

OVERVIEW



CLIMATE IMPACT INVESTING



Giving Green's other work focuses on recommendations of where individuals can donate to effect positive change in the climate crisis. Yet, donations are not the only way that individuals can mobilize their money to combat climate change. Investment -- from retirement funds to venture capital -- has a role to play as well. In our "Investing for the Climate" series, we provide overviews of common "sustainable investment" strategies, including divestment, ESG investing, and pro-climate impact investing. This section covers "impact investing", which we define as investing in individual products or firms intentionally chosen for their impact potential.

Note: This article is intended for research and information purposes only in order to review the potential positive climate impacts of available investment opportunities, not their financial performance, and therefore should not be construed as investment, financial, or other advice, or construed as a recommendation to buy, sell, or otherwise transact in any investment. **We do not endorse any specific product that is referenced in this article.** This article is not a replacement for personal financial advice and it is strongly recommended that you review your own personal financial situation and seek professional investment and/or financial advice before engaging in any investing. Reading this article does not create a professional relationship and we are not in the business of providing investment or financial advice. The information provided in this article is as accurate as possible, however errors may occasionally occur and we are not responsible for any errors. We expressly disclaim any liability or loss incurred by any person who acts on the information, ideas, or strategies discussed in this report.

Executive Summary

Impact investing is the practice of investing with the intention of achieving measurable financial returns and social and environmental impact. Impact investments can occur across industries, asset classes, and risk/return profiles. In this report, we highlight impact investments with the potential to reduce greenhouse gas emissions and contribute to the fight against the climate crisis.

Historically, impact investing has been the purview of institutional investors or wealthy individuals. We choose to focus on opportunities **available to retail investors in the United States.** (Occasionally, we offer a note on additional opportunities available only to accredited investors.) We consider investments occurring in three asset classes: early-stage private equities, cash equivalents, and fixed-income investments.

Private equity refers to direct holdings in private companies, and purchasing private equities, especially in early-stage companies, is often risky and inaccessible to unaccredited retail investors. Unaccredited retail investors can make limited investments of this type through a relatively new mechanism known as Regulation Crowdfunding. We discuss the potentially transformative impact of early-stage private equity investments and the significant risk associated with them.

Cash equivalents and fixed-income investments are more conventional, and offer many more opportunities for retail investors. These types of investments generally offer a fixed, low to moderate return in addition to repayment of the principal. We highlight a range of climate-related investment offerings, including savings accounts at climate-focused banks, notes offered by loan funds that make climate-related loans, and bonds offered by companies or municipalities looking to fund climate-positive projects.

We discuss a number of approaches to assess whether investing in a hypothetical project or firm has high potential climate impact. We focus on **causality**, or the reduction of atmospheric greenhouse gases attributable to the project, and **additionality**, or an individual investment's contribution to increasing the impact of the project. While conclusions on impact cannot be perfectly generalized across an asset class, we observe some patterns. Startups promise transformative impact, but it is difficult as an investor to predict the likelihood of actually achieving that impact. On the other hand, cash equivalents and fixed-income

investments usually have strong and defensible links to impact, even if that impact is limited in scope. We also note opportunities to invest for non-climate **co-benefits**, including economic development and providing financing to low-income communities.

Overall, we find that there are promising ways to invest for climate impact across all asset classes, but that navigating this terrain as a retail investor is complicated. At this time, we do not recommend that retail investors make any investments in individual projects or firms, whether via equity or debt instruments. We also do not yet recommend donating philanthropic funds to any investment firm. We found one low-cost, low-risk way to support existing capital solutions, though we do not yet formally recommend it: moving money to a bank that specializes in lending to clean energy projects.

We hope this report serves as a guide to the available opportunities to leverage investment capital for climate impact. We at Giving Green have barely scratched the surface of this wide-ranging and fast-growing industry, and we hope to continue to highlight new opportunities as we discover them.

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This work is preliminary, and subject to change. Questions and comments are welcome at givinggreen@idinsight.org. Cover image: [US Department of Agriculture](#).

Investing in, rather than donating to, a climate-positive project may be attractive for a variety of reasons. For the investor, there is the possibility of financial returns. Dedicated impact investors can reinvest returns into future projects, extending the impact generated from each dollar. For an organization seeking capital, investment offerings are a way to access more up-front capital than philanthropic actors are willing to offer.

When investing for the climate, most turn to broad portfolios of public equities, such as those highlighted in [our report on ESG funds and climate impact](#). However, ESG funds tend to focus on aligning portfolios with the values of their investors or mitigating financial risk via ESG criteria, not maximizing impact. Some investors with a higher risk tolerance may be interested in more actively directing their investments towards specific climate-positive projects. This report discusses these specific, intentional investments, under the umbrella "impact investing".

Impact investing is the practice of investing with the intention to generate positive and measurable impact alongside financial returns. In response to increased interest, the once-niche industry has grown in size, scope, and importance; the term was only coined in the mid-2000s, and the industry is estimated to have grown from [\\$502 billion](#) to [\\$715 billion](#) from 2019 to 2020 alone. While a decade ago, impact investing was seen as financially inferior to traditional investing, more and more impact investors are targeting—and achieving—[market-rate returns](#).

What this report is:

- An overview of some of the many ways investment capital can be leveraged to support climate-forward projects outside public equities.
- A work in progress - we always welcome feedback.

What this report is not:

- Financial advice.
- An attempt to assess the financial viability or returns of any investment or asset class.
- A comprehensive overview of green investment offerings.
- An opinion on whether donations or investments are a better avenue to create change.
- A recommendation or endorsement of any platform or firm mentioned. We cannot and will not recommend any particular investment, nor will we recommend that readers engage in impact investing at all. We merely offer this as a resource to those who may already be interested.

[2] What is impact investing?

2.1 Defining impact investments

"Impact investing" is a loosely defined term. At its core is the idea of deploying capital *intentionally* to generate *positive impact*. The Global Impact Investing Network, a nonprofit that convenes impact investors and sets voluntary standards around impact measurement, offers the [following definition](#):

“Impact investments are investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return.”

