



Climate Finance Strategy 2018-2023

Foreword

In 2017 The Hewlett Foundation’s board renewed its third consecutive five-year commitment to our Climate Initiative, which first launched in 2008.¹ Broadly speaking, the third iteration of the Climate Initiative Strategy differs from previous versions in one significant way—the need for deep decarbonization by 2050. We recognized that the dramatic emissions reductions required would not be possible without a shift in thinking, including ours. This meant going beyond near-term, incremental efforts to reduce emissions and moving towards imagining what energy and economic systems would need to look like in 2050 to achieve the foundation’s goal of limiting warming to well below 2°C. This 2050 lens provides an important frame as the foundation both integrates work across sectors and rebalances our portfolio to focus on longer-term institutional, structural and systems changes.

Our 2018-2023 Climate Initiative Strategy commits \$600 million for grantmaking across four key geographies (the United States, China, India and Europe) along with five sectors including: Electricity; Transportation and Cities; Industry; **FINANCE/INVESTMENT**; and Technology, Innovation and R&D. Guiding this work across the foundation are five strategic imperatives which cross-cut these geographies and sectors. These are to reduce fossil fuels, work on energy systems, integrate across sectors, store carbon in the land, and promote innovation.

This report is focused entirely on the **FINANCE/INVESTMENT** component of our comprehensive Climate Initiative Strategy. Here, we outline the specific actions that we are undertaking to mobilize the significant increase in private capital necessary to fund climate-friendly investments to preserve and protect the environment and meet global climate goals.

¹ “Climate Initiative Strategy 2018-2023,” Hewlett Foundation (2017). <https://hewlett.org/wp-content/uploads/2018/01/Hewlett-Foundation-Climate-Initiative-Strategy-2018-2023.pdf>

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I. Introduction

From rising sea levels, increasingly violent and more frequent storms, to droughts, lower crop yields and economic losses—the effects of the changing climate are upon us. While forecasts for our planet’s near and distant future become increasingly dire, we see tangible evidence of the damage happening faster than what was once predicted. Accordingly, the Hewlett Foundation views climate change as the defining challenge of our time, one that touches on every aspect of our philanthropy. To safeguard human health and the environment, we broadly support work to ensure that energy sources are clean and efficient, and that global average temperature rise is kept well below the 2°C threshold.

Limiting global temperature rise to well below 2°C requires cutting global greenhouse gas (GHG) emissions 60% or more by 2050. *Emissions reduction of that scale are needed to avert unprecedented human suffering, widespread extinction, and ecological and economic system collapse. This will entail a massive remaking of the global economy—from how we transport goods and people, to how we use land, organize our communities, and power our lives.*

The Hewlett Foundation has been actively working to reduce GHG emissions for more than a decade. Our grants have focused on cleaning up electric power production, using less oil, using energy more efficiently, preserving forests, addressing non-CO₂ greenhouse gases, and financing climate-friendly investments. Thus far, our grantmaking has mainly targeted countries and regions with high GHG emissions, such as Europe, the United States, China and India. To accelerate decarbonization of the global economy, the foundation is placing a special emphasis on the financial sector and mobilizing capital for climate-friendly investments in 2018-2023.

DEFINING CLIMATE-FRIENDLY

For the purpose of this report we use “climate-friendly” as an umbrella term for all climate and clean energy activities aimed at achieving our charitable goals of accelerating the deep decarbonization of the global economy. Examples of this could include capital investments in low-carbon energy infrastructure and systems, or a redirection of finance from high- to low-carbon activities. A key component includes identifying ways to lower the cost and risk of investment, along with supporting innovations to address investor requirements for clean energy and climate-aligned projects. Note that for our purposes in this strategy, climate-friendly investments, activities, technologies, etc., are focused on **mitigation** solutions only.

Finance for climate is flowing at a greater pace than ever before, but it is not flowing fast enough to limit warming to well below 2°C. This paper outlines the Hewlett Foundation’s strategy to drive climate-friendly investments for 2018-2023. In this period, we will spend approximately \$75 million to catalyze capital for climate-friendly activities across three of the broader Climate Strategy’s four key geographies (China, the United States, Europe). This paper provides a background for our rationale, the approach to climate-friendly investment grantmaking we intend to take; and gives examples of the types of activities and projects we seek to fund. The activities and sectors mentioned are not intended to be exhaustive.

This strategy is the result of over 18 months of research and input-gathering from Hewlett Foundation partners and field leaders. Dozens of global experts and stakeholders from the financial services sector, civil society, and government were consulted in identifying the barriers to mobilizing private capital and devising potential solutions. This report also underwent many rounds of internal and external peer review—and was adjusted according to feedback.

PUBLIC FINANCING

We recognize that accelerating public financing for climate-friendly activities via government entities is of vital importance. However, addressing all pools of capital in this strategy would exceed our limited bandwidth and capital. Instead we chose to focus on commercial capital, which is a strategic move to concentrate on what we see as critical gaps. Moreover, we are not as focused on tax-payer funded financing, but we do include cooperative, deposit-based models (such as the credit union model in the United States) and financial technology solutions in this strategy. Similarly, we also include ‘state-owned’ capital that tends to behave in a commercial manner (such as retail banks in China). Finally, while the foundation is not focusing on public policy in this strategy, we know that some aspects of our approach will be affected by policy and regulation. We further recognize that there is a significant role for policymakers to play in tackling some of the barriers that the market has yet to adequately address without support. Policy initiatives, such as tax incentives for low carbon investment or guidance on the issuance of municipal green bonds are just two examples of ways policymakers can aid the acceleration of market-driven processes. To that end, the Hewlett Environment Program, distinct from this finance strategy, will likely continue to invest in and partner with organizations working to advance policies that promote climate-friendly finance solutions.

Most studies show that global spending on climate change solutions must be tripled to meet the “well below 2° Celsius” warming target. This will take investments from both the public and private sector to create lasting change. In this strategy, the foundation decided to focus primarily on mobilizing private finance, while acknowledging that activating public sector investments is an integral piece to solving climate change.

In keeping with the 2050 lens of the foundation’s broader strategy, we began by thinking about the barriers to activating more long-term capital for climate-friendly investments and how to accelerate climate-friendly investing. Our approach is designed to address investment barriers that hamper financing individual projects all the way to a portfolio of investments. We do so by awarding grants for key actions designed to (1) instigate both immediate and long-term impacts on stimulating finance for climate change mitigating activities and (2) demonstrate the efficacy of such approaches to solving climate change. The approach will be tailored to each target region’s specific needs and barriers to

CONSUMERS, INDIVIDUALS AND CONSTITUENTS

This strategy aims to highlight the voices of investors and consumers as drivers of global change. We believe that solving climate change will require bringing people and their needs to the forefront of global discussions. The financial community typically refers to people as consumers, whereas policymakers refer to people as constituents, and the general public refers to people as individuals. In this report, as we focus on activating investors at all levels of the financial system, we use the term “consumers” to refer to people.

sustainable finance. We see this as a significant opportunity for the foundation to mobilize additional capital and broaden the focus of climate finance philanthropy to reach underrepresented levers and constituencies. In order to meet the challenge of climate change we must have all voices heard. Therefore, the foundation is committed to expanding the ecosystem and promoting opportunities for women (globally) along with people of color (in the United States) to deliver solutions that mobilize capital for climate-friendly investments.

The Hewlett Foundation is keen to catalyze the ambition to act on climate change and help raise the large amount of capital needed to deliver a decarbonized global economy. We are encouraged by the vibrant and growing markets for renewable energy, green buildings, electric vehicles and climate smart agricultural technologies seen around the world. Similarly, we see positive shifts taking place in financial circles—as investors recognize to a greater degree where and how climate change presents risks to their existing investments and the need to adjust portfolios away from carbon-intensive activities. We see our role as a philanthropy and as leaders in this space to set ambitious goals and catalyze action. Just as a ship’s captain summons the entire crew to help in a time of crisis by calling, “all hands on deck!” we see the climate crisis as one so significant we must call “all hands on deck”—and engage with investors at all levels—from the largest institutional asset owners down to the people whose collective deposits represent untapped potential for financing climate change mitigation.

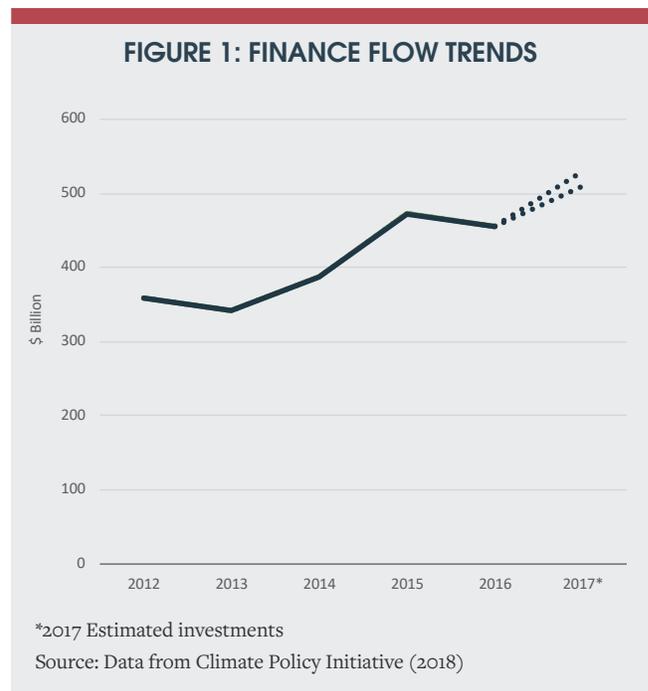
Our theory of change is simple, *from consumers to corporate financial institutions, we seek to activate climate solutions through innovative finance and the systemic decarbonization of capital.*

II. The Problem

A significant capital investment is required to build, deploy, and scale the global solutions needed to solve climate change and mitigate its effects. Numerous studies over the past decade have sought to estimate these costs. Most recently, in 2018, the Intergovernmental Panel on Climate Change (IPCC) released a special report on the impacts of global warming where they estimate annual investment needs of \$1.6 to \$3.8 trillion for energy systems between now and mid-century to keep warming on a roughly well-below 2°C pathway.²

As depicted in **FIGURE 1**, actual investment flows into climate-friendly technologies and solutions are steadily increasing but are estimated to be at most \$510 to \$530 billion for 2017.³ *Therefore, the current level of investment must be tripled to reach the amounts required by even the most optimistic models.*

While an increasing number of investors are already recognizing the relevance of climate risks to long-term portfolio performance and have started incorporating these factors into decision making, many are not. Entrenched beliefs, thinking, and processes associated with traditional methods of investment decision-making hamper action. For some investment professionals, false perceptions and even cynicism about investing in climate-friendly projects or technologies are common. For others, a lack of data or tools makes it too challenging to apply the consideration of the impacts and risks associated with climate change to their portfolio.



