and services that support water management (**Pentair Ltd.**, **Itron Inc.**, **IBM**).

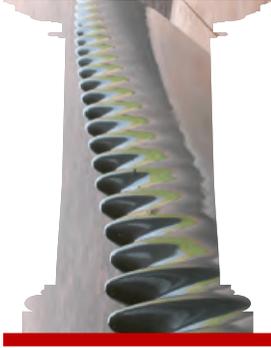
**Pentair, Ltd. (NYSE:PNR)** provides water management and fluid processing products and solutions for a wide range of applications including municipal, industrial, agriculture, and residential.

**Itron, Inc. (NASDAQ:ITRI)** develops and manufactures smart meters and meter communication systems for water systems. Itron is also involved in smart grids.

**IBM (NYSE:IBM)** has created a cloud-based dashboard and analytics platform for municipal wastewater management that decreases wastewater overflow and sewage backups, and identifies leaky pipes.

## SUSTAINABLE DESIGN

Joe Subirana / WhalePower



## Pillar 7 Sustainable Design

### Sector Overview

Strategies to address climate change through sustainable design, manufacturing processes, and packaging can be found across industries. Biomimicry (design and production modeled on biological entities and processes) is

emerging as a sustainable design philosophy in clean technology development such as wind turbine blades modeled on whale “technology” (the bumps at the front edge of whale fins increase efficiency, reduce drag, and increase lift). Other companies are adopting complete lifecycle management systems that ensure that, from the raw materials used through manufacture and to end of life, their products use the least amount of resources and minimize waste. Finally, when thinking about fossil fuel free investing, one must not forget the many petroleum products used in everyday life with the most prevalent being plastic bags and packaging. *Companies that actively seek to reduce their packaging and find alternatives to plastic can achieve cost-savings and reduce their carbon footprint.*

### Value to Shareholders

By looking at the different ways companies across sectors reduce their carbon footprint through product design and lifecycle analysis including manufacturing

(**Interface\***) and packaging, investors can round out their fossil fuel free portfolio. More often than not, companies involved in biomimicry are start-ups on the cutting edge of innovation and may not be available to the retail investor.

**Interface Inc. (NASDAQ:TILE)** is an example of a company that has integrated sustainable design through full lifecycle management of its products. Not only does the company use recycled material in its carpet squares, but it has a take-back program for worn carpet squares that are in turn recycled into new products.

### Importance of a Diversified Approach to Reinvestment

A holistic and diversified approach that looks across sectors for companies undertaking one or more of the Seven Pillars is a key to a potentially successful reinvestment strategy. One need not simply substitute solar and wind stocks (or other alternative energy stocks) for fossil fuel stocks. Instead, look for a wide variety of companies that are adapting quickly to consumer demand for new, resilient, and environmentally sustainable products and services that may provide a competitive advantage in the emerging sustainable economy.

*“We really can invest in new energy sources, divest from old sources, and actually make the economy stronger.”<sup>29</sup>*

— Paul Krugman, Professor of Economics and International Affairs, Princeton University

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## SECTION 4: CONCLUSION

There are compelling ethical, political, and financial reasons to move your investments out of fossil fuel companies. We hope this guide has both provided you with the inspiration, information, and tools to stop investing in the industry that is the most responsible for accelerating climate change and to take steps toward investing in those companies that are creating a cleaner and more sustainable economy and future.

Remember that when you divest and reinvest, your actions are amplified by your neighbors and other investors who also are changing their investments.

For more resources on how to spread divestment and reinvestment in your community, faith group, school or institution, please visit the websites listed below.

- » For students, cities and institutions that want to join in the global divestment movement: visit [www.350.org](http://www.350.org)
- » For individuals and institutions that want to learn more about fossil fuel free mutual funds: visit [www.greencentury.com](http://www.greencentury.com)
- » For institutions or individuals that use a separately managed account: please visit [www.trilliuminvest.com](http://www.trilliuminvest.com)

The heightened awareness of and pressure from the fossil fuel free investment movement will help bring about the changes we so urgently need to address climate change. Please let us know your questions, stories and thoughts as we build a better future together.