They name four “[core characteristics](#)” that constitute the baseline expectations of impact investing:

1. Intentionality
2. Use Evidence and Impact Data in Investment Design
3. Manage Impact Performance
4. Contribute to the Growth of the Industry

For our purposes, we focus on investments made to support a project or firm with the potential to have a climate impact, i.e. reduction of atmospheric greenhouse gases (GHGs). Such projects and firms occur across a diverse range of institutions, risk profiles, and asset classes.

Why consider impact investing? Approximately [half](#) of Americans own stock, and [95%](#) have a bank account. Impact investing is a way we can leverage this money to do good. We can move our existing investments into ESG funds, startups, climate-friendly banks, and more.

Some impact investments have lower returns than the market. Because of this, the impact-minded individual might consider instead investing all their money at market rate and then donating the returns. Others advocate for investing only what you need for your security, and donating any excess income to do the most good now. Giving Green is not at this time taking a position on this debate. We recognize that individuals have different financial priorities and comfort with giving vs. investing. Instead of concentrating on whether investing is a globally optimal effective use of money, we assume that the reader is already interested in investing for the climate, and offer ways in which they might consider doing so.

2.2 The focus of this report

We focus on investment opportunities available to retail, or individual, investors. Within that category, we primarily focus on opportunities available to *unaccredited* retail investors. Accredited investors are those who meet [standards](#) set by the Securities & Exchange Commission (SEC) for minimum income, net wealth, or financial expertise, as well as most financial institutions. Accredited investors have many more options than we lay out in this report, though we occasionally highlight opportunities for accredited retail investors.

We explore three main asset classes in this report:

1. **Early-stage private equities, or startup investments:** “Private equity” refers to direct holdings in companies that are not traded on the public markets, e.g., are not stocks listed on the New York Stock Exchange that ordinary investors can buy and sell. We focus on private equity investments offered in early-stage companies (startups). (Historically, the term “impact investing” was used to refer only to this type of investment, but it has [since evolved](#).)
2. **Cash and cash equivalents:** accounts that have low returns and high liquidity, i.e. the investment can easily be withdrawn as cash on relatively short notice. While an individual with a bank account may not consider this an “investment”, banks use the money deposited in savings accounts to make investments of their choosing. A small portion of the returns are paid back to the account holder as dividends.

Examples: short-term bills or bank savings accounts.

3. **Fixed-income:** investments that pay a predetermined amount over a fixed period of time. Usually, an interest rate is fixed up-front, and principal is repaid at the end of the term. Fixed-income investments are generally more stable and have lower rates of return than the broader market. (Some mutual funds and ETFs are also fixed-income; we chose to cover those in our [ESG report](#), because the retail investor would access them in the same way as they would other mutual funds and ETFs.)

Examples: Common fixed-income investments are notes and bonds; notes are a type of bond generally repaid on a shorter timeframe. For instance, a bank may offer a note with a 2% interest rate and a 5 year term.

[Some institutions](#) consider “impact investing” a strategy applied under the ESG framework. We choose to treat impact investing as a strategy that is concentrated in the above asset classes, separate from ESG. We believe the impact of these investments lies primarily in the near-term execution of the project they directly support. In contrast, the impacts of inclusion or exclusion in an ESG portfolio are at the company, industry, or social level; they are larger, systemic, and sometimes indirect. Further, these impact investments cannot be substituted for traditional portfolios. They have markedly different risk/return profiles and frequently feature a minimum investment requirement.

The following sections will:

- Describe each of the three asset classes.
- Highlight examples of climate investment opportunities, primarily those available for unaccredited retail investors.
- Propose a theory of change for impact investments’ effect on reducing atmospheric greenhouse gases (GHGs).
- Evaluate categories of investments against the theory of change.

Limitations of our current work:

1. Because impact investing can be applied to any asset class, there are necessarily many we have left out from our initial analysis. For instance, impact investors in public equities can buy and sell individual stocks or invest in funds that track a clean industry like solar energy. Impact investors could also pursue non-traditional “alternative investments” ranging from [commodities](#) to [cryptocurrency](#). Even in the asset classes we do cover, we have not attempted to comprehensively categorize every type of investment. We hope to expand this report to cover more asset classes in the future.
2. Giving Green is based in the United States, and we have to date only sought to research investment opportunities available in the US, where we have greater access to information and resources. Regulations around investing differ in different countries. For readers outside the US, this report may be useful as a starting point to look for analogues available in your area. We look forward to expanding our work on investments to other countries in the future.

3.1 Early-stage private equities

Please note: Investments in early-stage, private companies, including those we describe below, are inherently quite risky. It is common for early-stage investment funds, run by teams of professionals, to expect a majority of their portfolio to fail.

Usually, early-stage startups raise funds from private investors, such as **venture capital** (VC) firms. Due to the high-risk high-reward nature of each individual startup investment, a VC fund's overall performance is driven by the [presence of outliers](#). That is, most startups in a fund's portfolio will fail or have poor returns, but a few increase in value so drastically that the fund's overall performance is strong. Many VCs only invest in startups they expect to "return the fund" - roughly provide a 10x or more return.

Because of this risk, investing in startups has historically been limited to accredited investors. Recent changes have opened limited access to unaccredited investors through **equity crowdfunding**.

3.1.1 Equity crowdfunding

The most accessible way we found for unaccredited retail investors to make equity investments is via **equity crowdfunding**, more formally known as **Regulation Crowdfunding** or **Reg CF**¹.

In May 2016, the SEC enacted the [JOBS Act of 2012](#). This introduced Reg CF as a mechanism for companies to raise capital, with some limits, from non-accredited investors. Like Kickstarter or GoFundMe, Reg CF platforms allow many individuals to make small contributions to a cause; instead of a donation or product, Reg CF investors buy securities, e.g. equity or debt. That is, an investor provides up-front capital to the business, with the expectation of either owning a piece of the company and sharing in its profits (equity) or receiving repayments plus interest (debt). Reg CF platforms [raised over \\$500 million](#) from 2015 to 2020.