Barriers

Through interviews, research and analysis, we have identified eight key barriers that inhibit the expansion of opportunities to access and mobilize finance for climate-friendly activities. The foundation recognizes that there could be additional barriers depending on the target region or market, however the following are what we have selected to target in this strategy. These barriers are listed in **FIGURE 2** along a continuum indicating a barrier’s relative impact to a single project or portfolio of investments. The closer a barrier is to the poles, the greater its impact on either the single project or portfolio level.

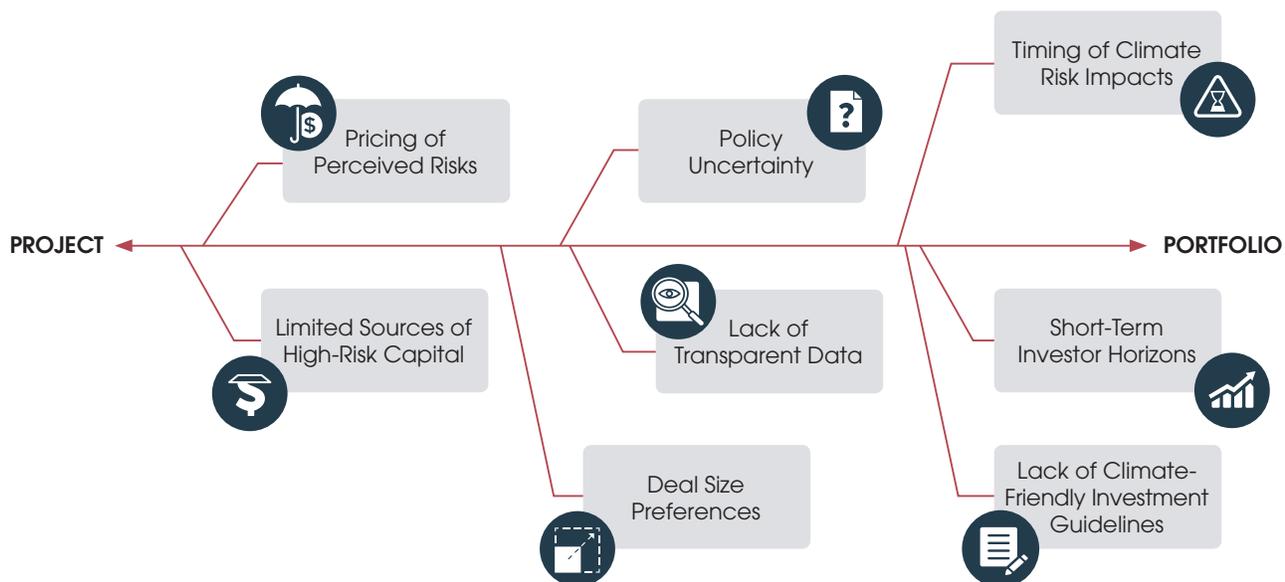
2 “Special Report: Global Warming of 1.5 C,” Intergovernmental Panel on Climate Change (2018), 154. <https://www.ipcc.ch/sr15/>; Note that IPCC cites 2010 adjusted USD in its estimates and calls for energy system supply-side investments (ex: resource extraction, power generation, fuel conversion, pipelines/transmission, and energy storage). The IPCC notes that the amount required for investment could shift up or down depending on the level of investment in energy efficiency solutions and/or policies targeting limiting energy demand.

3 “Global Climate Finance: An Updated View 2018,” Climate Policy Initiative (2018). www.Climatefinancelandscape.org

For example, the pricing of perceived risks is most acutely experienced at the project level: multiple capital providers may view the risk profile of a singular project in very different ways, resulting in wide pricing disparities—all the way to a lack of available capital for the activity (project). On the other hand, the timing of climate risk may not impact a single project’s ability to access financing but will impact an asset owner or manager who is evaluating the risk profile of their investment portfolio investments to determine current and future investment decisions. It is important to note that even though these eight barriers represent distinct issues that affect investments at different levels, they are also interrelated. For example, the timing of climate risk impacts may be one of the causes to a lack of climate-friendly investment guidelines. Similarly, finding solutions to the lack of transparent data may give way to solutions in avoiding policy uncertainty. Therefore, even though they are sequenced along the project-to-portfolio continuum, each barrier does not exist in isolation.

FIGURE 2: BARRIERS TO CLIMATE-FRIENDLY INVESTMENT CAPITAL FLOWS

Please note that the placement of the text (above or below the line) has no special meaning.





Limited Sources of High-Risk Capital: Early-stage investments provide the bridge between the research and development of a technology and scaling up. Typically, Venture Capital (VC) funds fill this gap and are an integral resource for early-stage investments and helping companies scale. Yet VC cleantech investments are heavily skewed towards late-stage projects concentrated around energy efficiency, transportation and smart grid. As such, 87% of VC cleantech investments went to late-stage projects in 2016.⁴



Pricing of Perceived Risks: Risks that apply to climate-friendly investments are often perceived by investors in vastly different ways. This results in a wide variation in pricing and capital availability. For example, energy efficiency projects are universally identified as critical to solving climate change; yet the inability to finance these projects based on the strength of their energy savings has limited their deployment. Investors' opinions, not always data, sometimes lead to an over reliance on the financial strength of the project hosts, which can lead to requiring credit enhancements or complicated structures to satisfy investors' concerns over the durability of energy savings.



Deal Size Preferences: The market for larger, centralized projects with vetted technologies initiated and supported by utilities, governments, corporations and other long-term credit worthy counterparties is well known and quite active. Yet, smaller, distributed projects—including solar photovoltaic, energy efficiency, electric vehicles, and others at the residential, small commercial and industrial sectors often have challenges accessing sufficient levels of long-term capital. This typically occurs because large institutional investors, such as pension funds, traditionally participate in utility-scale deals on a significantly grander scale—where deals are worth \$50 million or more. This preference for large deals means that relatively smaller projects worth \$10,000, \$100,000, or even \$1,000,000 often get left out.



Lack of Transparent Data: A lack of consistent, transparent, and available data that reports the technical performance, energy production, and environmental impact of climate projects and other important factors limits the ability of potential investors to evaluate past performance of similar projects. This often results in higher risk premiums, which increase interest rates and return requirements and simultaneously decreases the number of interested investors. An inability to thoroughly assess projects increases hesitation among investors as they are further unable to evaluate and reduce perceived risk premiums for climate-friendly projects.



Policy Uncertainty: Further dissuading long-term investment in climate-friendly activities is the uncertainty associated with policies around climate change. Governments' shifting and sometimes unclear commitments to climate-related policy or regulations help to fuel investors' unease with entering the sector. It should be noted that even though this barrier is not directly tackled by a specific action in this strategy, other strategic actions will indirectly affect or will be affected by policy uncertainty because of the interrelated nature of the barriers.

⁴ Temple Fennel et al., "CLEAN TECH 3.0: Venture Capital Investing in Early Stage Clean Energy – A Changing Investment Climate," Ceres (2017). <https://www.ceres.org/resources/reports/clean-tech-30-venture-capital-investing-early-stage-clean-energy?report=view>



Timing of Climate Risk Impacts: Many professionals making investment decisions do not view climate change as a significant short-term risk that requires the adjustment of investment and credit considerations. The indefinite timing and magnitude of climate change impacts are often cited as key impediments to investors' ability to consider the financial risks of climate change in near-term decision making and portfolio allocation methods.



Lack of Climate-Friendly Investment Guidelines: There is no unified definition for climate/green/sustainable investments; or for climate finance activities that provide direct funding towards reaching climate goals and reducing GHG emissions. Practically speaking, this means that investors cannot easily compare different investment opportunities labeled 'green' or climate-friendly. For example, securities can only be listed on the Bloomberg Barclays MSCI Green Bond Index if they fall within at least one of six MSCI-defined environmental categories (alternative energy, energy efficiency, pollution prevention and control, sustainable water, green buildings, and climate adaptation). However, general-purpose bonds are also eligible for this index if 90% of the issuer's activities fall within one or more of the eligible MSCI environmental categories.⁵ This could lead to an investor unknowingly financing a bond that runs counter to their interest in sustainability. Similarly, the Vanguard FTSE Social Index, a popular option for U.S. retirement funds—still contains 3% fossil fuel companies despite the negative societal impacts caused by GHG emissions and the positive environment, social, and governance (ESG) screens that Vanguard applies to this product.⁶ These examples illustrate the challenge facing investors who wish to evaluate or compare the environmental impact of two investment products, both of which are labeled positive for environment. Analysis by MIT Sloan's Aggregate Confusion project further quantifies this kind of discrepancy, finding that when comparing companies along ESG criteria: "it is very likely (about 5% to 10% of the firms) that a firm that is [found] in the top 5% for one rating agency belongs in the bottom 20% for the other."⁷



Short-Term Investor Horizons: Many investment decisions are focused on near-term risks and returns. For example, the hold period for investments is typically five to seven years, and therefore investors minimize risks further off into the future. There is also the expectation by many investors for maximum returns over each period they hold an investment. This pressure can lead investment managers to "chase" quarterly returns and not properly or fully analyze risk. This translates to climate-friendly investments with long-term and uncertain impacts typically being discounted during the portfolio development and evaluation process.