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*Trillium Asset Management Disclosure: The views expressed are those of the authors as of the date written and are subject to change at any time based on market or other conditions. These views are not intended to be a forecast of future events or a guarantee of future results. These views may not be relied upon as investment advice. The information provided in this material should not be considered a recommendation to buy or sell any of the securities mentioned. It should not be assumed that investments in such securities have been or will be profitable. To the extent specific securities are mentioned, they have been selected by the authors on an objective basis to illustrate views expressed in the commentary and do not represent all of the securities purchased, sold, or recommended for advisory clients. The information contained herein has been prepared from sources believed reliable but is not guaranteed by us as to its timeliness or accuracy, and is not a complete summary or statement of all available data. This piece is for informational purposes and should not be construed as a research report.*

Stocks will fluctuate in response to factors that may affect a single company, industry, sector, or the market as a whole and may perform worse than the market. Bonds are subject to risks including interest rate, credit, and inflation. The Green Century Funds' environmental criteria limit the investments available to the Funds compared to mutual funds that do not use environmental criteria.

\*As of September 30, 2014, International Bank for Reconstruction and Development (World Bank Green Bonds), Johnson Controls Inc., Liberty Property Trust, EMC Corporation, BorgWarner, Inc., First Solar Inc., Ormat Technologies, Google Inc., EnerNoc Inc, Quanta Services, Inc., Wabtec Corp., Tesla Motors, Inc., Valmont Industries, Inc., United Natural Foods, Inc., Whole Foods Market, Inc., Hain Celestial Group, Inc., Pentair, Ltd., Itron, Inc., International Business Machines Corporation (IBM) and Interface, Inc. comprised 1.24% and 0.00%; 1.92% and 0.43%; 0.00% and 0.08%; 0.39% and 0.89%; 0.00% and 0.18%; 0.75% and 0.00%; 0.30% and 0.00%; 1.10% and 4.90%; .28% and 0.00%; 0.00% and 0.11%; 0.79% and 0.12%; 0.0% and 0.32%; 0.97% and 0.00%; 0.81% and 0.05%; 0.09% and 0.21%; 0.00% and 0.08%; 0.46% and 0.00%; 0.00% and 0.02%; 0.40% and 2.70%; 0.44% and 0.01%; 2.10% and 0.00%, of the Green Century Balanced Fund and Green Century Equity Fund, respectively. Other securities mentioned were not held in the portfolios as of September 30, 2014. References to specific securities, which will change due to ongoing management of the Funds, should not be construed as a recommendation by the Funds, their administrator, or distributor.

**You should carefully consider the Funds' investment objectives, risks, charges, and expenses before investing. To obtain a Prospectus that contains this and other information about the Funds, please click here or visit [www.greencentury.com](http://www.greencentury.com), email [info@greencentury.com](mailto:info@greencentury.com), or call 1-800-93-GREEN. Please read the Prospectus carefully before investing.**

*The views expressed and any forward-looking statements are as of the date of the publication and are those of the portfolio managers and/or the Advisor. Future events or results may vary significantly from those expressed and are subject to change at any time in response to changing circumstances and industry developments. This information and data has been prepared from sources believed reliable. The accuracy and completeness of the information cannot be guaranteed and is not a complete summary or statement of all available data.*

The Green Century Funds are distributed by UMB Distribution Services, LLC., 235 W Galena Street, Milwaukee, WI 53212. 12/14

## APPENDIX 1: FOSSIL FUEL FREE INVESTMENT STRATEGIES

Click [here](#) to see the information on fossil fuel free mutual funds and investment managers compiled by 350.org or visit <http://gofossilfree.org/usa/your-roadmap-to-personal-divestment>

Visit <http://greenamerica.org/fossilfree/> to see the mutual funds and investment managers compiled by Green America

Mutual funds listed, other than the Green Century Balanced Fund and Green Century Equity Fund, are not distributed by UMB Distribution Services, LLC.

## APPENDIX 2: THE CARBON UNDERGROUND'S TOP 200 LISTED COMPANIES BY ESTIMATED CARBON RESERVES (as of March 31, 2014)

Click [here](#) to access the list through the [www.gofossilfree.org](http://www.gofossilfree.org)

Visit [www.fossilfreeindexes.com/premium-downloads/](http://www.fossilfreeindexes.com/premium-downloads/) to download the list in Excel.

