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UNLOCKING PRIVATE CLIMATE INVESTMENT: FOCUS ON OPIC AND EX-IM BANK's USE OF FINANCIAL INSTRUMENTS

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EXECUTIVE SUMMARY

As global mean temperatures rise, governments and public financial institutions are seeking ways to mobilize the several hundred billion dollars of finance required to limit the growth of greenhouse gas emissions in developing countries and develop climate-resilient economies. This working paper is one in a series of papers that examines how public funds can mobilize private investment to help meet the significant needs of developing countries. We examine two public actors—the Overseas Private Investment Corporation (OPIC) and the Export-Import Bank of the United States (Ex-Im Bank)—which together intermediated 37% (over $2 billion) of total US assistance to developing countries for climate change activities from 2010 to 2012 *by exclusively financing private sector projects.*[1]

The paper draws from the experiences of OPIC and Ex-Im Bank to inform other public financial institutions and mechanisms—including the Green Climate Fund and public intermediaries of climate finance—about how financial instruments can be employed to promote private sector investment[2] in climate-relevant sectors.

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The paper focuses on three aspects of OPIC and Ex-Im Bank's climate-relevant financing activities:

1. **Financial instrument offerings and trends in their use** to inform how public institutions can tailor financial tools and terms to specific sectoral and project requirements;

2. **Replicable financing structures** that showcase how public financial institutions can work with each other and with the private sector to overcome unique investment barriers in climate-relevant investments in developing countries; and

3. **Institutional barriers** that can hamper public institutions like OPIC and Ex-Im Bank from more effectively deploying financial instruments to unlock investment in climate-relevant markets.

To arrive at the conclusions and preliminary recommendations outlined below, WRI conducted a review of 42 OPIC climate-relevant projects and 45 Ex-Im Bank climate-relevant projects in developing countries from 2008 to 2012 (representing cumulative financial commitments of US$2.7 billion and US$0.7 billion, respectively; see Section II: Methodology for more information on criteria and limitations and Sections III and IV for background on OPIC and Ex-Im Bank). WRI also developed three case studies showcasing different technologies, regions, and the range of support offered by these two institutions, and finally, consulted with staff, clients, and other experts on relevant institutional barriers. Box 1 summarizes key takeaways from WRI's analysis of financial instruments and structures.

Box 1 | **Key Takeaways**

1. **Tailoring traditional financial instruments to address investment risks specific to climate-relevant sectors can unlock new sources of private finance.** Unique financing structures have helped address specific project requirements for climate-relevant projects. For instance, OPIC structured a direct loan to ContourGlobal Solutions Holdings to serve as a portfolio credit facility, and created a loan guarantee to SunEdison Thailand to act as a revolving construction bridge financing facility (see Section III). OPIC has also designed new political risk insurance instruments that protect against unexpected changes in climate change-related policies (see Section III and the Oddar Meanchey case study).

2. **Public financial institutions can maximize their impact by playing complementary roles depending on their risk profiles and instrument offerings.** For example, OPIC is often a first-mover, supporting first-of-their-kind projects and testing out new financial instruments. Ex-Im Bank, on the other hand, provides very inexpensive debt on concessional terms, but has a lower risk-tolerance relative to OPIC, and thus tends to finance more established players. OPIC clients could graduate to become Ex-Im Bank clients to benefit from the comparative advantages of each institution and help Ex-Im Bank build its pipeline of climate-relevant projects. Furthermore, OPIC and Ex-Im Bank support can be further complemented by financing from other multilateral and bilateral public financial institutions—either concurrently or at different points in time (see Sections III and IV and case studies, particularly the Azure Power case study).