5 "Bloomberg Barclays MSCI Global Green Bond Index," MSCI, June 2 2016. https://www.msci.com/documents/10199/242721/Barclays_MSCI_Green_Bond_Index.pdf/6e4d942a-0ce4-4e70-9aff-d7643e1bde96

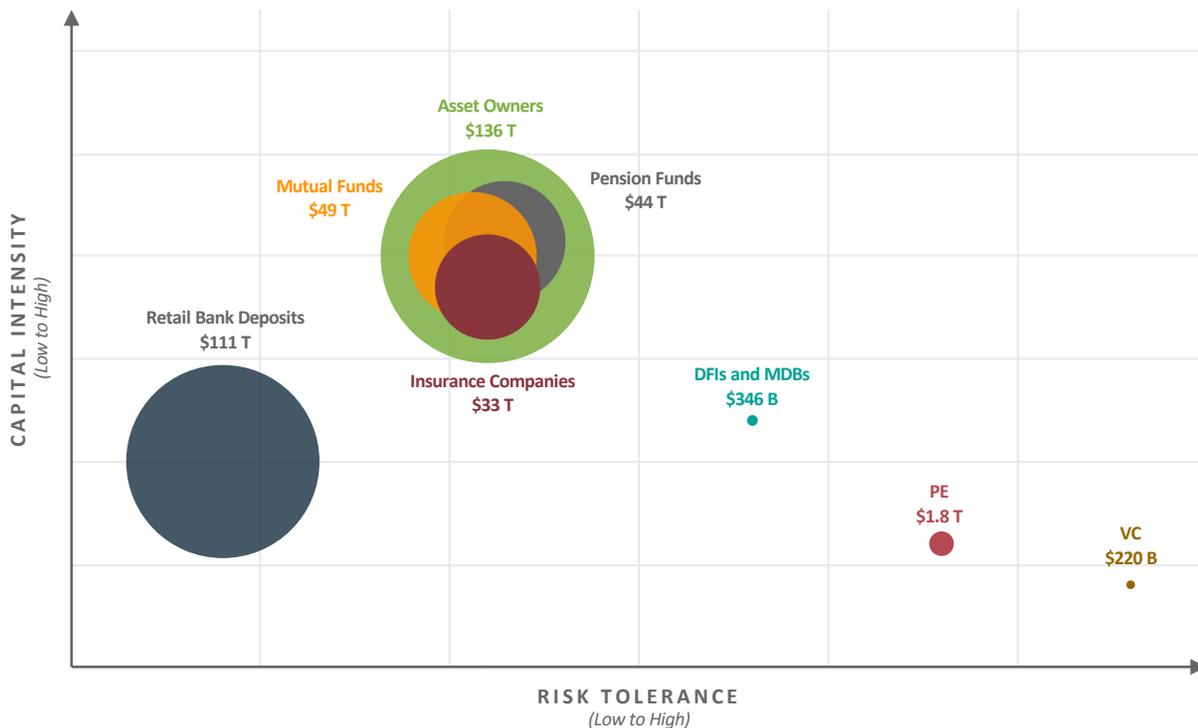
6 "Vanguard FTSE Social Index Fund Investor Shares," Vanguard. <https://investor.vanguard.com/mutual-funds/profile/VFTSX>.

7 "Aggregate Confusion," MIT Sloan School of Management. <https://mitsloan.mit.edu/sustainability/aggregateconfusion>

III. The Opportunity

To put the world on the path to solving climate change, the current level of funding for climate-friendly activities must be tripled to at least \$1.5 trillion annually. *Fortunately, the multi-trillion-dollar capital sources needed for climate already reside in the current global financial system many times over.* Based on publicly available data, it is estimated there is nearly \$250 trillion of commercial capital available globally in five primary capital pools (Asset Owners, Retail Bank Deposits, Development Finance Institutions (DFI)/Multilateral Development Banks (MDB), Private Equity and Venture Capital). In addition to these pools, we also recognize the increasingly growing type of capital found in the form of non-deposit lending institutions enabled by technology—such as Alipay, PayPal, etc. Broadly speaking, these pools of capital have different risk/return profiles, comply with different regulations in different markets, and perform distinct functions in the global capital markets.

FIGURE 3: SELECTED GLOBAL CAPITAL BY STOCK (2018)



DISCLAIMERS

- Mobilizing more capital for climate finance requires that capital currently available in global financial systems is examined, with considerations for their risk tolerance, ability to provide capital, and preferences on investment structures. There is an added layer of geographic considerations that are not represented in the above graph, such as the distribution of funds, investment opportunities, and regulations.
- The pools above are chosen to minimize double counting of capital available as much as possible. However, there is risk of minor overlap such as asset owners that place assets in PE funds.
- Development Finance Institutions and Multilateral Development Banks scope includes select MDBs (WB, ADB, AfDB, EBRD, EIB, IDB, NDB, AIIB) and select DFIs (including OPIC, China Exim, CDB, AFD/Proparco, KfW/DEG, CDC Group).
- Bank deposits are conservative compared to the banks’ ability to deploy capital, yet a significant representation of bank assets. Lending provided by banks can exceed deposits available due to bank access to other sources of capital. The loan to deposit ratios in economies significant to climate finance are: United States – 70%, European Union – 107% and declining due to the rising household deposits, China – 71.2% and rising due to faster growth in loans compared to deposits, and India – 66.9%.
- Currency is USD.

*This graph was updated in May, 2019. In previous versions of this chart, we positioned banks as more risk tolerant than asset owners; while that holds true in many instances, we’ve decided to change their relative risk positioning due to some asset owners taking on more risk than banks, such as through the allocation to VC funds.

We can think about the type of financing needed to solve climate change along a simplified risk spectrum from most risk averse to least. **FIGURE 3** maps the relative sizes of the capital pools along this risk spectrum.

The pools in **FIGURE 3** were selected because of their role in global capital markets and their potential for serving as a significant source of capital for financing climate-friendly activities. The allocation of capital to climate related projects is based, in large part, on the barriers identified in **SECTION II** and the evaluation of risks specific to the targeted regions and markets. Due to their relative novelty and long-term nature, climate-friendly investments such as zero emissions vehicles and clean energy or energy efficiency technologies are often considered riskier and have yet to be deployed at the required scale. Therefore, accelerating the deployment of capital for climate-friendly investments relies not only on de-risking individual projects and company operations, but better aligning capital pools to address systemic and structural barriers that deter investment.

Therefore, efficiently mobilizing capital into climate-friendly investments requires an understanding of not only where the different pools of capital reside, but also the underlying risk profile for each pool. By understanding the relative availability and structural limitations of each pool, we can better design actions that engage the full spectrum of needs of the financial markets from higher risk, early stage investments to lower risk, project finance structures. Thus, each capital pool necessitates a different approach in order to increase and accelerate climate investments. A deeper dive into the size, risk profile, and typical investment practices of each capital pool follows.

Retail Banks

Focus: Deposits

Definition: Deposits of account holders (both individuals and businesses) in retail banks. Includes funds held by consumer-facing financial services and products offered by banks such as savings accounts, certificates of deposit, etc. In this strategy, retail banks are defined as all banks that offer any retail services, including commercial banks.

Size: \$111 trillion in deposits

Risk/Return: Primary focus on capital preservation and thus lower risk tolerance.

Retail banks hold over \$111 trillion of capital. These banks are primarily focused on accepting deposits, making credit available, and lending. The primary role of these institutions is to provide financial services to their customers—individuals and business—and provide a return to their investors.

Given the central role retail banking plays and, with over 3.7 billion customers globally, this pool of capital represents a tremendous opportunity to not only fund climate-friendly activities but also to actively engage consumers.⁸ Effectively mobilizing this pool requires not only engaging with the management, boards, employees, and potentially the regulators of these institutions; but also providing consumers with more direct control over how their deposits and capital are utilized in the broader markets. Furthermore, we also know that some of these consumers are themselves employees of financial institutions and

⁸ “Gains in Financial Inclusion, Gains for a Sustainable World,” The World Bank, May 18 2018. http://www.worldbank.org/en/news/immersive-story/2018/05/18/gains-in-financial-inclusion-gains-for-a-sustainable-world?cid=ECR_TT_worldbank_EN_EXT

hold additional leverage as internal agents of change. Engaging and educating the consumer is essential in rapidly deploying this capital either within existing commercial bank offerings or through the development of new platforms and products that provide consumers (individuals and businesses) with the ability to better align their impact/return. For example, given their ability to evaluate and underwrite smaller transactions to either retain on their balance sheets or deploy in aggregation vehicles, banks that are currently active in making loans for consumers and small commercial/industrial customers might be a natural fit for the financing of distributed clean energy activities.

We may find that solving climate change requires shifting decision making closer to individuals who can initiate change at a pace and scale unmatched by institutions. In addition to mobilizing this significant capital pool, engaging with all consumers, from individuals to businesses, large and small is essential to our “all hands” theory of change. In parallel, the push to mobilize and educate consumers also ties more broadly into building political awareness and will thus create opportunities for regulatory and policy change.

Asset Owners and Managers

Focus: Assets

Definition: Asset owners hold legal ownership of assets and allocate them based on investment objectives. Includes pension funds, insurance companies, sovereign wealth funds, individual investors, mutual funds, endowments, and foundations.

Size: \$136 trillion [majority owned by mutual funds (approximately 36%), pension funds (approximately 32%) and insurance companies (approximately 24%)]

Risk/Return Profile: Focused on a combination of capital preservation and moderate growth and therefore trends towards lower risk investments.

Asset ownership, and by extension asset management, plays an important role in financial markets by providing access to significant amounts of capital (scale) that can be deployed for longer-term and largely more mature investment opportunities. Asset owners are consumers of primary and secondary market financial products including bank loans, bonds and others, which provide valuable liquidity to the market by creating additional capacity for loans and other investments which impact the real economy. Due to the scale of this pool, there is a strong desire and often requirement that these sources of capital are deployed through larger investments (\$50+ million) either in singular activities or in aggregation of investment activities. As a result, accessing capital from this pool for climate-friendly investments often requires the deployment of only the most mature technologies (i.e. solar, wind, hydropower and energy efficiency) with the most stable counterparties through large transactions utilizing aggregation platforms, including warehousing vehicles, securitizations, “green” bonds and others.

It is often the case that asset owners rely on intermediaries, namely asset fund managers, to make investment decisions on their behalf. One relevant trend in asset management is the growth of passive investing—now making up almost half of all stock market investments in the U.S. One key lever for climate finance will therefore be to drive the growth of low carbon screened passive investment funds and ensure that the latest algorithms, machine learning, and artificial intelligence tools incorporate climate risk and mitigation.

Private Equity (PE)

Focus: Liquid Assets

Definition: PE firms fund mature projects and new technologies with full or partial ownership of those companies/projects or take part in buyouts, acquisitions and mergers.

Size: \$1.8 trillion (liquid assets)

Risk/Return: Given the focus on equity investments, PE typically has a high tolerance for risk and an expectation for high returns.

Private equity, while not large in comparative size to asset owners and banks, plays a valuable role in capital markets. Largely funded by institutional capital and high net worth individuals, PE provides equity capital into the market to fund acquisitions of corporations and asset portfolios. While PE is not considered a long-term funding source for infrastructure assets due to the investment term (4 to 7 years) and return requirements (10+%), PE can act as a bridge for other pools of capital, namely asset owners.