RANK	COAL COMPANIES	COAL (GTCO2)	OIL & GAS COMPANIES	OIL (GTCO2)	GAS (GTCO2)
1	COAL INDIA	57.722	GAZPROM	6.248	37.292
2	SHENHUA GROUP	31.523	ROSNEFT	10.059	1.979
3	ADANI ENTERPRISES	25.383	PETROCHINA	4.884	3.693
4	SHANXI COKING COMPANY	18.445	EXXONMOBIL	4.143	4.038
5	BHP BILLITON	13.469	LUKOIL	5.666	1.280
6	ANGLO AMERICAN	12.985	BP	4.203	2.197
7	INNER MONGOLIA YITAI COAL	12.223	PETROBRAS	4.676	0.674
8	DATANG INTL. POWER	12.206	ROYAL DUTCH SHELL	2.140	2.332
9	CHINA NATIONAL COAL	12.071	CHEVRON	2.545	1.591
10	PEABODY ENERGY	11.469	TOTAL	2.130	1.683
11	GLENCORE XSTRATA	10.453	NOVATEK	0.387	3.391
12	DATONG COAL INDUSTRY	10.281	CONOCOPHILLIPS	1.661	1.069
13	YANZHOU COAL MINING	9.799	TATNEFT	2.622	0.067
14	PUBLIC POWER CORP (DEH)	9.339	ENI	1.418	1.142
15	EXXARO RESOURCES	8.793	ONGC	1.449	0.703
16	YANGQUAN COAL INDUSTRY	7.298	STATOIL	1.012	0.928
17	MECHEL	6.739	SINOPEC	1.204	0.367
18	ARCH COAL	6.530	CNOOC	1.155	0.366
19	ALPHA NATURAL RESOURCES	5.482	BG	0.593	0.664
20	mitsubishi	4.738	OCCIDENTAL	0.950	0.303
21	VALE	4.401	APACHE	0.586	0.461
22	RIO TINTO	4.338	CANADIAN NATURAL RESOURCES	0.780	0.200
23	EVRAZ	4.235	ANADARKO PETROLEUM	0.450	0.454
24	RASPADSKAYA	4.084	BHP BILLITON	0.345	0.552
25	ASIAN RESOURCE MINERALS	3.181	DEVON ENERGY	0.379	0.515

RANK	COAL COMPANIES	COAL (GTCO2)	OIL & GAS COMPANIES	OIL (GTCO2)	GAS (GTCO2)
26	UC RUSAL	3.081	CHESAPEAKE ENERGY	0.293	0.596
27	NEYVELI LIGNITE	3.035	BASHNEFT	0.876	0.000
28	PINGDINGSHAN TIANAN COAL	3.023	INPEX	0.393	0.369
29	CLOUD PEAK ENERGY	2.881	ECOPETROL	0.580	0.157
30	SASOL	2.731	EOG RESOURCES	0.392	0.258
31	SEVERSTAL	2.726	SUNCOR ENERGY	0.596	0.041
32	AGL ENERGY	2.704	MARATHON OIL	0.473	0.151
33	TATA STEEL	2.679	HESS	0.485	0.125
34	TECK RESOURCES	2.603	IMPERIAL OIL	0.561	0.027
35	KUZBASS FUEL	2.504	ENCANA	0.089	0.479
36	POLYUS GOLD	2.294	ENERGI MEGA PERSADA	0.020	0.537
37	ENERGY VENTURES	2.184	BASF	0.159	0.294
38	WHITEHAVEN COAL	2.055	REPSOL	0.182	0.265
39	BANPU	2.040	OMV	0.260	0.152
40	RWE	1.943	NOBLE ENERGY	0.141	0.271
41	CONSOL ENERGY	1.887	WOODSIDE PETROLEUM	0.058	0.334
42	W H SOUL PATTISON	1.850	PIONEER NATURAL RESOURCES	0.270	0.120
43	RESOURCE GENERATION	1.818	LINN ENERGY	0.218	0.163
44	BAYAN RESOURCES	1.806	CENOVUS ENERGY	0.309	0.053
45	CHURCHILL MINING	1.745	YPF	0.235	0.121
46	NTPC	1.740	RANGE RESOURCES	0.090	0.261
47	ADARO ENERGY	1.607	PTT	0.111	0.228
48	NACCO INDUSTRIES	1.557	HUSKY ENERGY	0.212	0.122
49	IDEMITSU KOSAN	1.530	EQT	0.001	0.326
50	ALLIANCE RESOURCE PARTNERS	1.475	CONTINENTAL RESOURCES	0.238	0.073
51	HUOLINHE OPENCUT COAL IND	1.387	TALISMAN ENERGY	0.111	0.199
52	COALSPUR MINES	1.380	KAZMUNAIGAS EP	0.298	0.000
53	mitsui	1.366	JX HOLDINGS	0.271	0.000
54	GOLDEN ENERGY MINES	1.354	WPX ENERGY	0.069	0.188
55	COAL OF AFRICA	1.339	SANTOS	0.033	0.204
56	NOVOLIPETSK STEEL	1.288	SK INNOVATION	0.226	0.000
57	WESFARMERS	1.094	QEP RESOURCES	0.078	0.143
58	TATA POWER	1.062	SOUTHWESTERN ENERGY	0.000	0.219
59	MAGNITOGORSK IRON & STEEL	1.046	CONSOL ENERGY	0.000	0.218
60	SHERRITT INTERNATIONAL	1.012	CABOT OIL & GAS	0.010	0.201
61	KAZAKHMYS	0.998	SANDRIDGE ENERGY	0.134	0.077
62	NEW WORLD RESOURCES	0.972	NEWFIELD EXPLORATION	0.112	0.096
63	MONGOLIAN MINING	0.903	MURPHY OIL	0.144	0.062
64	ITOCHU	0.878	DRAGON OIL	0.159	0.044
65	WESTMORELAND	0.864	FREEMPORT-MCMORAN	0.155	0.028
66	COCKATOO COAL	0.851	MAERSK GROUP	0.174	0.000
67	SHANXI MEIJIN ENERGY	0.784	CONCHO RESOURCES	0.116	0.057