Source: WRI

Financial Instruments and Trends in Their Use

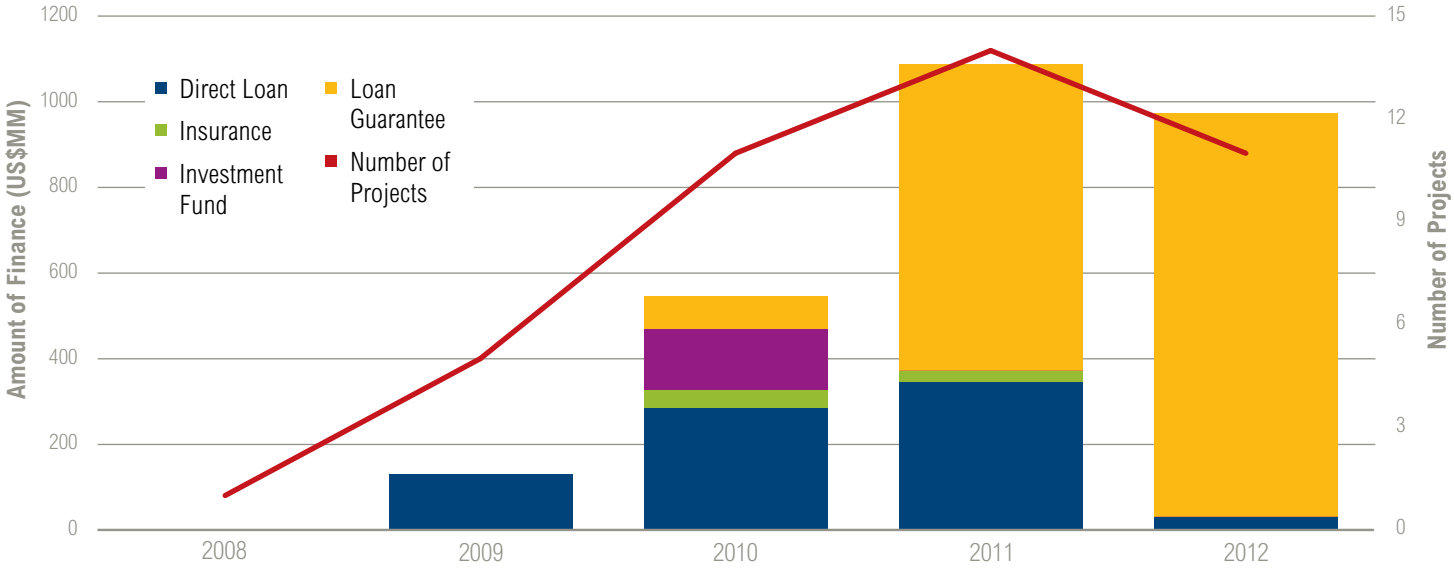
OPIC and Ex-Im Bank offer a similar suite of financial instruments—direct loans, loan guarantees, and insurance—but have varying priorities and fill different finance gaps (Table 1). OPIC, a development finance institution, has a development mandate and has also made supporting renewable resources a top priority; this is clearly reflected in the size and growth of its climate-relevant portfolio in recent years. Ex-Im Bank, an export credit agency, has a mandate to promote US exports abroad, and while Congress has required it to support renewable energy exports, this is just one of many industries it supports.[3] Since 2008, Ex-Im Bank has disbursed a lower volume of finance than OPIC to climate-relevant projects in developing countries. Nevertheless, both OPIC's and Ex-Im Bank's financing for climate-relevant projects have increased over the past 5 years (Figure 1).

Both OPIC and Ex-Im Bank have reduced transaction costs, either indirectly by supporting the same clients multiple times or directly through the targeted use of instruments designed to bundle or streamline transactions. The cost and time savings associated with financing familiar clients are especially helpful for newer climate-relevant markets, since lowering transaction costs improves the risk-reward profile of an investment. In addition, OPIC and Ex-Im Bank have designed instruments—like portfolio credit facilities, master contracts, and multibuyer insurance policies—

