

FINANCING THE GREEN TRANSITION: ADDRESSING BARRIERS TO CAPITAL DEPLOYMENT

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Abstract: Combating climate change at a global scale requires dramatic mobilization of capital markets. By 2035, more than \$53 trillion will need to be invested in energy supply and efficiency in order to achieve climate targets laid out in the 2015 Paris Agreement. Interest and participation in sustainable finance continues to grow: environmental, social, and governance (ESG) investing assets under management totaled \$30.7 trillion (of which \$1 trillion is specifically classified as sustainability-themed) at the start of 2018, representing a 34% increase over the preceding two years. Yet, the capital that is available for investment in sustainable assets may not be well-matched with the pipeline of projects in search of financing. Green asset classes, including renewable generation, infrastructure, energy efficiency, and clean transport, are often inherently novel, small, and/or disaggregated. This makes them difficult and expensive to combine into investment-ready formats, preventing capital from being deployed on the timescale required to enable a quick energy transition. Moreover, market barriers exist with respect to early-stage financing and proving the viability of new markets and business models. In this article, we explore the hurdles and barriers that financial actors must overcome to ensure efficient capital matching that bridges the gap between climate awareness and meaningful climate investment.

INTRODUCTION

Combating climate change at a global scale requires dramatic mobilization of capital markets. The International Panel on Climate Change (IPCC) estimates that \$2.4 trillion—approximately 2.5% of global GDP—would need to be invested in the energy system every year through 2035 in order to limit climate change to 1.5°C.¹ The International Energy Agency (IEA) estimates that more than \$3.5 trillion must be invested annually in energy supply and efficiency to achieve 2050 climate targets laid out in the Paris Agreement.² A broad suite of financial strategies—including debt instruments, derivatives for risk mitigation, and asset securitization strategies—will be critical to facilitating the transition of clean energy infrastructure.

This paper focuses on hurdles to financing green infrastructure projects and considers financial solutions developed by the private sector as well as ways in which public intervention can serve as a catalyst for unlocking or scaling private funds. We examine financial solutions in two major categories: strategies for risk management that enable growth of the project pipeline, and strategies for aggregation and securitization for deploying capital at scale. We first note the important role of green bonds as a sustainable asset class and identify key hurdles to growing the burgeoning green bond market. Though a highly successful young asset class, green bonds primarily serve as a refinancing tool and are not sufficient to meet the range and scale of capital deployment necessary to meet global climate goals. Thus, we outline additional financial solutions that will be essential to unlocking clean energy investment, such as project preparation facilities (PPFs), development finance institution (DFI) co-lending, aggregation, and securitization.

TWO KEY BARRIERS TO CAPITAL DEPLOYMENT: PIPELINE AND SCALE

The volume of public funding available to finance renewable energy, energy efficiency, and clean transport projects is limited, which means that unlocking private sector investment at scale is critical. According to the International Renewable Energy Agency (IRENA), available public funding may amount to just 15% of the financing required to meet decarbonization targets.³ Capital markets and private sector investment will need to be fully engaged to supply the remaining capital required. Fortunately, the capital appetite for environmental and clean energy investing is considerable: the Global Sustainable Investment Alliance estimates that environmental, social, and governance (ESG) investing totaled \$30.7 trillion of assets under management (AUM) (of which \$1 trillion is specifically classified as sustainability-themed) at the start of 2018, representing a 34% increase over the preceding two years.⁴ A group of European institutional investors recently launched the Climate Endowment, aiming to deploy up to €40 billion of capital from pension funds and insurance companies in sustainable businesses and technologies.⁵ In the United States, the New York State pension fund is an example of a similar program with investment targets of up to \$20 billion.⁶ Initiatives such as the United Nations-led Principles for Responsible Investment, whose members include asset owners, investment managers, and service providers with \$90 trillion AUM, indicate the ambition of mainstream financial institutions to continue to grow ESG investment practices.⁷

These anecdotal examples are indicative of the oft-repeated notion that a “wall of capital” is available for sustainable investments. The challenge is to efficiently match that capital to projects that are not only attractive from the perspective of would-be investors, but are also climate-impactful. Both public and private sector advances

are imperative to achieving emission reduction targets. Ideally, comprehensive policy interventions designed to monetize the full social benefits of green energy and infrastructure projects—i.e., explicit pricing of greenhouse gas emissions—would correct current market failures. However, in their absence, this paper focuses on financial innovations that will help push the increasingly competitive economics of clean energy assets over the finish line.