RANK	COAL COMPANIES	COAL (GTCO2)	OIL & GAS COMPANIES	OIL (GTCO2)	GAS (GTCO2)
68	JIZHONG ENERGY RESOURCES	0.742	ULTRA PETROLEUM	0.008	0.162
69	BANDANNA ENERGY	0.731	DENBURY RESOURCES	0.139	0.026
70	POLO RESOURCES	0.726	GDF SUEZ	0.045	0.117
71	ALLETE	0.723	MEG ENERGY	0.155	0.000
72	CLP HOLDINGS	0.696	WHITING PETROLEUM	0.139	0.012
73	ASPIRE MINING	0.670	RWE	0.037	0.111
74	WALTER ENERGY	0.641	MOL	0.084	0.061
75	AQUILA RESOURCES	0.627	CRESCENT POINT ENERGY	0.135	0.010
76	COAL ENERGY	0.614	POLISH OIL & GAS	0.036	0.108
77	CHINA RESOURCES POWER	0.567	mitsui	0.048	0.095
78	INDIKA INTI	0.485	PENN WEST PETROLEUM	0.111	0.029
79	ARCELORMITTAL	0.464	PACIFIC RUBIALES ENERGY	0.104	0.028
80	FIRSTENERGY	0.458	OIL INDIA	0.073	0.059
81	BLACK HILLS CORP	0.431	CIMAREX ENERGY	0.062	0.068
82	WESCOAL HOLDINGS	0.430	ENERGEN	0.082	0.044
83	GRUPO MEXICO	0.420	TAQA	0.065	0.055
84	AFRICAN RAINBOW MINERALS	0.379	OIL SEARCH	0.028	0.088
85	SHANXI COAL INTL ENERGY	0.376	ARC RESOURCES	0.044	0.065
86	CAPITAL POWER	0.367	CANADIAN OIL SANDS	0.109	0.000
87	PTT PUBLIC	0.359	GENEL ENERGY	0.105	0.000
88	LANHUA	0.338	SM ENERGY	0.057	0.045
89	FORTUNE MINERALS	0.328	SASOL	0.004	0.085
90	CARDERO RESOURCES	0.323	NATIONAL FUEL GAS	0.018	0.071
91	ZHENGZHOU COAL IND & ELEC	0.319	TULLOW OIL	0.080	0.008
92	STEEL AUTHORITY OF INDIA	0.307	PENGROWTH ENERGY	0.051	0.037
93	JINDAL STEEL & POWER	0.301	XCITE ENERGY	0.084	0.001
94	SHOUGANG FUSHAN RESOURCES	0.299	VERMILION ENERGY	0.069	0.013
95	JINGYUAN CE	0.297	PEYTO E&D	0.009	0.070
96	STANMORE COAL	0.287	QUICKSILVER RESOURCES	0.017	0.061
97	PROPHECY COAL	0.272	PETROCELTIC INTERNATIONAL	0.026	0.050
98	MARUBENI	0.265	FOREST OIL	0.026	0.050
99	CLIFFS NATURAL RESOURCES	0.247	TOURMALINE OIL	0.009	0.065
100	NSSMC	0.237	BONAVISTA ENERGY	0.027	0.045
	<b>GRAND TOTAL</b>	<b>395.989</b>	<b>GRAND TOTAL</b>	<b>73.103</b>	<b>76.939</b>