Reg CF platforms include many climate-related startups. For instance, [Republic](#), a popular Reg CF platform focused on equity raises for young startups, includes categories like "eco", "cleantech", and "sustainable". The majority of climate startups we found on Republic were low-GHG alternatives to mainstream high-GHG products. Of those, the majority were consumer products: low-carbon potting soil, oat milk for children, and plant-based meal delivery, for example. Examples of climate startups on Republic include:

- [Terraformation](#) is a hardware and software platform for reforestation. If successful, this business would increase the number of trees planted and maintained, removing carbon from the atmosphere.
- [Manta Biofuel](#) produces an oil replacement made from algae. If successful, this business would increase the deployment of bio-based fuels, which sequester carbon during their growth. Thus, emissions from petrochemical fuel use would be avoided.

¹ Note that Reg CF allows for the sale of multiple types of securities: convertible notes, SAFEs, equities, debt, and revenue share agreements; within these categories, there can be substantial variation in terms and structure according to the preference of the company raising the funds. We think that the most significant role of Reg CF for the unaccredited retail investor is to open up access to private equity, so we primarily discuss it here. In addition, we examine examples of debt Reg CF offerings—specifically, notes—under section 3.2 on fixed-income investments.

- [Moku](#) produces a mushroom-based replacement for beef jerky. If successful, this business would increase the deployment of meat alternatives, thereby avoiding emissions associated with cattle farming.

In contrast, [Raise Green](#), the only Reg CF platform we found that focuses solely on climate, generally offers fixed-income investment opportunities in more well-established companies and financial institutions, which we discuss in section 3.2.

Given the wealth of private funding sources, why might a startup turn to Reg CF? The simplest answer: sometimes, even a good team and idea cannot attract the right institutional funding. We cover reasons why this may be the case in section 4.2. Reg CF also offers non-monetary benefits to startups. [Firms that have raised money](#) on Raise Green point to the ecosystem of like-minded entrepreneurs, social media support from everyday-people-turned-investors, and relationships with the communities in which they work.

Equity investing in startups may be enticing due to the potential for significant GHG reductions and financial returns. Startups often promise transformative impact. Some of the best do succeed in reshaping entire industries (and line founders' and investors' pockets along the way), and many investors today believe that impact does not come at the cost of returns. But an investor should also factor the risk of failure into their impact calculation. One [study of venture-backed \(non-impact\) startups](#) estimates that 75 percent fail to return investors' capital and 95 percent fail to meet their projected return on investment.

Outside of Reg CF, unaccredited retail investors have few options to make private equity investments². The feasibility of such options is dependent on individual circumstances, so we do not discuss them further.

Note for accredited investors: Accredited investors who wish to invest in early-stage startups have more options. They can invest directly in a single startup (e.g. as an angel investor) or indirectly in a portfolio of startups (e.g. investing in a venture capital (VC) fund). In the world of VC, two types of funds are impact-oriented:

1. *For-profit impact investment funds*, including impact VC funds, measure their performance on both financial and social metrics. Funds that are formally defined as impact funds are required to report on impact metrics to their investors. Some VCs brand themselves as impact-oriented but do not have this formal requirement, which makes them more likely to forgo impact in favor of profit.
2. *Nonprofit impact investment funds* offer a potentially promising twist on the traditional VC. Instead of maximizing returns to investors, these funds have the flexibility to use capital for greater impact. For instance, they might invest in startups that don't meet VCs' standards of financial return, or they might reinvest some profits back into new startups instead of paying out to their investors. [Clean Energy Trust](#), [Prime Impact Fund](#), and [VertueLab](#) are three such funds that focus on climate technologies. We discuss potential advantages of these funds further in section 4.2.

² Various financial regulations do allow unaccredited retail investors to invest in private equity in other ways. For instance, an individual can open an account in a donor-advised fund (DAF) that allows the individual some input over where the fund invests. Some startups choose to undergo the onerous SEC disclosure process that allows unaccredited investors to participate in equity raises. We did not seek to examine these financial mechanisms in depth and encourage interested readers to speak to a financial advisor.

3.2 Cash equivalents and fixed-income investments

Retail investors have many opportunities to make lower-risk, lower-return investments that support GHG reductions, such as **fixed-income investments** or **cash equivalents**. Both types of investments promise to pay a fixed return; in some cases, such as savings accounts, the bank *must* be able to return the full amount invested. Because of this, these investments tend to fund projects that are very likely to succeed. They are often offered by well-established financial institutions with a long history of successful repayment to their investors. To serve as "insurance" against loss and meet promised returns, these institutions also tend to have real assets, of their own or of their borrowers', to serve as collateral that is drawn from if any given loan fails. We consider these two classes together because we found that they are quite similar with regards to climate impact. They often lend to the same types of projects and in some cases are offered by the same financial institutions.

Note that fixed-income investments still carry risk. Issuers may default or redeem a bond prior to maturity, among other risks and interactions with the broader market.

We found five common categories across these two asset classes.

3.2.1 Banks

Banks, including traditional banks, credit unions, and CDFIs, use the money in savings accounts to provide loans. Banks continue to finance fossil fuel infrastructure and other carbon-intensive activities: globally, the sixty largest collectively financed [\\$2.8 trillion](#) in fossil fuel companies between 2016 and 2020, and only [45% of banks](#) taking any action to align their investments with the goal of limiting warming to well below 2°C. Some advocate for removing money from [banks that finance fossil fuels](#).

We choose to focus here on a different approach: choosing to bank with an institution that proactively makes climate-related loans enables the institution to make more such loans. However, we found few options that were climate-specific. A few notable examples, though note that only the first is climate-specific:

- The [Clean Energy Credit Union](#) makes loans to clean energy projects, such as renewable energy installations or energy efficiency improvements. As a credit union, it must have a defined membership: it is open to members of certain clean energy groups, though one can become a member of one such group with a \$10 online membership fee. Like other credit unions, it is federally insured by the National Credit Union Administration.
- [Beneficial State Bank](#) prioritizes lending to renewable energy projects, among other social impact goals, and does not fund fossil fuel production. They also endorse ballot measures, such as the Washington State 100% clean electricity bill passed in 2019.

[Amalgamated Bank](#) was the first American bank to divest from carbon risks in its lending and investments. 24% of its loans fund climate mitigation or adaptation work. (They also offer equity funds to institutional investors, which file shareholder proposals requesting net-zero reporting. For more on shareholder proposals, see [our work on ESG](#).)