There is significant work around PE financing tools that have the ability to mobilize institutional capital into climate-friendly investments and technologies while sparking collaboration from multiple capital sources. Given the flexibility of this capital pool, PE can act as a catalyst for climate-friendly investments by “seasoning” portfolios of projects and lowering risk perceptions.

DEBT AND EQUITY FINANCING

There are two primary types of financing available—debt and equity. Debt capital is lower risk/lower return capital that is provided at the individual, corporate and project level. The repayment of debt investments is tied to an evaluation of the projected financial performance, risk profile of the technology, past performance of similar projects and other criteria. Debt capital is used primarily for funding mature technologies (i.e. solar and wind projects) and strong counterparties where the risk of delayed or disrupted repayment is deemed low. On the other hand, equity capital is higher risk/higher reward capital provided to absorb major fluctuations between actual and projected financial performance of both businesses and projects. Equity financing is mostly used for early stage climate projects, especially for fast-growing technologies that provide higher returns. Over the past decade, climate-friendly projects have attracted more debt financing than equity. For example, public investment trends in clean energy investments show that equity accounted for 3% on average of public financing while debt accounted for 60%.

Venture Capital (VC)

Focus: Liquid Assets

Definition: Fund early-stage companies with partial ownership.

Size: \$220 billion (liquid assets)

Risk/Return: Venture Capital has a relatively high risk tolerance, and as a result, high return targets.

While venture capital (VC) may represent the smallest available pool, it is designed to achieve a level of technological breakthrough that no other private capital pool can. However, when it comes to climate change, this form of capital for supporting high-potential but high-risk nascent technology solutions is falling short. The VC model favors capital-light innovation (e.g. software, data analytics, and connected devices), and is not structured to support transformative hardware-based innovation in power generation, transportation, manufacturing, and other infrastructure-heavy areas relevant to massive greenhouse gas emission reduction. It is important to unlock high risk capital to drive down the cost of technologies that will enable a transition to 100% renewable energy and yet-to-be commercialized natural and engineered carbon dioxide removal (CDR).

Other Pools

In the preparation of this report, the foundation analyzed the breadth of the global capital pools. We wanted to provide greater context to the pools we excluded from this strategy. The additional but excluded capital pools are as follows:

Multilateral Development Banks/Development Finance Institutions (MDBs/DFIs): MDBs and DFIs are defined as national and international institutions and funds that provide financial assistance to developing countries, encouraging economic and social development. They have a relatively high risk tolerance because they often work in developing regions with less mature financial and banking sectors and more overall risks. Their return requirements vary by program and institution.

MDBs and DFIs are considered tools of blended finance in this strategy, which bridge private and public capital. While this strategy focuses on private capital as a means to provide and mobilize funding for climate-friendly actions, the foundation recognizes the significance of public capital in supporting climate-friendly actions. The strategy primarily interacts with public capital through the support of funds where MDB and DFI capital mobilizes the private asset ownership (via asset management) pool; and we especially focus these opportunities on equity-based vehicles where markets are over burdened by debt.

Shadow Banking: The shadow banking system can be defined as financial intermediaries, such as hedge funds, that facilitate credit across the financial system and are not subject to much regulatory oversight. Shadow banking can also include unregulated activities carried out by regulated institutions such as credit default swaps. The inability to identify transparent and consistent data sets made it difficult to analyze the potential scale and impact of mobilizing this pool. However, we recognize the important and growing ability of digital and online technologies in the banking and financial services industries (fintech) to mobilize climate-friendly investments and will make grants in this pool on a case-by-case basis.

Corporate Balance Sheets: Although trillions of dollars reside globally on corporate balance sheets, the primary function of this capital pool is to provide resources for the business to grow. As such, this capital would not be widely available for the purpose of investment into third-party climate-friendly activities and was excluded from this strategy. However, we do consider the balance sheets of financial institutions that overlap with our main capital pool and whose core business includes financing climate change mitigating or exacerbating activities.

Government: While government funding can play a critical role in catalyzing climate-friendly activities, we have chosen to focus our strategy on how best to mobilize private capital. However, as described above we are open to working with governments through MDB/DFIs to undertake specific actions as related to mobilizing private capital for climate.

IV. Path Forward

The Hewlett Foundation commits approximately \$75 million for grantmaking across the three target regions for this Climate Finance Strategy, which focuses on mobilizing capital for climate-friendly investments. Our strategy is centered around addressing barriers to financing tangible projects that directly and significantly mitigate greenhouse gas emissions. The foundation’s approach is designed to address the barriers that limit the free flow of capital to climate-friendly activities from the project to the portfolio level as identified in **SECTION II** of this report. At the same time, we aim to balance the desire for both immediate impacts and longer-term market transformation. For each region, we have developed a tailored approach that recognizes the current environment and the unique actions required to address the identified barriers. Broadly speaking, we selected actions that we believe will be transformative, as well as will have more immediate impacts. In this way, the foundation hopes to carve a path for others to follow and demonstrate potential ways that these barriers can be tackled.

Climate finance philanthropy has traditionally focused almost exclusively on the institution. Going forward we believe it is critical to seek ways to mobilize various consumers, such as the millennial generation in the United States, as agents of change. We believe that the sheer scale of the climate change challenge requires an all-inclusive approach: it’s “all hands on deck.” Therefore, each regional strategy has actions that target investors at various levels—from retail customers to large asset owners.

Key features of our strategy are a focus on people, mobilizing capital and consumers, and a commitment to diversity, equity and inclusion. We can imagine the modern financial system (retail to wholesale finance) as a decision-making pyramid; with individuals forming the base, small and medium sized enterprises (SMEs) making up the next layer, followed by large corporations, institutional lenders and investors at the top. Government authorities regulate and monitor the entire system, with key protections for the base of the pyramid. Efforts to shift capital flows in the financial system have historically revolved around the actors at the top—and they remain a critical part of the solution. Yet, tripling the current levels of investment into climate-friendly activities requires mobilizing and engaging with those at the base of the pyramid too.

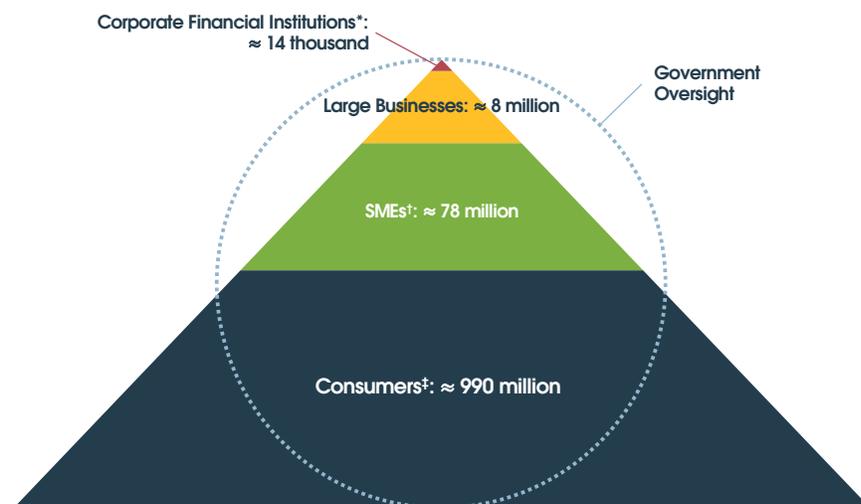
To effectively reach all individuals at the base of the pyramid means going beyond “one size fits all” approaches and requires an understanding of consumers’ preferences, needs and challenges. We view taking diversity, equity and inclusion measures through this lens, as one of several tools available to aid with mobilizing all investors. As such, the foundation is committed to take Diversity, Equity and Inclusion (DEI) actions when grantmaking for climate-friendly activities.

Unleashing investment and financial product opportunities for those at the base of the

pyramid will require shifts in thinking, imaginative solutions, and innovative products. We also believe that a more diverse financial services workforce is needed to better serve the varying needs of the customer base. The current lack of diversity within the finance sector limits our ability to identify new ideas, exhaust existing options and break out from like-mindedness. Yet both financial services overall, and climate-friendly investing, in particular, remain exceedingly inequitable, non-diverse and non-inclusive. For example, a 2017 study of the representation of women and racial/ethnic minorities in management in the financial services sector by the U.S. Government Accountability Office (GAO) found that racial/ethnic minorities held 22% of first- and mid-level positions and just 12% of senior roles. Women were slightly better off, with 48% of first- and mid-level roles and 29% of senior positions.⁹ Another report found that the funders that make up the venture capital industry in the U.S. are 82% male and 70% white.¹⁰ Since VC is one of the key capital pools that drive clean technology funding, diversity in this industry is critical to advancing innovative technologies. Diversity can also significantly improve financial performance for VCs. Research by economist Paul Gompers found that diversity significantly improves financial performance along several metrics including the individual portfolio-company level and overall fund returns.¹¹

FIGURE 4: DECISION-MAKING LEVELS OF INVESTORS

Approximate number of investors and institutions that exist in China



Illustrative example (2017 figures).

* Financial Institutions include the number of regulated open-end funds, insurance companies, commercial banks, and foundations.

† SME: Small and medium-sized enterprises

‡ Consumers: 15-65 years old

9 United States Government Accountability Office, “Trends in Management Representation of Minorities and Women and Diversity Practices, 2007–2015” (2017). <https://www.gao.gov/assets/690/688235.pdf>.

10 Richard Kerby, “Where Did you Go to School?” Noteworthy – The Journal Blog, 30 July 2018. <https://blog.usejournal.com/where-did-you-go-to-school-bde54d846188>.

11 Paul Gompers and Silpa Kovvali, “The Other Diversity Dividend,” Harvard Business Review (2018). <https://hbr.org/2018/07/the-other-diversity-dividend>.

Our goal is to mobilize a significant increase in the flow of capital deployed for climate-friendly activities. While there is a range of worthwhile actions that could be undertaken to achieve our ultimate goal, we have prioritized our actions in the following ways:

TABLE 1: HEWLETT FOUNDATION CLIMATE FINANCE STRATEGY SCOPE

Category	In Scope	Out of Scope
Capital Pools	Asset Owners, Retail Banks, Private Equity/ Venture Capital and Development Finance Institutions/ Multilateral Development Banks as a tool for mobilizing private capital.	Other capital pools that are not listed under “In Scope” such as public green banks.
Policy	Banking, insurance, and other finance and investment-oriented policies that incentivize climate finance.	Energy, transportation, and land use (unless it relates to mobilizing capital); carbon pricing.
Geography	China, the United States, and the European Union.	Other geographies.