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## APPENDIX 3: SAMPLE LETTER TO FINANCIAL ADVISOR

Dear (advisor):

I am concerned about climate change and would like to do what I can in order to diminish the power that fossil fuel companies have in slowing the progress of new energy alternatives. I also agree with the research that has been done to illustrate that fossil fuel companies may be significantly overvalued and may not represent a good long-term investment.

I would like to know if you would be able to assist me in divesting my personal investments from fossil fuel companies. The following link provides a list of 200 companies identified as holding the largest amount of carbon reserves: <http://gofossilfree.org/companies/>. I want to divest from any direct holdings, any mutual funds that hold these companies, and any other assets invested in coal, oil, or gas companies.

Would you be so kind as to cross-reference this list with my portfolio and report the amount of my holdings represented on this list? After we have identified my investment position in regards to carbon reserves, I would like to discuss reinvestment options. I am interested in investment choices that reflect my values on this issue.

If you are not in a position to assist, I understand and will explore alternatives. If you are in a position to assist, please contact me so we can discuss what will be involved in repositioning my portfolio, how it can be done consistent with my investment objectives, and how it may impact my investment costs and tax obligations.

Kind Regards,

(Your name)

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## FOOTNOTES

- 1 The S&P 500® Index is an unmanaged index of 500 selected common stocks, most of which are listed on the New York Stock Exchange. The S&P 500® Index is heavily weighted toward stocks with large market capitalization and represents approximately two-thirds of the total market value of all domestic stocks. It is not possible to invest directly in the S&P 500® Index. The analysis was performed by leading environmental data and analysis firm Trucost® and is based on measuring the tons of carbon emissions per million dollars of revenue of the companies held by the Balanced Fund and those of the companies included in the S&P 500® Index as of January 31, 2013.
- 2 “Heat-Trapping Gas Passes Milestone, Raising Fears,” *New York Times*, May 10, 2013 or [click here](#) for the article.
- 3 “We need an apartheid-style boycott to save the planet,” *Guardian*, April 10, 2014 or [click here](#) for the article.
- 4 Environmental Law Institute, Energy Subsidies Black Not Green, or [click here](#) for the paper.
- 5 [carbontracker.live.kiln.it/Unburnable-Carbon-2-Web-Version.pdf](http://carbontracker.live.kiln.it/Unburnable-Carbon-2-Web-Version.pdf)
- 6 International Energy Agency, World Outlook, 2012, or [click here](#) for the paper.
- 7 Big Oil Companies Struggle to Justify Soaring Project Costs,” *Wall Street Journal*, January 28, 2014 [www.online.wsj.com/articles/SB10001424052702303277704579348332283819314](http://www.online.wsj.com/articles/SB10001424052702303277704579348332283819314)
- 8 Green Jobs Grow Four Times Faster than Others, *Los Angeles Times*, March 19, 2013 or [click here](#) for article.
- 9 This report primarily focuses on investments in stocks and corporate bonds whether direct or in mutual funds. You can find resources for addressing climate change in other asset classes later in the report.
- 10 The S&P 1500 or the S&P Supercomposite 1500 Index is an unmanaged broad-based capitalization-weighted index comprising 1500 stocks of large-cap, mid-cap, and small-cap U.S. companies. It is not possible to invest directly in the S&P Supercomposite 1500 Index.
- 11 Trillium Asset Management, 350.org, and Factset Research as of 6/30/13
- 12 The Carbon Underground, August 2012, [www.fossilfreeindexes.com/premium-downloads/](http://www.fossilfreeindexes.com/premium-downloads/) for list
- 13 Trillium Asset Management, LLC (Trillium) claims compliance with the Global Investment Performance Standards (GIPS®). Trillium is an investment advisor registered with the Securities and Exchange Commission under the Investment Advisors act of 1940. For the purposes of establishing and maintaining compliance with the GIPS standards, the firm has elected to define itself exclusive of wrap-fee assets under management historically until 10/1/2013. Effective 10/1/2013 the firm has redefined itself to include wrap-fee assets under management. Previously, the firm included only institutional and high net worth accounts. The firm was redefined to include the wrap-fee business to reflect all business lines managed by the organization.  