3.2.2 Community development financial institutions

Community development financial institutions (CDFIs) are financial institutions (including banks, credit unions, loan funds, or venture capital funds) certified by the federal government to primarily serve a community that is low-income or otherwise lacks access to traditional financing. CDFIs can issue **notes** to investors, then lend the money raised to borrowers in their communities. Many of the CDFIs we found have never lost investor money. Below we provide examples of CDFIs that have a history of funding climate-related projects, though unfortunately, none allow for unaccredited investors to earmark funds for climate.

- [BlueHub Capital](#) invests nationwide in projects to improve housing, education, healthcare, and economic and racial equity. Their fund BlueHub Energy finances energy efficiency and renewable energy projects, primarily in the affordable housing and nonprofit sectors. They claim that their investments provide end users with \$12MM in savings over the panels' lifetimes and reduce carbon dioxide emissions by 3,652 tons per year.
- [Reinvestment Fund](#) is a CDFI primarily serving Philadelphia. They are a large fund with a broad mandate; the climate-related subset of their work includes managing several Pennsylvania state funds that finance energy efficiency and renewable energy projects. They claim that the combination of traditional energy conserved and clean energy generated from their investments is over 1 million MMBTUs, or enough to power 5,115 homes for a year. Investors can choose from Promissory Notes ranging from 1.00% return for a three to four year term to 2.50% return for a fifteen year term.
- [CNote](#) is a platform that aggregates investments from retail investors and distributes them across multiple CDFI partners. Not all CDFIs take direct retail investments, and for those that do, the process can be complicated. CNote is also able to offer more liquidity than a typical CDFI investment. They worked [with the Sierra Club](#) to build local relationships to environmental organizing. CNote's Flagship Fund, available to unaccredited investors, offers a 2.00% return and quarterly liquidity³, with no minimum investment requirement.

3.2.3 Social impact funds

Notes offered by general impact funds. Some impact funds offer investment products to the public. Most commonly, we found these in the form of low-return fixed-income notes. Most offerings available to the unaccredited retail investor are not climate-specific.

- [RSF Social Finance](#) offers the Social Investment Fund Note. While RSF makes loans outside of climate, they emphasize climate as an impact area. The Note has a minimum investment of \$1000, a 90-day term, and a 0.25% interest rate. Donors can also open a [donor advised fund \(DAF\)](#), which is invested in a portfolio "focused on climate change solutions and social justice" until grants are made.
- [Calvert Impact Capital](#) has offered the Community Investment Note since 1995. While Calvert does not exclusively loan to climate-oriented projects, they highlight it as a major part of their impact. As of this writing, they are actively developing a product focused on climate. Current offerings range from a 0.40% return on a 1 year term to a 2.50% return on a 10 year term, and the minimum investment is \$20.

³ Quarterly liquidity simply means that an investor can withdraw their funds once a quarter.

3.2.4 Green bonds

Green bonds are bonds earmarked by the issuer for climate or environmental projects. The green bond market has grown substantially, with a 60% average annual growth from 2015 to 2020 and a record [269.5 billion dollars](#) issued in 2020. Bonds can be bought through brokerage firms or directly from the issuer.

While green bonds are self-labeled, several voluntary standards exist. The International Capital Market Association, a worldwide network of securities traders, publishes the [Green Bond Principles](#); the [Climate Bonds Initiative](#) maintains a database of those that meet stricter climate-specific requirements. Some, but not all, green bond issuers seek a Second Party Opinion (SPO) to validate their claimed benefits. To illustrate the wide variety in the space, we provide a few examples below.

- The largest Coca-Cola bottler issued a [US\\$705MM bond](#) to finance sustainability initiatives, including climate risk mitigation, water use efficiency, and waste management.
- The World Bank issues [green bonds](#) to support its lending to climate mitigation and adaptation projects. It has issued \$16B in such bonds since 2008, mostly to institutional investors, but occasionally to [retail investors](#).
- Many municipalities offer their own green bonds. They offer the [advantages](#) of most municipal bonds, such as tax-exempt income and the backing of the municipality's credit.

3.2.5 Notes offered under Reg CF

We discussed **Reg CF** in section 3.1 as a way for unaccredited investors to make equity investments. Some institutions, from early-stage to mature, use Reg CF to instead offer fixed-income notes. As examples:

- Lumen Energy is a startup seeking to make it easy for owners of small buildings to convert to solar by using proprietary artificial intelligence to optimize financing terms, covering the cost of installation, and handling the installation process. Lumen Energy may offer [Solar Refinance Notes](#) through Reg CF platform Raise Green. These notes would offer an expected 5.49% to 5.99% annual interest rate over a 6 year term, on a minimum investment of \$500.
- The National Energy Improvement Fund (NEIF) is a financial institution with a \$22MM portfolio. It offered [Climate Action Investment Notes](#) via Reg CF platform Raise Green. NEIF provides financing for energy and resilience improvements. Their typical project reduces a building's energy use by 5-15%. NEIF's notes offered a 5% return over 5 years on a minimum investment of \$1000.

Note for accredited investors: Unsurprisingly, accredited investors have many more options available in this asset class as well. For example, [SunFunder](#) finances solar companies in Africa; [Bright Community Capital](#) finances clean energy projects with a focus on affordable housing and municipal buildings; the [Forest Resilience Bond](#) provides up-front capital to reforestation projects. In addition, some of the above organizations allow larger accredited investors to earmark their funds for climate. For instance, Reinvestment Fund will consider investors committing over \$1 million to support specific programs in their portfolio, and CNote is able to build customized portfolios targeted to climate change with institutional investors.

3.3 Donating to nonprofit financial institutions

Some of the institutions mentioned in sections 3.1 and 3.2 are 501(c)(3) nonprofits that also take philanthropic donations. We review some below.

Note that Giving Green has not analyzed the impact or cost-effectiveness of these donations. Our current belief is that philanthropic donations are more effective when given to [policy change organizations](#).