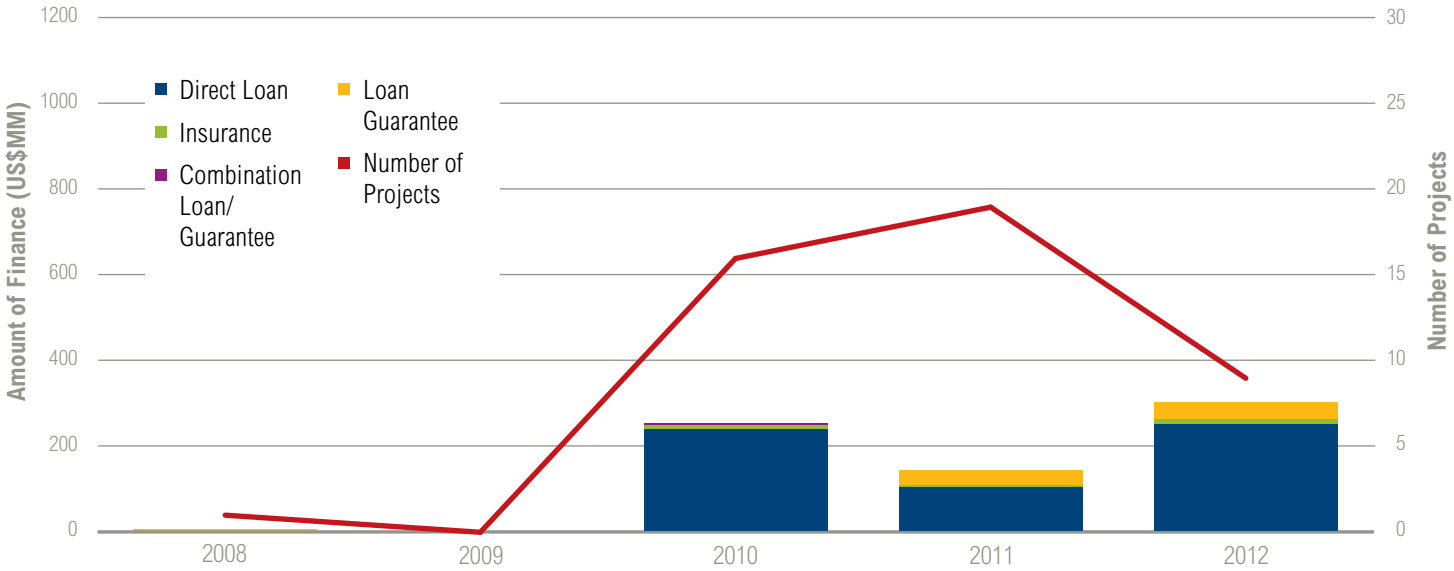
that bundle multiple projects or allow the same project developer or exporter to access support seamlessly, without having to undergo a full authorization process each time. Although there is no evidence to suggest that either OPIC's or Ex-Im Bank's current practices have crowded out project sponsors or companies with viable projects that meet either agency's congressionally mandated eligibility requirements, careful client management remains critical to avoid the risk that supporting repeat clients will come at the expense of other players.

Figure 1 | **Financial Support for Climate-Relevant Projects in Developing Countries by Instrument, 2008–2012**

Overseas Private Investment Corporation



Export-Import Bank of the United States



Source: WRI, using OPIC and Ex-Im Bank data. See WRI's accompanying Methodology Document for data selection criteria.

Table 1 | **Overview of Financial Instruments Provided by the Overseas Private Investment Corporation and the Export-Import Bank of the United States**

TYPE OF INSTRUMENT	INSTRUMENT	INSTITUTION	DESCRIPTION
DEBT	Direct loan	OPIC and Ex-Im Bank	Both OPIC and Ex-Im Bank lend to eligible borrowers on a senior basis, meaning that they have first claim on fixed assets and other collateral if the borrower defaults.
DEBT/ DERISKING INSTRUMENT	Loan guarantee	OPIC	OPIC participates as a senior lender (with first rights on assets and collateral), lending to the eligible borrower by issuing certificates of participation (COPs) in the US debt capital markets. Instead of repaying OPIC, borrowers pay COP holders, who are guaranteed payment by OPIC.
		Ex-Im Bank	Ex-Im Bank guarantees repayment of a commercial bank loan if the foreign buyer fails to pay.
	Investments in private equity (PE) funds via loan guarantees funded by COPs	OPIC	OPIC provides senior debt to investment funds that pool investments in the equity of multiple projects and/or companies. PE funds aim for investment growth through capital gains or dividends.
	Political risk insurance	OPIC	OPIC agrees to pay or settle valid claims if losses arise. This insurance protects the international investments of US investors, lenders, contractors, exporters, financial institutions, and nongovernmental organizations.
	Export credit insurance	Ex-Im Bank	Ex-Im Bank agrees to pay or settle valid claims if losses arise. This insurance protects US exporters from the risk of buyer nonpayment for commercial risks (e.g., bankruptcy) and certain political risks (e.g., war or the inconvertibility of currency).