The Sustainable Opportunities Composite was created on August 28th 2011 and has an inception date of October 1, 2008. The U.S. Dollar is the currency used to express valuations and performance.  
The Fossil Fuel Free Core Composite was created on August 28th 2011 and has an inception date of January 1, 2007. The U.S. Dollar is the currency used to express valuations and performance.  
Performance is presented for all periods net of trading costs and both net and gross of management fees, includes the reinvestment of all income, and is vested and calculated on a trade date basis. Individual performance will vary from that of the composite.  
Lists, descriptions, and GIPS compliant presentations are available upon request for all Trillium performance composites.  
Past performance is no guarantee of future results. Every investment carries the potential for both profit and loss.  
Investments in smaller companies generally carry greater risk than is customarily associated with larger companies for various reasons, such as narrower markets, limited financial resources and less liquid stock.
- 14 [www.dol.gov/ebsa/programs/ori/advisory98/98-04a.htm](http://www.dol.gov/ebsa/programs/ori/advisory98/98-04a.htm)
- 15 [www.ussif.org/store\\_product.asp?prodid=8](http://www.ussif.org/store_product.asp?prodid=8)
- 16 [www.aperiogroup.com/system/files/documents/building\\_a\\_carbon\\_free\\_portfolio.pdf](http://www.aperiogroup.com/system/files/documents/building_a_carbon_free_portfolio.pdf)
- 17 [www.aperiogroup.com/system/files/documents/building\\_a\\_carbon\\_free\\_portfolio.pdf](http://www.aperiogroup.com/system/files/documents/building_a_carbon_free_portfolio.pdf)
- 18 [www.msci.com/resources/factsheets/MSCI\\_ESG\\_Research\\_FAQ\\_on\\_Fossil-Free\\_Investing.pdf](http://www.msci.com/resources/factsheets/MSCI_ESG_Research_FAQ_on_Fossil-Free_Investing.pdf)
- 19 [www.msci.com/resources/factsheets/MSCI\\_ESG\\_Research\\_FAQ\\_on\\_Fossil-Free\\_Investing.pdf](http://www.msci.com/resources/factsheets/MSCI_ESG_Research_FAQ_on_Fossil-Free_Investing.pdf)
- 20 [www.impaxam.com/sites/default/files/20130704\\_impax\\_white\\_paper\\_fossil\\_fuel\\_divestment\\_final\\_0.pdf](http://www.impaxam.com/sites/default/files/20130704_impax_white_paper_fossil_fuel_divestment_final_0.pdf)
- 21 For more information on how to invest in other asset classes, see the USSIF web-site at: [www.ussif.org/climatereinvestment](http://www.ussif.org/climatereinvestment)  
Addressing climate change is possible in every type of asset class. For example, there are green bonds such as World Bank Green Bonds\* or municipal bonds for clean technology, energy efficiency, or general projects that reduce carbon intensity. Community development loan fund notes (CDFI's) that support energy efficient housing and facilities are another option for fossil fuel free investors. Unfortunately, alternative investments, where much of the focus on emerging clean technology exists via private equity, venture capital, or hedge funds, may not be suitable for the retail investor.
- 22 “Empire State Building Fact Sheet,” Johnson Controls or [click here](#).
- 23 [www.eia.gov/forecasts/aeo/er/pdf/0383er%282014%29.pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er%282014%29.pdf)
- 24 [www.teslamotors.com/blog/supercharging-milestone](http://www.teslamotors.com/blog/supercharging-milestone) or [click here](#).
- 25 Integrated Pest Management, EPA, or [click here](#) for fact sheet.
- 26 Eating Fossil Fuels, Organic Consumers Union, 2003 or [click here](#) for fact sheet.
- 27 [www.epa.gov/WaterSense/pubs/supply.html](http://www.epa.gov/WaterSense/pubs/supply.html)
- 28 Environmental Leader “CDP Investors Up 10 Percent in 2013”, February 13, 2013 or [click here](#).
- 29 “Invest, Divest and Prosper”, *New York Times*, June 2013 or [click here](#).



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20 Jay St, Suite 1010 | Brooklyn, NY 11201 | 518.635.0350 | [www.350.org](http://www.350.org)



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