Barriers to green finance vary across sectors and geographies; the financing environment in developed markets, for instance, is very different than in emerging markets, while the financing challenges facing renewable energy projects can be very different from those in the electric vehicle sector. Still, there are common themes in the obstacles to sustainable finance that span numerous geographies and sustainability-linked sectors. The most critical financial barriers to maximizing private sector capital deployment toward clean energy development are 1) those that limit the pipeline of projects available to investors and 2) those that limit the scale of their investment even in commercially-viable projects.

First, sustainable assets like renewable power generation continue to have difficulty accessing early-stage financing due to the risks inherent to the pre-construction phase of projects. This is often a major inhibitor of the pipeline of projects. As noted above, public funding will comprise a small percentage of the capital ultimately deployed, but its strategic use will be essential to accessing and leveraging the private capital necessary to fund the green transition. Early-stage financing is just one example of how relatively small amounts of strategically-placed public funding can be an important catalyst for attracting much larger amounts of private sector investment. McKinsey & Company estimates that development capital and the use of risk-mitigation mechanisms have the ability to mobilize \$1.8 to \$2.8 trillion over 15 years.⁸

Public funding for sustainable sectors can come from many sources, including development finance institutions (DFIs) and publicly-capitalized green banks, or directly from governments themselves. While some public finance interventions target social or policy objectives via “concessional” financing (i.e., investments that, by definition, yield below-market returns), those are outside of the scope of this discussion. The focus here is on financially-viable private sector investment, and public finance interventions that facilitate the development of unproven or early-stage market segments and put them on a path to sustained private funding. This is in line with the self-identified primary objective of many public finance institutions such as; the International Finance Corporation (IFC), the private investment arm of the World Bank Group; from 2014 to 2016, “creating markets” was the rationale for approximately 97% of the IFC’s blended public-private financing.”⁹

Second, many green infrastructure assets, such as small-scale renewable generation

or residential energy efficiency, are disaggregated and heterogenous, leading to high transaction costs and a lack of asset liquidity. The illiquid nature of these assets, whether due to scale or risk profile, prevents the erstwhile wall of capital from being easily or quickly deployed. A lack of standardization and accountability in some asset classes also creates a risk that capital intended for sustainable purposes will instead be diverted to projects that do not have true climate impact.

GREEN CAPITAL INSTRUMENTS: THE RISE OF GREEN BONDS

Financial products are a critical tool for enabling investors to explicitly allocate funding to green projects. Green bonds are one of the most accessible low-carbon financial instruments currently available for matching investor preference for sustainability with relevant projects. According to the Global Sustainable Investment Alliance (GSIA), fixed-income (debt) made up 36 percent of sustainable asset allocation in 2018.¹⁰ Green bonds are fixed-income securities intended to finance environmentally-beneficial or climate-aligned projects. Structurally, they are similar to conventional bonds, and are most often held as senior secured or unsecured debt, though in recent years, green debt obligations have increasingly been packaged into derivatives, including mortgage-backed securities (MBS) or asset-backed securities (ABS). Green bonds are used to finance a wide range of activities, from large-scale wind and solar generation, to energy efficiency upgrades in multi-family buildings, and mass transit or electric vehicle fleet transitions.

The green bond market has grown dramatically since the World Bank issued the first green bond in 2008.¹¹ Over the subsequent decade, the World Bank has issued more than \$15 billion in green bonds, with nearly 70 percent of current commitments dedicated to renewable energy, energy efficiency, and clean transportation projects.¹² Global green bond issuance in 2018 totaled over \$182 billion, which, when paired with the full range of sustainable debt products, brought green lending to nearly \$250 billion.¹³ Cumulative global green bond issuance now stands at over half a trillion dollars, with more than 60 percent of bonds supporting renewable energy and sustainable transport.¹⁴ Once dominated by public issuers (national governments, municipalities, and development banks), the green bond market has seen a large expansion of activity from financial institutions and non-financial corporates. Since 2017, non-government entities have issued over half of green bonds globally.¹⁵ Green bonds have also grown in popularity in new and emerging markets. Though the U.S. was the top issuer of green bonds in 2018, growth was highest in the Asia-Pacific region.¹⁶