The best way to identify whether a potential action or priority is within the scope of this strategy is to ask a simple question: *Does the proposed action or project serve to accelerate the mobilization of capital for climate-friendly activities?* If the answer is yes, then proposed action might be in scope, if it complies with the other foci categories (capital pool and region). If not, it will be deemed out of scope.

Regionally Targeted Strategies

China, the United States, and the European Union will serve as regional focal points. Together, these regions account for more than half of global GHG emissions and represent many of the largest economies and potential markets for climate related investments. While there are similarities within our target regions, we recognize that each operates in a unique political and financial environment, which requires a set of specific and targeted actions. The foundation also recognizes that there are regulatory developments underway in these regions, which could affect this strategy. It is important to note that even with the current high degree of global trade, typically 80% of a country’s capital remains within its borders.¹² Thus, we will largely have to focus on national accounts. We anticipate that actions taken within the focus regions are likely to have global and cross-regional effects and will hopefully be viewed as test cases for new structures and systems. For example, the European Union is often utilized as a test bed for policy or other financial frameworks that, if successful, can be replicated elsewhere. We will work with new and existing partners to ensure that the results of our interventions are shared so that they can be applied globally.

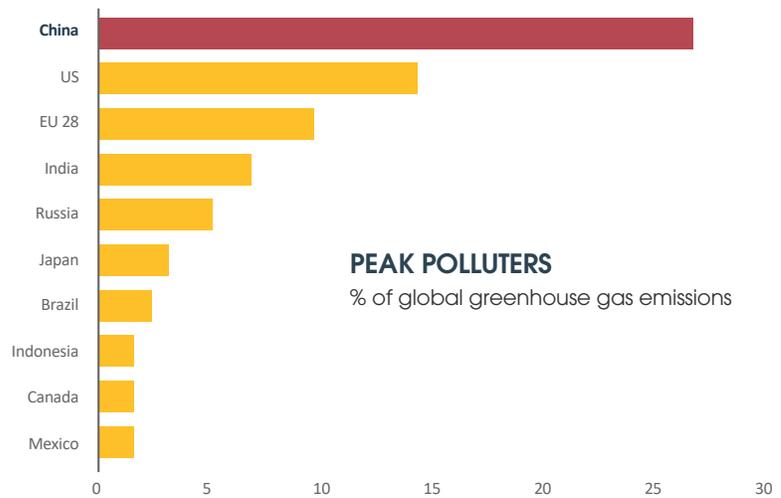
In preparing this strategy we also considered including India as a target region because of its status as the number four GHG emitter globally, its rapidly increasing energy demand and, as an emerging market, its potential for scale. However, China, the U.S. and the EU rose to priority because of their

¹² “Global Climate Finance: An Updated View 2018,” Climate Policy Initiative (2018).
<https://climatepolicyinitiative.org/wp-content/uploads/2018/11/Global-Climate-Finance-An-Updated-View-2018.pdf>

outsized role as GHG emitters and their more robust financial markets. Given our own resource constraints, we had to make some difficult decisions and ultimately decided to focus our efforts on fewer regions in order to strengthen our impact. Considering our priority on catalyzing long-term market transformations and emphasis on consumers as investors—China, the U.S. and EU were deemed a better fit for grantmaking actions that seek to reach investors at all levels.

FIGURE 5: THE WORLD'S LARGEST GHG EMITTERS

Source: Data from Economist Intelligence Unit (2019)



Each regional sub-strategy identifies specific actions that will be undertaken that mobilizes capital for climate-friendly investments and addresses one or more of the eight barriers we have identified.

Taking a comprehensive view of the various regional actions we intend to fund in this strategy, our actions are weighted towards having an immediate impact. As noted throughout this report, we believe the foundation’s role as a philanthropic leader is to pave the way for other actors within the investment universe and demonstrate these barriers can be overcome. In this way, achieving early impacts will help carve that path and catalyze greater change. We also believe that is important to align our actions to longer term CO₂ emissions reduction goals. For example, investing in near-term energy efficiency projects won’t have much value if it locks in the long-term use of fossil fuels.

We have also weighted the bulk of our actions towards barriers to investing at the portfolio level. At the same time, we have some specific actions that focus on project level barriers such as limited sources of high-risk capital and the pricing of perceived risks. Furthermore, we often target the same barrier with multiple actions that have both short-term and long-term impacts in order to most effectively implement transformative and lasting solutions.

In addition, we have utilized a naming convention that provides context to the foundation’s role in executing the strategy. The action word “invest” indicates activities where the foundation will be directly involved, are spending our own capital, and where the action has a direct measurable impact. On the other hand, “support” is used for an action where the foundation envisions working with another organization (or organizations) and where all parties commit resources that can lead to both direct and indirect measurable outcomes.

Whether an organization is considered a collaborator or a potential funding recipient is tied to how each strategic action is carried out. Identified partners include those representing the targeted pools of capital and external firms providing technical assistance to, or otherwise organizing, pools of capital. This includes foundations, asset managers, non-profit organizations, start-ups, and banks.

China

China accounts for 29% of the world’s GHG emissions. Chinese emissions rose by 4.7% in 2018 with China maintaining its top spot as the world’s largest energy consumer and emitter of greenhouse gases.¹³

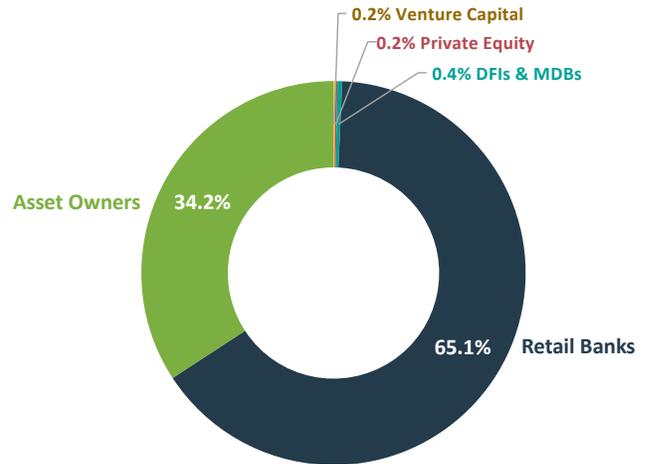
Background

Experts forecast public sources of capital can cover just 10-15% of what is needed for clean energy investments in China.¹⁴ Thus, a successful strategy to mobilize capital in China will heavily target private sources. This approach has been supported by the government, as China has been positioning itself as a global leader in promoting climate-friendly financing mechanisms aimed at increasing private capital flows. For example, the country’s central bank (The People’s Bank of China) published directives for the layout of a green financial system in 2016. These directives are designed to show the government’s commitment to greening the economy and signal to both investors and green companies their intentions.¹⁵

However, the private sector is currently facing its own challenges and uncertainties, as the country is going through rapid financial regulatory changes with the creation of the Financial Stability and Development Committee in 2018, and the merger of the country’s banking and insurance regulatory agencies under the China Banking and Insurance Regulatory Commission (CBIRC). Additionally, asset quality and liquidity of banks are unstable due to a surge in China’s non-performing loan (NPL) ratios. With increasing pressure from the Basel III liquidity requirements, banks are counting on “debt-to-equity” programs to increase liquidity and to stabilize NPL ratios while also helping in-debt corporations. This suggests private investors will be more likely to invest in traditional, high quality and low-risk investment products, similar in profile to fossil fuel projects that have received the lion’s share of investments to date.

In keeping with our theory of change—engaging with all investors, the foundation sees women as a force in China. A 2018 survey of women in five global markets by Moxie Future revealed that 83% of women care about where their money is invested, and Chinese women showed the greatest concern

FIGURE 6: EXISTING CAPITAL IN SELECTED CAPITAL POOLS IN CHINA



CAPITAL POOL SNAPSHOT - CHINA

(Total: \$41 trillion capital stock)

¹³ Damian Carrington, “Brutal news’: global carbon emissions jump to an all-time high in 2018,” The Guardian, 5 December 2018. <https://www.theguardian.com/environment/2018/dec/05/brutal-news-global-carbon-emissions-jump-to-all-time-high-in-2018>

¹⁴ Xinlei Li, “Climate Report 2017: Private Sector and Climate Finance in the G20 Countries,” Konrad Adenauer Foundation (2017). http://www.kas.de/wf/doc/kas_49481-544-2-30.pdf?170711095417

¹⁵ Ibid.

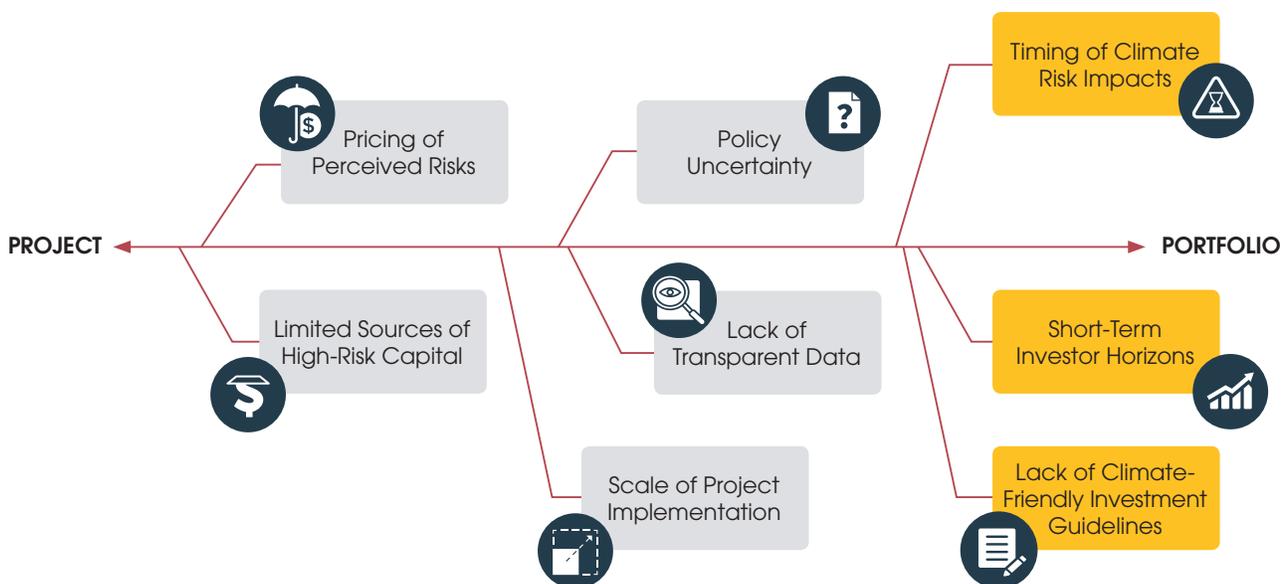
and interest in responsible investing (defined as an investment strategy that seeks to generate both financial and sustainable value).¹⁶ The study also found that companies committed to sustainability and reducing greenhouse gas emissions have a high appeal to women in China, and companies that deliver environmental solutions and products were considered the most important. When asked about their abilities as investors, Chinese women were the most confident out of the markets surveyed—with 68% expressing confidence. Acknowledging this enthusiasm, the foundation recognizes the importance of gender diversity in identifying partners to work with in China.