Nonprofit venture funds: By supporting the work of nonprofit venture funds, a donor indirectly supports promising startups that are not otherwise open to the involvement of unaccredited investors. From an impact perspective, this may be compelling because (a) the startups are hand-selected by professionals, and (b) supporting many early-stage startups is a way to “hedge your impact bets” against any single one failing. In addition, these funds may support the development of the industry, such as Prime Coalition’s work in developing impact measurement tools.

For example, the [Clean Energy Trust](#), [Prime Coalition](#), and [VertueLab](#), three nonprofit venture funds focused on clean technologies, all take donations to support their work.

CDFIs and other mission-driven banks or credit unions: Donations can serve as collateral for these institutions: i.e., if a bank loans to a borrower who fails to pay back the expected amount, the donations can be used to pay back the bank’s investors or account holders. This enables the bank to take on a riskier or lower-return project. For instance, a mission-driven bank might work with a low-income client that does not have assets themselves to provide collateral, or implement an unproven but promising financing model. Collateral also increases the ability of the bank to attract larger institutional investments.

For example, the Clean Energy Credit Union claims that each \$1 donated enables it to raise [\\$14 in additional investments](#). Both donations and investments are used to offer clean energy loans.

[4] How to select high-impact investments

In section 3, we overviewed some of the many ways impact investors can fund climate-positive projects across asset classes. Some are specific to climate, while others are not; some could transform entire industries, while others only seek to extend tried-and-true emissions reductions. To organize these investments by their potential climate impact, we examine each general class of investments with respect to its:

1. **Causality:** The project must involve some kind of product that reduces atmospheric GHGs. Either emissions that would have occurred in the absence of the project are avoided, or GHGs are removed from the atmosphere directly.
2. **Additionality:** Additional investment should enable additional impact that was unlikely to occur in the absence of the investment. For instance, if a project would have raised money from institutional investors in the absence of retail investment, the retail investment is likely not additional.

There are infinitely many ways to tackle the climate crisis, so we will not assess the GHG impact of specific kinds of projects (e.g. predicting the carbon impact of energy retrofits). Instead, we attempt to lay out a

broad theory of change that can be applied to most projects, and comment on how this might apply to an asset class in general.

4.1 Causality: Assessing a project's potential to reduce GHGs

We refer to a report published by Prime Coalition, a nonprofit climate tech venture fund, and NYSERDA, New York State's energy innovation agency, on [measuring the climate impact of early-stage startups](#). The report suggests a framework for measuring types of GHG impact. Because our focus is broader than startups alone, we suggest a modified framework. A project may impact GHGs by:

1. **Reducing the emissions of an incumbent high-GHG product.** For instance, retrofitting an older house to be more energy-efficient on a fossil-fuel-powered grid. The house then uses less energy, thereby avoiding emissions.
2. **Replacing some use of a high-GHG product with a low-GHG product.** For instance, installing solar panels on the roof of a building displaces the building's use of fossil energy, thereby avoiding emissions.
3. **Removing GHGs from the atmosphere.** For instance, scaling restoration efforts to draw down atmospheric carbon dioxide.

Note that "low-GHG" and "high-GHG" are necessarily fuzzy definitions. A given firm or project can have multiple types of impact.

Figures 1a and 1b on the following page detail the pathways to GHG reduction for a new GHG-reducing or GHG-removing project, respectively, with the three main categories of impact shown in the orange ovals.

In order to have an impact, a firm must succeed at implementing the climate project in question, whether it be commercializing a new technology or installing solar panels. *In general*, **alternative investments** are high-risk and less likely to succeed, whereas **fixed-income investments** are low-risk and more likely to succeed.

We will not attempt to predict the likelihood of success, either in generating financial returns or reducing greenhouse gases, of any investment opportunity. Dedicated professionals disagree on the viability of any given project. Indeed, Prime and NYSERDA specifically avoid this question in their report on impact assessment. They explicitly focus on estimating impact given standard industry assumptions around adoption, and not whether or not a given startup might be able to achieve those standard metrics.