The success of green bonds to date has been buoyed by familiarity and performance. Generally, green bonds have the same financial characteristics as their non-green counterparts, offering similar yield, price, and credit quality.¹⁷ Existing

analysis does not indicate clearly how bond pricing and performance will evolve. Several recent studies point to the existence of a “green premium,” in the form of lower yields relative to non-green bonds with similar risk and liquidity profiles. On the other hand, several studies have also found economically equivalent pricing, and more than one study observes a green discount (i.e., higher yields). It is therefore not obvious that green bonds experience differentiated pricing. At present, this suggests an equilibrium state between investors, who are not receiving a discount for projects they might perceive as relatively risky, and issuers, who are not enjoying a premium (i.e., lower borrowing rates) for their green activity. Market participants indicate that demand for green debt from investors is now outstripping supply, as demonstrated by oversubscription of issuances. In general, investors are unlikely to accept lower yields for green assets. However, if ESG-focused assets under management continue to grow and certain investors are restricted to investing in green issuances, this effect could compound the short supply of green bonds, putting downward pressure on yields. There is also some evidence that green bonds may also be less risky than conventional bonds. Credit rating agency Moody’s has found that 10-year cumulative default rates for green project finance bank loans are 5.7%, which is well below the non-green projects rate of 8.5%.¹⁸ However, if true, these characteristics should ultimately be incorporated into the associated bond ratings.

As demand for green bonds continues to grow, there is a need to increase the issuance pie by adding clarity and consistency to the existing green classification, thus making it accessible to a larger number of potential issuers. At the same time, it is important that green bonds continue to execute their explicit mandate to enable meaningful environmental improvements in addition to returning capital to bondholders. One central challenge in the green bond growth trajectory has been establishing consistent standards for determining a bond’s “green” impact. At present, issuers can generally declare their debt issuance to be green, and there is no universal standard for investors to differentiate between various offerings on the basis of emissions reduction value. In 2018, nearly 90 percent of green bond issuances have some third-party review of sustainable impact, but only a small share were rated by agencies.¹⁹ Many issuers adhere to the Green Bonds Principles (GBP), a voluntary framework for determining green activity developed by the Climate Bonds Initiative (CBI). The GBP methodology has been adopted by many issuers and underwriters, but lack of universal, enforceable standards continues to be of concern.²⁰

Complicating matters is the classification of “transition” bonds, or bonds whose goal is to reduce emissions incrementally, but not necessarily to target a fully sustainable outcome. For example, transition bonds may be used to move an industrial energy consumer from coal to natural gas. Such a move would be expected

to result in incrementally lower carbon dioxide emissions, but also perpetuates the use of fossil fuels. While some lenders have voluntarily strengthened their own impact reporting, regulation and monitoring will likely be needed as the market matures and investors become more discerning and conscious of avoiding reputational risk.²¹

While green bonds are a useful tool for allocating capital to green infrastructure, they fail to address some key gaps in the sustainable asset lifecycle. Green bonds are not used often to fund early-stage project construction. Lenders typically prefer to see several years of operational data for a wind or solar farm, for example, before placing debt in the project. Green bonds also can face a mismatch between the scale of typical issuances and the scale of deal size required by prospective purchasers. Institutional investors tend to seek transactions valued at hundreds of millions of dollars; any investment requires due diligence, and when faced with the challenge of having to deploy very large amounts of capital on an ongoing basis, institutions are incentivized to put their time and resources into very large projects.²² Typical green bond offerings have historically been relatively small (median deal size was \$50 million in 2015), inhibiting their appeal to institutional investors, though large issuances have become more common in recent years, with typical deal size reaching more than \$100 million in 2018.²³

While green bonds can be used to refinance existing projects, they may have limited additionality, or the ability to directly enable new builds which previously lacked access to capital.²⁴ While the existence of a liquid refinancing market brings benefits to early-stage investors and developers, allowing them to recycle capital and direct resources to new projects, a liquid refinancing market generally existed before these issuances were labeled as “green.” The question of green bond additionality thus remains an open one. If a green bond premium develops in capital markets over time, then lower refinancing costs could result in a lower overall cost of capital for green projects, enabling incremental deployment. There can also be benefits to issuers from diversifying their investor base, which may reduce funding and other risks for issuers. The existence of a sizable green bond market may have indirect benefits as well. Green bonds provide transparency and information on the sustainability activities of sovereign and corporate issuers, which may allow investors to make more informed investment decisions with respect to the entities as a whole.