Another caveat to working in China revolves around taxonomy. At present, there is no unified definition for what constitutes climate-friendly investing in China. Often the term “green” finance is used by banks or others, but this can have various meanings and does not necessarily exclude climate change causing investments. There are ongoing efforts in China to develop and implement a unified taxonomy and a broad framework around what constitutes green investment; part of the challenge will be to ensure that this aligns with climate-friendly investing. Increasing and facilitating private finance flows into climate-friendly investments will require the de-risking of climate investments and increasing financial regulations and incentives from the Chinese government.

Approach

For China, we identified three key actions outlined in **TABLE 2**, which are focused on three out of the eight barriers highlighted in **FIGURE 7**. The Chinese market is structured in such a way that we will need to collaborate with MDBs/DFIs, the government, state-owned banks and asset funds to a greater degree than in the other two regions. As most investment-related decisions, guidelines, and transactions

FIGURE 7: BARRIERS TARGETED IN CHINA



¹⁶ “Understanding Female Investors,” Moxie Future (2018).
<https://moxiefuture.com/wp-content/uploads/2018/01/Moxie-Future-Understanding-Female-Investors-Report-UF18.pdf>

in China are highly regulated by the government—taking action where the government’s role can be leveraged first will be most transformative at increasing capital flows for climate-friendly investment. For this reason, the actions are weighted towards portfolio level barriers. While we are hoping for immediate impact to accelerate mobilizing climate-friendly capital in the short-term, the strategic actions presented below are expected to show results both in the short-term and in the long-term. We expect the impact of these interventions to be a significant increase in distributed and utility-scale renewable energy and electric vehicle financing in domestic and outbound Chinese investments. We also expect a decrease in financing GHG-causing activities by commercial-rate capital and more spending on climate innovation. Finally, we hope that our actions will motivate banks and financial institutions to measure, disclose and reduce their financed emissions which will lead to a greater mobilization of capital.

TABLE 2: CHINA CLIMATE FINANCE STRATEGY

#	Action	Barrier	Capital Pool
1	Support banks and fintech companies in developing and implementing climate-friendly products and financing mechanisms.		Retail Banks, Asset Owners
2	Support financial regulatory institutions in creating a climate-friendly investment ecosystem through measures such as: incentives, a unified taxonomy, and investor guidelines and responsibilities.		All
3	Support the networking of public and private entities, especially the efforts of asset owners and managers, banks, and VC/PE funds in evaluating their investment portfolios (e.g.: fixed income, equity, etc.) to accelerate the funding of climate-friendly investments.	 	Asset Owners, Retail Banks, VC/PE

Please note actions listed are illustrative, not exhaustive. Actions are not listed in any particular order.

The United States

The U.S. accounts for 14% of global GHG emissions. By 2018, GHG emissions rose approximately 3.4% compared to the previous year, representing a significant step back for the United States.¹⁷ With current policies, the U.S. will miss its Paris Agreement targets – and is currently on track to achieve only a 17% emissions reduction by 2025, a figure well below the agreed target of a 26-28% emissions reduction.¹⁸

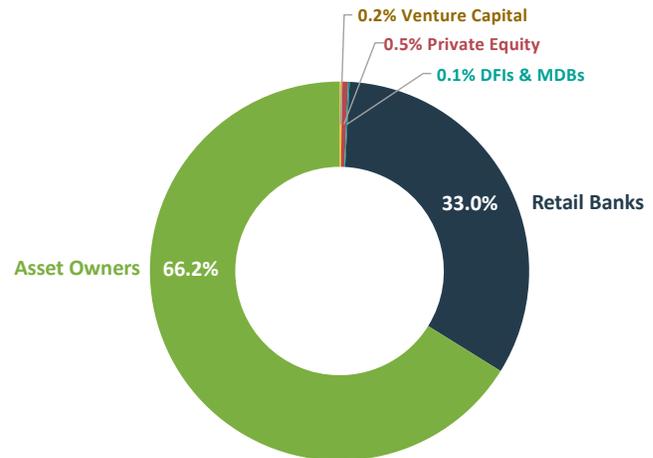
Background

The U.S. remains a leader in the global financial system with its well-integrated, advanced and mature capital markets. The U.S. market is characterized by a blend of domestic and international capital sources, along with a well-developed secondary market, capable of providing the liquidity and diversification of financial products required to meet the needs of all classes of investors, particularly the Asset Owner capital pool. As a result, U.S. capital markets have both the capability and flexibility to accommodate new investment vehicles and aggregation tools that can create a powerful top-down force to mobilize climate-friendly investments.

In 2015, public financing for clean energy projects reached a peak of \$9.7 billion, while private financing represented the remaining 75% of total clean energy investments with \$26.6 billion. Since then, private investments have accounted for over 90% of clean energy investments on average per year, highlighting the diminishing appetite for public financing of climate-friendly activities and the increasing need for private financing.¹⁹

U.S. retail deposit institutions can utilize this important source of capital to establish financial products and vehicles that employ a people-focused approach to address climate change. Through the creation and deployment of new products, customers will be able to actively choose how their deposits (savings, checking and certificate of deposits) are utilized in the broader financial markets. Instead of solely relying on institutions to make investment decisions, customers will be able to deploy a bottom up approach that can activate U.S. finance markets to accelerate and increase the available capital for climate related activities. In parallel, mobilizing key consumers (people and businesses) to call for decarbonizing their money can form a part of the political will building needed to create sustained policies for climate change mitigation.

FIGURE 8: EXISTING CAPITAL IN SELECTED CAPITAL POOLS IN THE U.S.



CAPITAL POOL SNAPSHOT - US

(Total: \$37 trillion)

¹⁷ Chris Mooney and Brady Dennis, “U.S. greenhouse gas emissions spiked in 2018 – and it couldn’t happen at a worse time,” Washington Post, 8 January 2019. https://www.washingtonpost.com/national/health-science/us-greenhouse-gas-emissions-spiked-in-2018--and-it-couldnt-happen-at-a-worse-time/2019/01/07/68cff792-12d6-11e9-803c-4ef28312c8b9_story.html?noredirect=on&utm_term=.2300c8e3e7f8

¹⁸ “USA: Country Summary,” Climate Action Tracker (2018). <https://climateactiontracker.org/countries/usa/>

¹⁹ “Global Trends in Renewable Energy Investment 2018,” UN Environment, Frankfurt School-UNEP Collaborating Centre, and Bloomberg New Energy Finance (2018). <https://europa.eu/capacity4dev/file/71900/download?token=57xpTJ4W>.

We have already started to see consumers actively choosing more sustainable and climate-friendly financial products and institutions. For example, Aspiration Bank, which provides socially and environmentally-conscious banking services and investment products, has grown quickly since its inception in 2015. It has raised \$100 million in deposits from a customer base of over 1 million people—and adds 100,000 new customers a month.²⁰ Similarly, the U.S. Sustainable Investment Forum reports that U.S.-domiciled assets under management that use sustainable, responsible, and impact investing strategies grew 38% to \$12 trillion from 2016 to 2018.²¹ This growth correlates to numerous reports of increasing consumer interest, and active investing in, sustainable products. A 2018 survey by UBS revealed that ultra-high net worth individuals are allocating a portion of their portfolios to sustainable investments—with the wealthiest tier (investors with \$50 million or more) having significantly higher allocations to sustainable products than other high net worth individuals surveyed.²² The survey also found that these ultra-high net worth investors are more likely to believe that sustainable investments will outperform traditional products.

At the same time there are approximately 40-80 million low-income or low-FICO score households in the U.S. who are perceived by lenders as higher risk, which hinders their ability to access financing for climate-friendly products such as solar panels.²³ We see this as a market failure—with standard practices leaving out practically a third of U.S. customers. Providing even some of these households access to financing for climate-friendly products would result in an overall reduction of GHG emissions. According to a 2018 National Renewable Energy Laboratory study that estimates the rooftop solar technical potential of low to middle income (LMI) households, the LMI demographic alone represents 42% of the total U.S. residential potential for rooftop solar.²⁴ We believe that reaching these customers with innovative financial products is not only worthwhile, but imperative to achieving long term climate goals.

NEXT GENERATION WEALTH

Morgan Stanley's Millennial Drive survey shows that 75% of millennials believe their investments could create positive impact and prevent climate change.¹ Their investment patterns prove they use their investment portfolios to make impact and create real change in the world. In the United States, millennials are expected to inherit \$30 trillion collectively from baby boomers by 2050 as part of the largest wealth transfer in the world.² Socially responsible organizations have high expectations for millennials, based on their investment preferences, to increase funding for sustainable initiatives and companies.

1 <https://www.morganstanley.com/ideas/sustainable-socially-responsible-investing-millennials-drive-growth>

2 <https://www.forbes.com/sites/sarahlandrum/2017/03/17/millennials-driving-brands-to-practice-socially-responsible-marketing/#502eeaz64990>

20 Steve Cocheo, "New Fintech Bank Reinvents Itself with a Bold Brand Position," (2019). <https://thefinancialbrand.com/81820/fintech-bank-online-innovation-aspiration-financial/>.