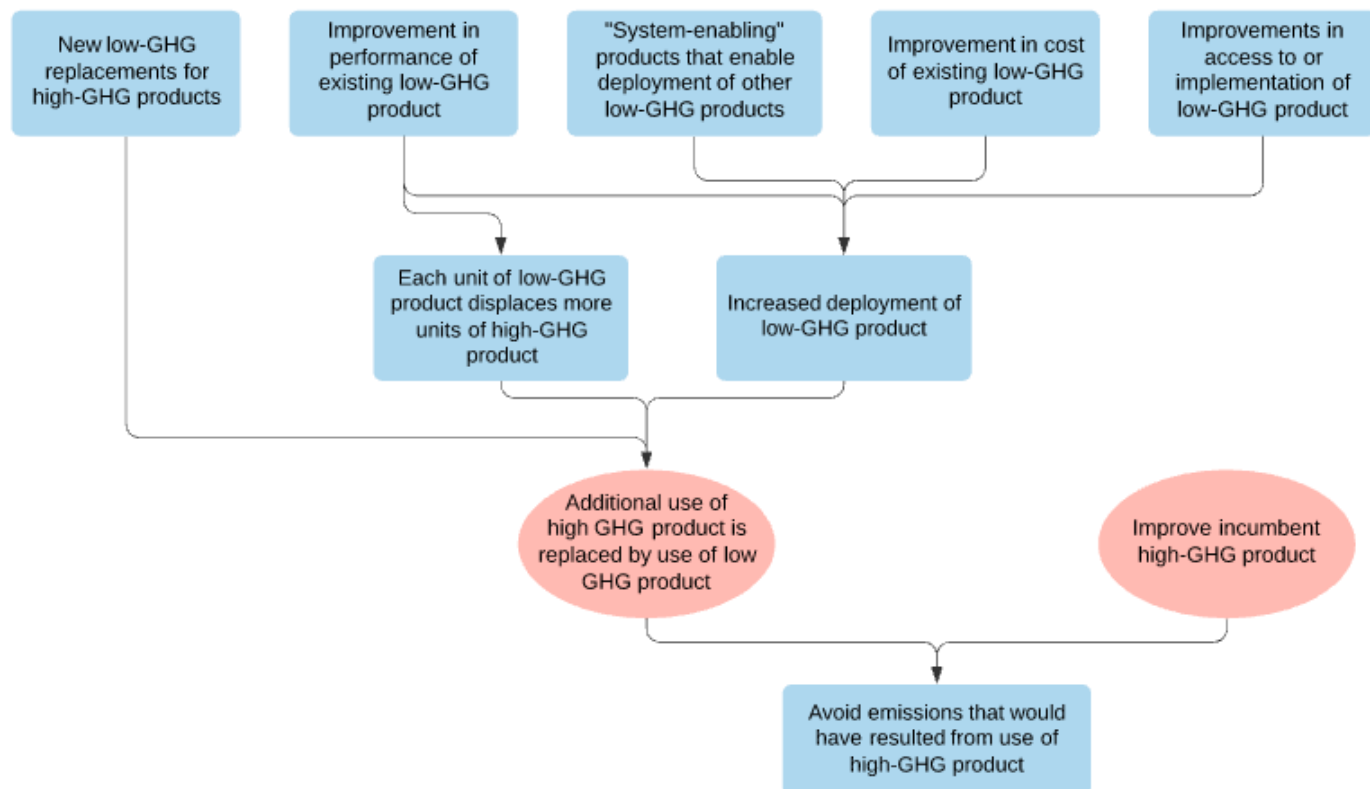


Figure 1a. Theory of change for GHG reduction projects

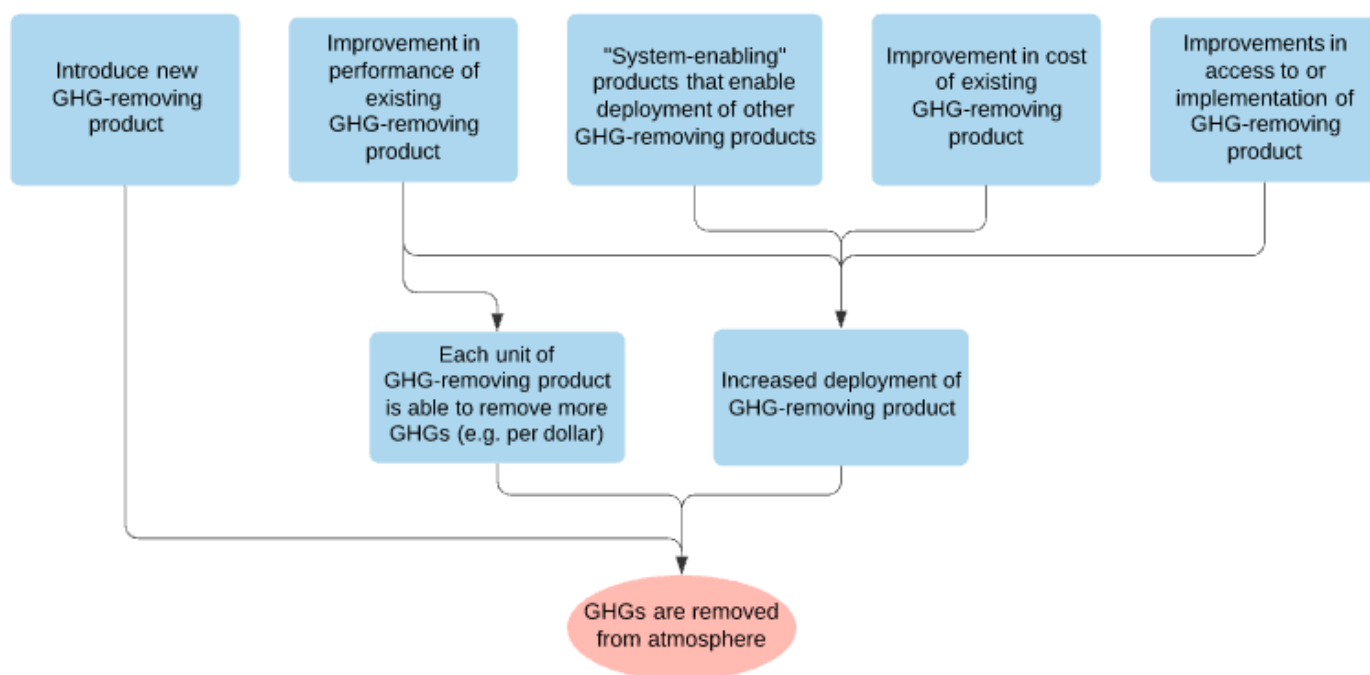


Figure 1b. Theory of change for GHG removal projects

Flowcharts adapted from the impact measurement methodology proposed by [Prime Coalition and NYSERDA](#).

Even if we assume that a product is adopted or a project is successfully implemented, it may not have actually reduced GHG emissions. For instance, successful projects may suffer from the following:

- *Rebound effects*, or “[increases in emissions](#) from the introduction of a higher performing technology because of unexpected behavioral or system responses”. For instance, energy efficiency improvements may, by lowering the cost of energy, cause households to use more energy, negating their GHG benefits.
- *Cannibalizing* from other low-GHG products rather than replacing high-GHG products. For instance, if many people switch from a Ford electric vehicle to a Tesla electric vehicle, the increase in Tesla sales does not translate to an overall decrease in emissions.
- *Counterfactual trends* in emissions. Regardless of the introduction of a certain product, emissions would have decreased anyway. For instance, a fund for homeowners to access rooftop solar, from a GHG perspective, is redundant if the local grid switches to renewables.

These risks are difficult if not impossible to accurately measure, especially at the investment stage. Prime and NYSERDA recommend making conservative estimates and adjusting projected impacts downwards to account for such risks.

In our research, we observed that offerings within an asset class often shared characteristics. Early-stage startups pursue all kinds of climate impact via any of the pathways we describe above. Because they have little history on which to base an impact estimate, an investor may need to rely on other signals, such as affiliations with reliable institutions, or on technical calculations of projected impact, which themselves rely on many assumptions. Fixed-income and cash equivalent investments, on the other hand, generally are offered by well-established institutions implementing a well-understood technology or service. The potential for impact is smaller, but more certain; many impact funds offer their own estimates of GHG reduction per dollar invested. For example, many loan funds finance the retrofitting of buildings to be more energy-efficient or use mature renewable energy technologies. They can estimate the GHG impact of a loan based on historical data from prior borrowers, including the cost and energy saved.