Green bonds have experienced impressive growth, but they remain an extremely small proportion of global annual debt issuance. The Institute of International Finance estimates that green bonds in 2018 totaled less than half of one percent of the \$110 trillion global bond market.²⁵ The OECD estimates that bond financing could scale to \$620 to \$720 billion per year under a pathway to contain temperature rise to 2 degrees Celsius. Doing so will require both the corresponding policy and

regulatory measures for meeting such a scenario, and a continuation of institutional investors' growing appetite for low-carbon investment.²⁶ As the green bond market matures, larger issuances and transparent standards will be needed to scale the asset class and ensure that it fulfills its climate mandate. In the meantime, broader financial innovation will be needed to bridge the financing gap for underserved market segments.

RISK MITIGATION TO GROW THE PROJECT PIPELINE

A robust pipeline of clean energy projects is a prerequisite for investment capital to flow towards low-carbon activities. Because many of these projects involve relatively new technologies, unconventional revenue sources, or activity in new and emerging markets, they may be seen by investors as risky despite the potential for commercial returns. Perceived risk can inhibit access to private capital and diminish the pool of prospective investable projects. Public finance institutions that are able to take riskier or subordinated positions can serve as a bridge to private sector viability by injecting relatively small but critical amounts of capital at early or otherwise challenging stages of project development. This concessional investment serves to demonstrate the viability of new assets or markets and leverages considerably higher participation of private capital.

De-risking Early Stage Activities

The riskiest stage of clean energy project development is typically before construction, when developers seek short-term financing to conceive of and develop a prospective project. Activities such as project design, feasibility studies, environmental impact studies, risk and resource assessments, and advisory services for arranging financing are necessary for bringing early-stage projects to the execution phase. Such activities require funding before the project can be collateralized, and certainly before it can generate revenue. While project finance may be available for later stage projects, lenders are generally less comfortable providing capital to a project at this early phase, before they have any assurance of repayment. Investor discomfort with pre-construction activities may be particularly acute in emerging markets, where factors like regulatory uncertainty and lack of available labor and resources can render early-stage projects especially risky.

While availability of early-stage funding for green infrastructure projects has improved as investors have become more comfortable with the asset class, some segments of the clean energy sector continue to be constrained by a shortage in the pipeline of "bankable" projects.²⁷ Publicly funded project preparation facilities (PPFs) and other methods of technical assistance can alleviate this early stage financing gap. PPFs address that gap by providing the grants, equity, loans,

guarantees, and other forms of capital that can be used to finance development of early-stage projects. While some PPFs earn a commercial return as later-stage investors step in to the projects, public-funded PPFs that provide capital either in the form of grants or through recovery of development expenses at cost, will continue to play an important role. Increasingly, PPFs are focused on engaging private investors with strong track records in a given market in order to leverage their technical and financial expertise.

Co-Lending to Leverage Private Capital

Demonstration projects financed by public finance institutions help to facilitate the development of unproven markets. These interventions can help address unwarranted market perceptions about risks and commercial viability. Governments and other public funding institutions can participate in these projects by taking cornerstone equity stakes. “Co-investing” or blended finance structures are increasingly popular tools that allow public finance institutions to lend alongside private investors.²⁸ Under a co-investing approach, the public funder accepts first-loss or other subordinated positions, providing assurance to private-sector participants who invest in amounts many multiples above the public entity’s contribution. In situations where a public agency has valuable local knowledge or is better equipped to evaluate risks, it can make sense for public capital to take these positions in order to prove out a new market concept. In unique situations, public finance entities sometimes provide risk mitigation instruments in the form of loan guarantees or insurance products to target similar ends.

Assuming the investments perform as expected, such demonstration projects can help address a market shortage of data, information, and skills, thereby assisting in the development of a self-perpetuating private sector.²⁹ Once a market has been more fully developed, in theory, public finance entities can consider selling down their financial stakes in order to recycle capital into more impactful early-stage endeavors. This refinancing concept has been explored by Bloomberg New Energy Finance (BNEF)³⁰ and the UN’s Sustainable Energy for All (SEforAll) initiative, but has not been implemented at a large scale.³¹

SCALING INVESTMENT THROUGH AGGREGATION & SECURITIZATION

Enabling development and implementation of individual projects is one step in promoting a pipeline of available clean energy investment opportunities. Another is ensuring that the characteristics of those projects match the investment parameters of prospective backers. As traditional sustainable finance sources like electric companies and banks become more constrained, large institutional investors such as pension funds, insurance companies, and investment funds are an increasingly important

constituency in the future of clean energy deployment.³² Institutional investors in OECD countries hold more than \$84 trillion of assets under management.³³ To be sure, they are a heterogenous group and have widely varying requirements in terms of risk profile, illiquidity tolerance, and other investment preferences or constraints.³⁴ However, broadly speaking, what most institutional investors have in common is that they deploy large tranches of capital that need correspondingly large recipients. Accessing the tremendous volume of capital managed by institutional investors requires the consolidation of small projects into large, diverse portfolios. Existing efforts to aggregate and securitize clean energy assets represent two complementary approaches that financial institutions can build upon to reduce risk and promote liquidity.