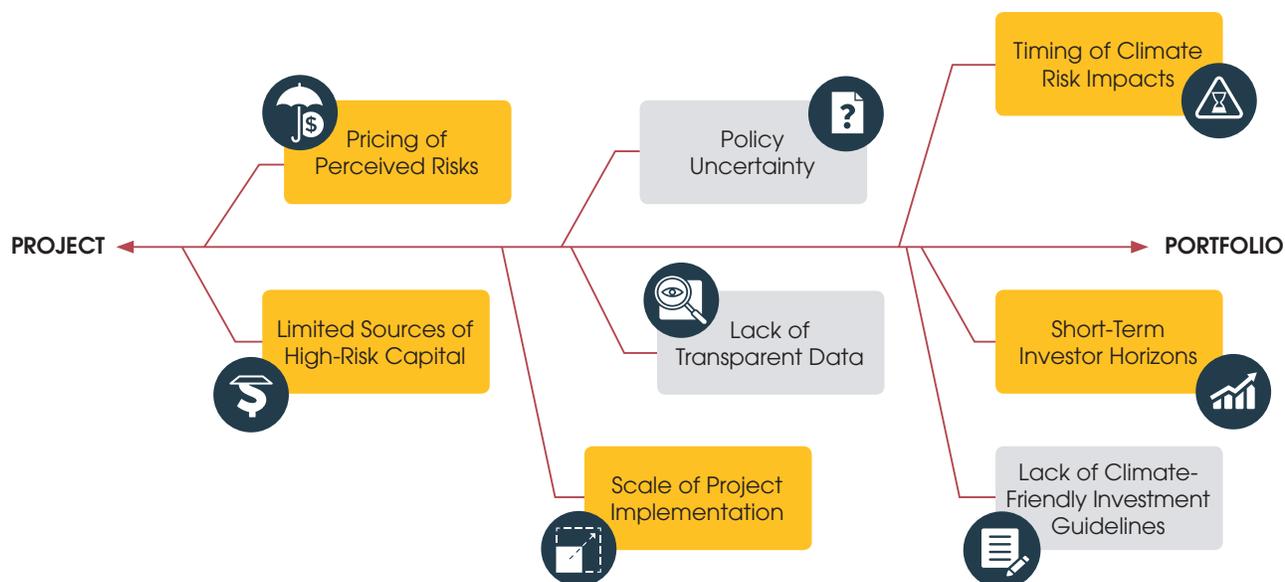
21 U.S. SIF, "Report on US Sustainable, Responsible, and Impact Investing Trends 2018," (2018). <https://www.ussif.org/files/Trends/Trends%202018%20executive%20summary%20FINAL.pdf>.

22 UBS, "Investor Watch: Return on Values," (2018). <https://www.ubs.com/content/dam/ubs/microsites/ubs-investor-watch/IW-09-2018/return-on-value-global-report-final.pdf>.

23 Vote Solar, "Inclusive Solar Finance Framework," (2018). https://votesolar.org/files/1215/3394/2652/Inclusive_Solar_Finance_Framework_Report.pdf.

24 Sigrin, Ben, and Mooney, Meghan, "Rooftop Solar Technical Potential for Low-to-Moderate Income Households in the United States," (2018). Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-70901. <https://www.nrel.gov/docs/fy18osti/70901.pdf>.

FIGURE 9: BARRIERS TARGETED IN U.S.



Additionally, views about the importance of climate change and sustainability vary along racial, gender and generational lines. A recent survey found that 65% of women (versus 42% of men) say that a firm’s treatment of the environment, their employees and communities should be central factors in investment decision-making. Similarly, 75% of millennials in the U.S. believe in the positive link between investing and preventing climate change. Moreover, opinion polls across the past several decades show that non-whites in the United States rank climate change as their top environmental concern and express higher levels of support for national and international climate and energy policies versus white Americans.²⁵ Having awareness of these differing views on climate change is important to activating and engaging with these consumers.

Approach

We identified six key actions outlined in **TABLE 3** that focus on five out of the eight barriers highlighted in **FIGURE 9**. As the U.S. represents one of the largest and most mature economies in the world, we see this as an opportunity to assess and establish financial mechanisms and products that can activate all investors—from retail to institutional and everyone in between. Therefore, our U.S. actions serve to tackle the barriers that focus on the public’s or investors’ perceptions of climate change and the scale and applicability of climate-friendly investments. In addition, as the U.S. holds the largest concentration of VC capital, we see an opportunity to support and accelerate the funding of innovative interventions at early stages. We will take DEI actions to support the expansion of opportunities in climate-friendly investing for women and people of color in the United States. We expect the impact of these interventions to be a significant increase in financing GHG-mitigating activities in transportation, energy and agriculture, a decrease in financing GHG-causing activities by commercial-rate capital, and more finance for breakthrough carbon dioxide removal and cost improvements in enabling technologies

²⁵ Adam R. Pearson, Matthew T. Ballew, Sarah Naiman, and Jonathon P. Schuldt, “Race, Class, Gender and Climate Change Communication,” (2017). <http://oxfordre.com/climatescience/view/10.1093/acrefore/9780190228620.001.0001/acrefore-9780190228620-e-412>.

(such as energy storage and microgrids). We hope that our actions will motivate banks and financial institutions to measure, disclose and reduce their financed emissions which will lead to a greater mobilization of capital.

TABLE 3: UNITED STATES CLIMATE FINANCE STRATEGY

#	Action	Barrier	Capital Pool
1	Invest in inclusive finance platforms that focus on expanding access to climate-friendly solutions for underserved consumers (e.g.: rural, low FICO, SMEs, etc.)		Retail Banks, Asset Owners
2	Support initiatives to expand consumer options for banking services that bolster climate-friendly activities.		Retail Banks
3	Use grant capital to invest in a fund focused on funding early stage deep decarbonization innovations.		VC
4	Support robust ESG, climate-friendly passive funds and efforts that systematically remove climate change causing investments from products.		Asset Owners
5	Support the efforts of asset owners (insurance companies, mutual funds, pension funds) and banks to evaluate and reallocate their investment portfolios (fixed income, equity, etc.) to accelerate the funding of climate-friendly investments.		Asset Owners, Retail Banks
6	Invest in initiatives that train and develop diverse leaders (particularly women, people of color, and younger generations) to broaden the talent pool of people working on climate-friendly solutions.		All

Please note actions listed are illustrative, not exhaustive. Actions are not listed in any particular order.

The European Union

The EU accounts for 9% of global GHG emissions. The EU's Paris Agreement target is to reduce GHG emissions by 80% below 1990 levels by 2050. The European Commission is currently following a plan to reduce emissions 40% by 2030 and at the end of 2018, published a strategy to commit to achieving net-zero GHG emissions by 2050.²⁶

Background

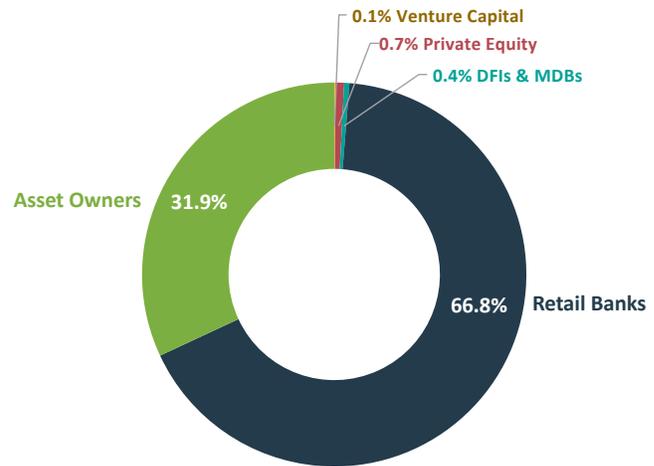
The EU accommodates one of the largest capital markets in the world. Most importantly, the EU and the EU Commission are fully committed to connect finance and the availability of capital with the EU's broader agenda for sustainable development.²⁷ From 2014 to 2020, the EU earmarked at least 20% of its budget to domestic climate related action with an emphasis on research and innovation. Combined, many EU funds (including the European Structural and Investments Funds and the European Fund for Strategic Investments) are committed to mobilizing over half a trillion Euros for climate finance by 2020.

In addition, the bank deposits of the 28 EU Member States represent an opportunity for climate-friendly investments, comprising nearly 12% (\$14 trillion) of total global deposits. Commercial banking covers nearly 75% of corporate funding in the EU. This stands in contrast to the United States, where the bond market provides 75% of corporate funding.²⁸

Approach

We identified four key actions outlined in **TABLE 4** that focus on five out of the eight barriers highlighted in **FIGURE 11**. Central to our EU approach is supporting the implementation of banking services to engage retail consumers in climate-friendly investment activities, as well as encouraging large asset owners to re-think their investment decisions and mobilize climate-friendly capital. In line with this rationale, the actions we present below aim to have long-term transformative effects on the EU markets by tackling the five prioritized barriers. We expect the impact of these interventions to be a significant increase in financing for GHG-mitigating activities in transportation, energy, and agriculture. We also expect a decrease in financing GHG-causing activities by commercial-rate capital and an increase in

FIGURE 10: EXISTING CAPITAL IN SELECTED CAPITAL POOLS IN THE EU



CAPITAL POOL SNAPSHOT - EU

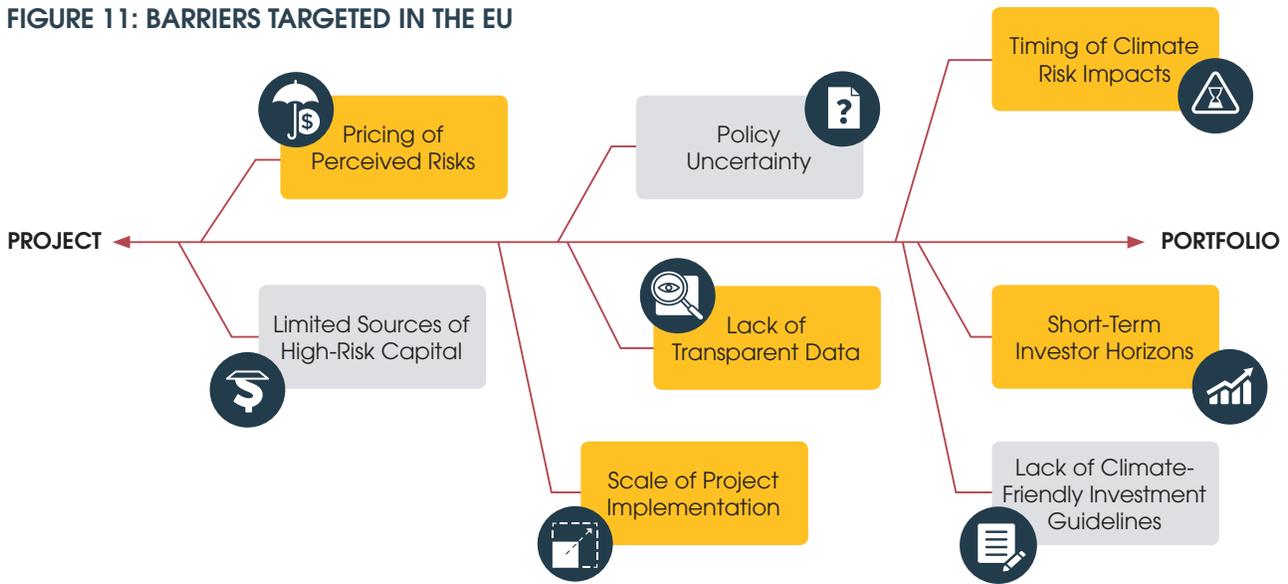
(Total: \$21 trillion)

²⁶ "A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy," European Commission, November 28 2018. https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_en.pdf

²⁷ William Wright and Panagiotis Asimakopoulos, "Report: the size, depth, and growth opportunity in EU capital markets," New Financial, March 2018. <https://newfinancial.eu/report-the-size-depth-growth-opportunity-in-eu-capital-markets/>; http://europa.eu/rapid/press-release_IP-18-3729_en.htm

²⁸ Howard Davies, "Can a European Capital Market Survive Brexit?," Project Syndicate, May 2 2018. <https://www.project-syndicate.org/commentary/european-capital-market-union-after-brexit-by-howard-davies-2018-05?barrier=accesspaylog>

FIGURE 11: BARRIERS TARGETED IN THE EU



the number of sustainable finance professionals that innovate and pioneer climate-friendly funds and investment products. Finally, we hope that our actions will motivate banks and financial institutions to measure, disclose and reduce their financed emissions, which will lead to a greater mobilization of capital.