We outline these patterns in more detail in **Table 1** on the following page.

Investment tool	Type of impact	Identifying high-impact offerings
Early-stage private equity investments	These investments vary widely and may be pursuing any type of impact.	Because of a high risk of failure, it is common to consider such investments only if the potential for (climate) upside is high. We refer potential investors again to Prime and NYSERDA's report, where they propose "down selection" criteria to screen for startups with a high potential for impact: 1. <i>Affiliation with climate-focused institutions</i> that vet members by climate impact, such as ARPA-E, NYSERDA, MassCEC, Prime Impact Fund, or Breakthrough Energy Ventures. The latter two are funds that only accept startups with the potential to remove 1-2% of global emissions. 2. <i>Focus on a high-impact solution</i>, such as one identified by Prime Coalition, Breakthrough Energy, or Project Drawdown. 3. <i>The company's own impact estimates</i> can also provide insight, though they should be viewed with some skepticism. For the technically inclined, the report also lays out a methodology for estimating the GHG reductions a product would cause, using metrics defined in the Global Impact Investing Network's IRIS database. In addition, Prime developed its own open-source impact estimation tool, and Breakthrough Energy and the CDP are developing a similar framework.
Fixed-income investments and cash equivalents	More likely to be: 1. Improving existing low- or high-GHG products, not introducing new products. 2. Working in GHG reductions rather than GHG removals, as the removals industry is much less mature.	These investments promise a fixed return to the investor. Therefore, they are generally low-risk projects that rely on well-proven technologies and methods, and financiers often believe the project will result in a profit or cost savings that can be passed on to the investor. We found energy-related retrofits to be the most common type of project funded, by both climate-specific funders and general funders. The impacts of these projects are relatively small—they are changing one actor in a system, not the system as a whole. Their advantage is in their predictability. Impact is more likely to be driven by additionality, discussed in section 4.2.

4.2 Additionality: did my investment make a difference?

Additionality asks the question: for a successful, impactful project, what is my investment's marginal contribution? Would the project have succeeded in creating the same impact had I not chosen to invest my own money in it?

While it is not possible to measure the precise impact of one investment, we offer rules of thumb for identifying investments with high additionality:

1. Is the market neglected by traditional investors? If so, retail investors can fill a gap in the market and enable projects that would not otherwise have been able to find funding. This is more likely to be true if...

- a. **The market is a less mature or developing financial market.** In some developing countries with weak financial institutions, firms are more likely to be [restricted in their growth](#) due to the lack of financing available to them. Retail investors providing financing on favorable terms may therefore directly enable the firm to grow.
- b. **For a startup, the market generally does not see returns high enough to attract VC funding.** VertueLab, a nonprofit VC that invests in climate tech, uses a "[nonprofit additionality test](#)" as part of their investment criteria. They only invest in companies that conventional investors avoid.

Historically, high returns are more common in software, where little up-front capital cost is needed and the potential for growth is high. Many climate tech startups, on the other hand, are physical products that require millions in financing for R&D and manufacturing costs. It is worth noting, however, that investment in climate tech from traditional investors has [drastically increased](#). Big investors, like Blackrock's CEO Larry Fink and Breakthrough Energy's Bill Gates, are [expecting climate tech](#) to provide massive returns. The conventional narrative on climate tech as a less profitable sector that cannot attract funding may be less and less true today. Still, the climate tech space itself is broad and specific technologies may still be neglected. Investors like [Prime Coalition and Breakthrough Energy](#) have published their own lists of technologies they believe are priorities for further funding.

2. Is the firm or project itself unable to access traditional sources of capital on terms that enable it to move forward? Institutional investors may reject firms for reasons unrelated to the project's objective potential for success. If so, retail investors can provide capital so that these firms can move forward. In the best case scenario, early funding serves as a springboard, enabling the proof-of-concept that allows a firm to attract future institutional funding and expand its impact. This is more likely to be true if...

- a. **The firm is very young.** It is more difficult for a business with no track record to engage institutional investors. This is especially true for firms exploring a novel business model or commercializing a new technology; however, such firms have a high risk of failing entirely, and therefore generating no impact.
- b. **The firm lacks connections to other sources of capital.** Small firms, young firms, and firms with non-wealthy founders are at a disadvantage. One [survey of VCs](#) found that VCs were far more likely to invest in a startup with which they had a pre-existing relationship. These relationships skewed older, white, and male. [Studies](#) from the UK and Israel find that entrepreneurs are likely to come from

educated, wealthy families. Retail investors can provide the financial backing for startups whose founders lack this sort of informal access to money.

- c. **The project is not large enough to attract traditional investors.** The co-founder of Raise Green [recounts](#) an investor telling him “I don’t get out of bed for anything less than a million dollars,” and points to crowdfunded investments as filling the gap for local solar projects.
- d. **The project does not have favorable enough terms to attract traditional investors.** In these cases, retail investors offer “concessionary terms”, e.g. accepting below-market-rate returns. The CFO of energy efficiency startup Blocpower [explains](#) that Reg CF funding, by providing a lower cost of capital and more flexible terms, allowed Blocpower to retrofit twenty additional homes and expand into new geographies.

3. Can the firm expand its work if given additional investment (marginal additionality)? If above the minimum required to move a project forward, what will an additional investment enable? Investors may be able to request that a firm provide details on the use of funds. Marginal additionality is more likely to be high if...

- a. **The project involves a modular, easily repeatable element.** For instance, a loan fund financing energy retrofits can lend to more borrowers under the same program.
- b. **The firm has a clear use case for additional investment, such as entering a new geography.** For instance, the loan fund mentioned above might open a new office in a new city.
- c. **Excess funding in the present enables the firm to secure future funding.** This is difficult to gauge, but in some cases, seeing that a firm is in-demand for small investors and has leeway in its budget may help it attract larger investors. This is more likely to be the case for smaller programs or firms who do not already have significant institutional funding. For instance, two platforms for solar financing, [Mosaic](#) and [Wunder Capital](#), started as crowdfunding platforms. Now, both work only with [institutional](#) investors. While we can’t be sure, it is plausible that crowdfunding enabled a proof-of-concept for both firms. Their success then unlocked institutional money to scale the model for greater impact.