Aggregating Projects for Lower Transaction Costs & Diversified Risk

When investors—large or otherwise—make a decision to deploy capital, they conduct due diligence that requires some amount of cost or effort to understand the investment and its potential profit and risk. That effort and cost is not necessarily smaller for a smaller denomination investment. Whether considering a project valued at \$10 million or one valued at \$100 million, investors need to understand all the same project characteristics and risk factors. For that reason, investors, especially those that need to deploy large amounts of capital, look for scale. As noted, institutional investors, including pension funds and insurance companies, search for benchmark-size deals, often on the order of \$300 million or more.³⁵ Many green investments – or prospective investments – are disaggregated, heterogenous projects like distributed generation, microgrids, residential and commercial/industrial energy efficiency, and electric vehicle (EV) charging. Such projects could potentially be profitable on the basis of operational economics, but the transaction cost to sourcing, negotiating, and de-risking them individually renders them uneconomic.³⁶ Furthermore, in emerging markets, the project pipeline might not be apparent to large investors, and they may therefore be reticent to establish and build local due diligence capabilities.³⁷ Project aggregation involves identifying and bundling a portfolio of similar investments. Aggregating projects makes it easier for investors to efficiently access a large number of small projects without prohibitive transaction costs.

Aggregators can improve access to primary markets by sourcing potential clean energy projects and packaging them with standardized contracts. Functionally, creating portfolios that comprise many smaller investments helps meet the requirements for minimum deal size necessary to engage large investors. Aggregation is also useful in less developed capital markets that may lack de-risking mechanisms like extensive historical performance data for different asset types or robust

credit scoring of borrowers. Such risks can be managed through diversification of underlying assets.³⁸ One model for aggregation is to bundle a portfolio of generation assets and raise a fund to facilitate lenders interested in providing debt to those projects. Companies such as Wunder Capital, which operates in the United States, and SunFunder, active in several countries in Africa, have followed this approach to pooling projects on one hand and private lenders on the other to support the development of small- and medium-scale solar projects.

Securitization for De-Risking Investment by Adding Liquidity

A second and complementary approach to diversifying risk and making projects easier to access is the securitization of clean energy assets. Securitization involves creating tradeable securities whose underlying assets are bundles of aggregated projects. Securitization allows investors to buy or sell a stake in aggregated project portfolios, creating much-needed liquidity.

Investors may be satisfied to invest directly in an aggregated set of projects, but some may seek a more liquid investment that can easily be traded depending on portfolio requirements. This is done by pooling already aggregated projects into a single financial instrument that can be bought or sold by retail or institutional investors on an exchange. Securities may be debt obligations, in which investors are entitled to a small portion of debt repayments from a large number of projects, or they may be equities, in which the investor is entitled to a share of the cash flows from a portfolio of assets. For such securitized instruments, due diligence on underlying projects is still required, but if it can be done for a large number of component projects on a uniform basis, this significantly reduces transaction costs.

One of the most successful examples of clean energy securitization at scale is the emergence of clean energy yieldcos. Yieldcos are publicly traded shares of “companies” which are vehicles that hold a portfolio of operational clean energy generation assets.³⁹ Shareholders in yieldcos receive dividends funded by the cash flows from the wind or solar projects owned by the yieldco. Because the cash flows of these projects are typically backed by long-term power purchase agreements with creditworthy offtakers, yieldcos are structurally similar to fixed-income investments, though in practice their returns may be more variable.⁴⁰ Yieldcos first emerged in 2013, and there are now approximately two dozen yieldcos listed on markets around the world. Securitization of operational renewable energy assets in the form of yieldcos provides several benefits to investors: bundled project portfolios diversify risk (relative to investing in a single project), returns are relatively stable and non-correlated with other asset classes, and the yieldco vehicle frees up capital for developers to reinvest in new projects. Expansion of yieldcos should continue to facilitate institutional and retail investment in renewable energy projects,

particularly if they are able to achieve sustainable growth under improved tax structures.⁴¹ Although yieldcos have been primarily focused on North American and European markets, some yieldcos such as Atlantica Yield and Brookfield own renewable assets in emerging markets like China, South Africa, and Brazil.⁴² As capital markets continue to develop and investors become more comfortable with the risks associated with operating in these markets, this model could continue to grow in other regions.