TABLE 4: EUROPEAN UNION CLIMATE FINANCE STRATEGY

#	Action	Barrier	Capital Pool
1	Invest in aggregation platforms that pool finances for small-scale projects, creating scale and liquidity suitable for institutional investors.		Retail Banks, Asset Owners
2	Support initiatives to increase the flow of retail/commercial bank assets into climate-friendly activities.		Retail Banks
3	Support robust ESG, climate-friendly passive funds and efforts that systematically remove climate change causing investments from products.		Asset Owners
4	Support the efforts of asset owners (insurance companies, mutual funds, pension funds) and banks to evaluate and reallocate their investment portfolios (fixed income, equity, etc.) to accelerate the funding of climate-friendly investments.		Asset Owners, Retail Banks

Please note actions listed are illustrative, not exhaustive. Actions are not listed in any particular order.

Collaboration and Cross-Pollination of Ideas

Transforming markets and unlocking capital for climate-friendly activities is a substantial undertaking. Therefore, it is imperative that we collaborate with a wide range of partners, including other funders, corporations, and governments at all levels leading this work.

In the United States, we see an opening for the foundation to partner with retail banks, passive asset managers, and other organizations to develop and market climate-friendly financial products and mechanisms that will engage all levels of investors. Similarly, we plan to pool resources with other philanthropic corporations to invest in a portfolio of deep decarbonization solutions still in the early stages of development. We also see an opportunity to work with experts and practitioners in developing the technology needed to collect, aggregate, analyze, and disseminate data around climate-friendly investments.

Given the market structure in China, we plan to collaborate with MDBs/DFIs, the government, state-owned banks and asset funds to a greater degree than in the other two regions. We have identified an opening to support Chinese financial and regulatory institutions to develop climate finance and investor responsibilities. Additionally, we see an opportunity to partner with think-and-do-tanks to support banks and fintech companies as they develop and implement climate-friendly products.

Finally, in Europe we see many opportunities to work across the private sector and financial regulatory institutions. To that end, we plan to collaborate with think tanks, foundations, banks, asset owners, and governments to invest in aggregating structures to pool finances for small-scale projects. We also see an opportunity for the foundation to collaborate with European foundations to mobilize the retail piece of our strategy, as well as to support broader efforts to embed financial carbon accounting and climate-friendly investing into mandatory regulatory frameworks.

Ultimately, our goal is to catalyze action and tangible results on the ground across all of our target regions. *In the process, The Hewlett Foundation plans to share the results of these efforts and it is our hope that this regionally specific work can demonstrate the efficacy of these approaches and spur further action in other parts of the globe.*

V. Risks

The Hewlett Foundation recognizes that the success of our Climate Finance Strategy is heavily dependent on several factors that fall within economic, financial, political and other risk categories. Managing these risks will require the foundation and its partners to be continuously flexible, adaptive and committed to learning.

Economic/Financial Risk

Our strategy faces a number of economic and financial risks. Chief among them is the possibility that the forecast price reductions for climate-related technologies do not come to fruition. If so, this could create a scenario where certain subsidies will have to be relied upon in perpetuity. This could significantly affect the costs and returns of climate-friendly projects, and thus our ability to mobilize capital.

Similarly, global economic downturn or recessions in any of the focus regions are unpredictable and, should one occur, it would pose a meaningful risk to our success. Any instability and potential downturn would affect investors' decision-making process. Investors may be less likely to invest in perceived risky projects—demanding shorter terms and higher returns, while developers may anticipate higher costs.

To mitigate these economic/financial risks, we must continuously monitor global and regional economic trends that will allow the foundation to take necessary action in time to adjust our approach.

Political Risk

To effectively scale and accelerate investments, climate action requires critical regulatory and policy backing from governments. Similarly, the ability of key leadership in the finance community who are working to prevent climate change can be enhanced by steadfast political support via policy, government funding, advocacy and education.

Conversely, political changes can lead to the breakdown of public and private partnerships, slowdown of research and development of new technologies and infrastructure, as well as opposing perspectives that will hinder collaboration and deter investors.

VI. Monitoring And Evaluation

The Climate Finance Strategy's goal is to mobilize a significant increase in the flow of capital for climate-friendly activities, aiming to reduce GHG emissions and keep global temperature increase well below 2°C. In **SECTION IV**, we outline a number of actions that we believe are critical to achieving this goal. In order to track our progress, we have identified several markers of success that measure the direct and indirect impact of our grantmaking actions.

1. Markers of success that measure the direct impact of strategy actions:
 - a. Within 18 months, increase bank capital flow towards carbon accounting²⁹ by at least \$100 billion.
 - b. Within 3 years, spur at least \$100 million in retail lending for climate friendly activities in the U.S. via credit unions.
 - c. Within 3 years, make \$500 million of private capital available for climate-friendly activities as a result of our direct de-risking of fund structures.
 - d. Within 3 years, hold at least three convenings dedicated to climate-friendly retail banking solutions.
 - e. Within 3 years, hold at least one convening dedicated to climate-friendly passive asset management solutions.
 - f. Within 3 years, dedicate at least 25% of our total U.S. funding to people of color led or owned organizations working on climate-friendly financing solutions. In 2018, the boards and senior staff of organizations receiving Hewlett Foundation grants were comprised of 13% and 17% people of color, respectively.
 - g. Within 3 years, dedicate at least 40% of total funding in China, the European Union and the United States to women-led or owned organizations working on climate-friendly financing solutions. In 2018, the boards and senior staff of organizations receiving Hewlett Foundation grants were comprised of 33% and 44% women, respectively.
 - h. Within 3 years, increase the number of partners and funders working on retail banking solutions by at least 50% (baseline of six partners and three funders in 2018).
2. Markers of success that measure the indirect impact of strategy actions:
 - a. Within 18 months, there will be significant increase (at least 100 financial institutions) in disclosure of financed emissions and disclosure of climate-friendly investments.
 - b. Within 3 years, at least one new sustainable retail banking product and/or service aimed at financing climate-friendly activities will be available in two of our three focus regions.
 - c. Within 3 years, at least one new passive asset management product and/or service aimed at financing climate-friendly activities will be available in two of our three focus regions.
 - d. Within 5 years, at least five economies (national and sub-national) will adopt climate-friendly finance policies that directly or indirectly mobilizes capital for GHG mitigation.
 - e. Within 5 years, 25% more capital will be deployed annually (or about \$100 billion more compared to a baseline of \$500 billion in 2017) to GHG mitigation.

²⁹ Here carbon accounting is defined as a methodology used by financial institutions for measuring the carbon footprint of their investments and loans. The linked report by the Platform for Carbon Accounting Financials (PCAF) provides detailed information around their harmonized carbon accounting methodology for the financial sector. PCAF, "Harmonizing and Implementing a Carbon Accounting Approach for the Financial Sector," (2018). <http://carbonaccountingfinancials.com/wp-content/uploads/2018/11/PCAF-report-2018.pdf>.

VII. Next Steps

The foundation will take the following steps to kick off the strategy:

1. Within 18 months, hold at least three regional convenings to communicate the strategy and initiate discussions dedicated to climate-friendly investment solutions.
2. Within 18 months, develop and initiate a communication plan to share the strategy publicly.
3. Within 18 months, release at least one RFP to initiate grantmaking to implement at least one component of the strategic actions.

VIII. Conclusion

Despite calls to action from scientists, leaders, and communities around the globe, investing in climate-friendly activities is lagging significantly behind the necessary levels to limit global warming to well below 2°C. Several countries, including some of the world’s largest carbon emitters, have already increased public spending to address climate change, yet public dollars alone cannot make up the difference. Therefore, accelerating private investment is a critical piece to meet the level of funding required to tackle the climate challenge—and the Hewlett Foundation is stepping up our efforts.

Increasing mitigation activities requires a significant change in behavior and reallocation of the investment portfolio and reflects the need to create a financial system better aligned to climate challenges. We are encouraged by the wave of activities aimed at integrating climate issues into investment analysis and decision-making. New partnerships, collaborations and products are being launched, while big data, machine learning and other new tools are being developed to include risks not traditionally accounted for. We also recognize that these same new tools and activities have the power to disrupt the current financial system and that disruption has already begun. In preparing this strategy, our thinking started with how the financial system is organized, and how it is evolving. We see an opportunity to harness this ongoing disruption to encourage all investors—especially new banking and asset manager entrants, to reach climate-related goals with those new tools. Yet, even with these shifts, many barriers remain.

Our Climate Finance Strategy addresses a range of project to portfolio level barriers that limit the free flow of capital to climate-friendly activities. We commit approximately \$75 million to grantmaking that support tailored actions in China, the U.S. and the EU. In this effort, we seek to engage with investors at all levels—from the largest institutional asset holders that have been active in climate-friendly investing, down to the consumers that make investments (including passively) on a smaller scale. In the spirit of collaboration, The Hewlett Foundation will hold a forum in each of the three regions to present this Climate Finance Strategy to local partners, stakeholders and key counterparts on the ground. Looking ahead to 2050, the time is now to mobilize the capital needed to decarbonize the economy.