4.3 Co-benefits

Few investment opportunities describe themselves as purely seeking climate impact, as more firms and investors recognize the need to intertwine the fight for a livable climate with other issues of equity and justice. We highlight examples here of opportunities in each asset class that target significant co-benefits:

Early-stage private equities: [VertueLab](#), as part of its investment criteria, considers the diversity of the team as well as to whom the benefits of the startup’s product accrue. VertueLab’s prior funds have focused on economic development in its home state of Oregon. (We note that VertueLab is only open to accredited investors at this time.)

Fixed-income and cash equivalents: Because CDFIs are intended to serve low-income communities, CDFI investments in particular tend to have strong co-benefits to the immediate stakeholders of the project. Other general impact funds may have similar characteristics.

4.4 Additionality and causality of each investment type

Below, we summarize our thinking on the additionality and causality of each type of investment.

Investment type ↓	Climate impact pathway:				
	Causality: GHG reduction potential	Causality: Likelihood of success	Additionality: Project-level	Additionality: Marginal, after minimum raise is met	Co-benefits
Alternative investments - climate tech startups	Generally medium to high . For the risk to be “worth it”, the startup should have a transformative potential impact.	Generally low . For the risk to be “worth it”, the startup should have a transformative potential impact.	Wide variance . Early stage funding can make or break a startup’s success, but there are many sources for that funding. Higher for startups that face systemic barriers to funding, whether due to their market, team, or size.	Generally low , as an early-stage startup usually has a small team and is planning to raise a given amount. They may not be able to effectively use funds beyond that amount. Higher for a team that can absorb additional funding into expansion, instead of using it to increase salaries.	Generally low . Likely higher for startups with some kind of social impact commitment or mission, rather than general technology commercialization.
Fixed-income - bonds and notes that finance specifically climate-related projects	Generally low to medium . These usually fund a specific project to avoid GHG emissions, but won’t have broader impacts.	Generally high . To promise a fixed return, an institution must believe it will succeed, at least financially.	Generally medium to high . So long as the minimum raise has not been met, more funding is needed to enable the project. Higher for investments on concessionary terms.	Generally medium , as the firm tends to be larger with defined programs and processes that can be replicated. Higher if the climate-related project is modular and can easily expand, or if the money will be directed to another climate-related project.	Wide variance . On one end, large corporate bonds are likely to have no co-benefits; on the other, funds like NEIF finance specific projects with clear co-benefits.
Fixed-income - notes issued by CDFIs that fund climate among other projects	Generally low , if an investor cannot earmark funds for a climate-specific project.	Generally high . To promise a fixed return, an institution must believe it will succeed, at least financially.	Generally low . Account holders do not direct funds to specific projects.	Generally medium . Account holders do not direct funds to specific projects, but typical uses we observed were small loans, which are highly modular.	Generally high . CDFIs exist to serve their communities first and foremost.
Cash equivalents - money held in banks that make climate-related investments	Generally low . Look for banks that have climate-related investments as a large part of their portfolio and report on those investments.	Generally high . To promise a fixed return, an institution must believe it will succeed, at least financially.	Generally low . Account holders do not direct funds to specific projects.	Generally medium . Account holders do not direct funds to specific projects, but typical uses we observed were small loans, which are highly modular.	Generally medium to high . We observed that most banks making climate-related loans also worked in other areas of social impact.

[5] Conclusions

Overall, we were glad to learn that there are many opportunities, even for the retail investor, to invest in climate impact. Across asset classes, we observed a general pattern. Investing in climate impact through the development of new products is high-risk, but in some cases, can be very impactful if successful. These investments are often offered as equity in startup companies, where the investor shares in either the losses or the significant gains. However, this is difficult territory for the retail investor. Making investments in specific companies requires a high degree of sophistication and due diligence, and we have yet to find a professionally managed fund, with a portfolio of climate investments chosen by experts, that accepts unaccredited retail investment.

On the other hand, investing in climate impact through well-proven technologies and methods is usually low-risk, and fixed-income financing tools are appropriate. We found a much wider array of fixed-income instruments available to the retail investor, from notes, to bonds, to even savings accounts. But while many of these opportunities are offered by well-established financial institutions, few are specifically oriented towards climate impact.

Based on these findings, **it does not appear to be as impactful for retail investors to make investments that fund individual projects or firms, e.g. private equities or most green bonds.** Choosing individual investments takes a lot of sophistication and entails too much risk, both in assessing appropriate financial returns and in predicting climate impact. Additional research in the future may include information on professionally managed funds that work with unaccredited investors, if we are able to find any.

More options exist for providing philanthropic support to climate investors, since many impact investing institutions gladly accept donations. However, one must consider that philanthropic money could be diverted to many other impactful organizations. We are not sure, but we think it is likely that donating to a policy organization may be more impactful than donating to a financial institution.

Moving money to a bank that specializes in renewable energy loans may be a low-cost, low-risk way to deploy more capital to existing climate solutions. The one example we have found is the Clean Energy Credit Union. This appears to be a promising area for more rigorous assessment in the future.

We see this work as introductory and hope to expand it further. We welcome feedback from readers at givinggreen@idinsight.org.

[6] Additional resources

- The US SIF offers [starting guides for both retail and institutional investors on socially responsible investing](#).
- Networks for impact investors include: [American Sustainable Business Council / Social Venture Circle](#), [GIIN's Climate Investing Track](#), and the [Impact Management Project](#).
- Frameworks for understanding and assessing impact include: [Norms from the Impact Management Project](#), the [emissions reduction potential methodology](#) published by Prime Coalition and NYSERDA, and the [COMPASS methodology](#) published by the GIIN.
- Beginner's guides to Reg CF can be found on [The Climate Abacus](#) and [SustainFi](#). We thank Franco Chingcuanco of The Climate Abacus for first exploring the Reg CF space with us.
- Opportunity Finance Network maintains a [database of its member CDFIs](#). The federal government maintains a [list of federally certified CDFIs](#).