Securitization of debt has become more common through the issuance of instruments such as ABSs.⁴³ In the green finance context, ABSs are essentially a specific type of green bond that bundles many small debt obligations, such as home solar loans or lease payments on electric vehicles, into a single financial vehicle. Since 2013, ABS and MBS issuances have grown from a negligible portion of total green bond issuances in 2013 to more than 10 percent in 2018.⁴⁴ Green ABS issuances have largely been dominated by green MBSs from U.S. government agencies Fannie Mae and Freddie Mac through its Green Initiative program targeting mortgages for certified low-carbon buildings. In 2017, those agencies issued \$26.4 billion of green mortgage-backed securities, well beyond other green ABS asset types, like home solar leases (\$2.5 billion) and Property Assessed Clean Energy (PACE) loans for residential energy efficiency and renewable energy improvements (\$4.3 billion).⁴⁵ The growth of solar lease and, to a lesser extent, PACE products has largely been enabled by growth and financial innovation in the U.S. residential solar market.⁴⁶ Auto leases are also being used for green ABS issuances, with participation from automakers like Toyota and Tesla.

While securitization of green assets has seen impressive growth in recent years, some market segments remain difficult to access. Financing energy efficiency projects can be particularly challenging due to poor standards for measuring and benchmarking savings, split incentives, intangibility of cash flows, and high transaction costs. Expansion of risk mitigation techniques such as on-bill financing for energy efficiency upgrades and warehousing of energy efficiency loans could be helpful in spurring more investment.⁴⁷ Market participants also note that creation of ABS instruments using receivables from solar pay-as-you-go projects could be important for connecting capital markets with off-grid energy production for rural homes and businesses.⁴⁸ Overall, continuing to securitize clean energy investments should lead to a virtuous cycle of investor familiarity and longer asset track records. Liquidity in these asset classes will continue to grow as markets mature and more sustainable assets are transacted.


CONCLUSION

Current green finance instruments catalyze new projects for new pools of capital.

However, the overall size of capital markets still dwarfs the size of the green capital pool. Even within the energy sector, annual investment in fossil fuel extraction and construction stands at \$1.1 trillion, far outstripping the \$280 billion invested in renewable energy sources.⁴⁹ Comprehensive climate policies will be an essential driver of project pipelines, but regardless of that development the transition to a low-carbon economy will require a large amount of private investment. Ensuring efficient pathways to sustainable investment through well-developed capital instruments provides a key link between the growing pool of sustainable investors and the green projects they seek.

This paper has assessed the need for financial innovation to address 1) project pipeline growth and 2) capital matching and scale issues, in order to drive more capital into clean energy projects. Several mechanisms outlined here address these two key financial barriers including green bonds, project preparation facilities (PPFs), development finance institution (DFI) co-lending, aggregation, and securitization. While public funds will make up only a small proportion of the total capital needed to decarbonize the global energy system, such funding should be used strategically to reduce risk and catalyze private funding at large scale.

Certainly, adequate financing is only one condition for scaling investment in the green transition. Some prerequisites for green investment are common to many new technologies or assets classes; in emerging markets, many of the challenges to green energy investment are common to capital investment more generally. In order for solar installations or wind farms or electric vehicle charging assets to be viable at all, for example, they must have a pathway to meeting consumer demand through sufficient supporting infrastructure. Good governance, characterized by consistent policy regimes and well-developed legal and financial frameworks, is essential to ensuring an adequate pipeline of projects seeking finance. It should also be noted that scaling investment to the degree required for large-scale decarbonization will require redirection of conventional or “brown” capital funded by existing investors. Wide-scale carbon pricing and robust climate risk disclosure would drive a faster reallocation of existing capital to sustainable investments.

Nonetheless, the sustainable financing gaps and market failures that exist under today’s imperfect conditions can be addressed through efficient financial solutions and structures. Easier access to capital and lower financing costs can enable entrepreneurs and developers to pursue more projects at lower costs, in turn attracting more investors to green asset classes. Building on financial innovations from private investors, as well as leveraging public funds, is critical to bridging the gap between climate-concerned investors and the critical projects that will deliver a green transition. 

NOTES

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