Source: WRI, using information from OPIC and Ex-Im Bank websites

AVAILABLE STRUCTURES	HOW BARRIERS ARE ADDRESSED
■ Corporate loans (OPIC and Ex-Im)—secured with collateral from borrower's assets ■ Limited recourse project finance (OPIC and Ex-Im)—secured with the assets of the special purpose company and the cash flows of the project ■ Structured finance (Ex-Im)—secured with a combination of collateral, cash flows of the project, and credit enhancements to the borrower's balance sheet ■ Portfolio facilities (OPIC) – portfolio of loans that meet preagreed parameters, created in partnership with a US financial services provider	■ By providing access to financing for projects that cannot obtain it commercially ■ By offering longer repayment periods, which improve the financial viability/feasibility of climate-relevant projects ■ By helping attract additional sources of finance after demonstration of success
■ Corporate loans—secured with collateral ■ Limited recourse project finance—secured with the cash flows of the project ■ Portfolio facilities – portfolio of loans that meet preagreed parameters, created in partnership with a US financial services provider	■ By providing access to financing for large-scale projects that cannot obtain it commercially ■ By offering longer repayment periods, which improve financial viability/feasibility ■ By drawing funding for these guarantees from US debt capital markets, which could make capital market investors more comfortable with climate-relevant investments
■ Medium-term insurance for loans up to 10 years ■ Limited recourse project finance loan guarantee—up to 18 years ■ Structured finance loan guarantee—up to 18 years	By helping international buyers get competitive commercial financing, which they may not be able to obtain without the Ex-Im Bank guarantee
COPs issued in US debt capital markets—proceeds provided as a loan to PE fund (COPs guaranteed by full faith and credit of US Government)	By mobilizing private equity capital in developing countries

■ Coverage for three types of political risk:
  ▫ currency inconvertibility
  ▫ expropriation
  ▫ political violence
■ Tailored contracts for climate-relevant investments that protect against changes in policy (REDD, feed-in tariffs and carbon credit/clean development mechanism [CDM])
	By (1) mitigating investment risks and (2) helping attract additional investors to projects

■ Short-term or medium-term ■ Single-buyer or multiple-buyer ■ Comprehensive (commercial and political) credit risk or only political risk	By (1) limiting international risk, thus allowing US exporters to increase sales of climate-relevant goods and services and (2) helping projects obtain additional sources of finance

OPIC Insights

Direct loans for small and medium-sized enterprises (SMEs) seeking to increase their scale can help unlock additional financing from private investors and public institutions. OPIC's direct loans are generally reserved for SMEs that need help expanding into developing markets, including early-stage SMEs without the track record of success required to secure debt financing from other financial institutions (both public and private). For instance, OPIC was the first public financial institution (PFI) to support Azure Power (US$6.2 million) and Husk Power Systems (US$750,000), both clean energy SMEs operating in India. Following OPIC's loans, these companies were able to obtain capital from a range of other public and private sources (see the Azure Power case study in Section V for further discussion).

OPIC has designed its loan guarantees—typically used in larger projects—to mobilize private capital from US debt capital markets. OPIC sells a certificate of participation (COP, an investment note) to capital markets investors (e.g., a pension fund) and uses the proceeds of the sale to fund its disbursement to project borrowers. The borrower then repays the COP holder instead of OPIC, and OPIC guarantees full repayment to the COP holder. By taking this approach, OPIC is able to offer its own attractive terms to borrowers while mobilizing private sector capital from new sources that would not have invested without OPIC's backing. This financing approach—which leverages OPIC's balance sheet—relies on OPIC's creditworthiness, that is, its capacity and willingness to step in and repay lenders if borrowers default.

Tailored financial instruments are critical to growing both early-stage and more mature climate-relevant markets, though they can be challenging to implement. New instruments like OPIC's policy risk insurance, which protects investors from unexpected changes in climate change-related policies (e.g., feed-in tariffs), could have a strong impact, but they are challenging to roll out because OPIC has strict eligibility requirements (US participation) and because a policy regime must not already be weak when OPIC steps in. The timing has to be right, because if policies are fragile or under threat when investors approach OPIC for insurance, it could either be too late for OPIC to prudently step in or the high imminent risk would make it difficult to price the policy cheaply enough to attract investors.

Public institutions that share priorities and approaches and follow similar standards are likely to collaborate and thereby close critical project financing gaps. The International Finance Corporation (IFC), whose mandate and approach is similar to that of OPIC, was the most frequent source of public cofinancing for OPIC projects; 19% of OPIC projects received IFC support, usually in the form of equity. OPIC and the IFC have formalized their collaboration through a Master Cooperation Agreement; OPIC also uses the IFC's Performance Standards on Social and Environmental Sustainability.

Ex-Im Bank Insights

Ex-Im Bank's direct loans combine long repayment periods ("tenors") and low interest rates to improve the risk-reward profile of climate-relevant investments, but they typically are geared toward more established projects and sectors. Ex-Im Bank's direct loans have fixed interest rates set 1% above US Treasury notes (the average in the portfolio reviewed was 4% for long-term 12–18 year loans). These low interest rates decrease the cost of investments (cost of capital), and the extended repayment periods (up to 18 years) can be critical for renewable energy projects since they have long payback periods and commercial sources typically do not offer financing with such long tenors. Nevertheless, while these rates may be very attractive at every stage of market or company development, the Bank tends to favor more established projects, as it did in the case of Azure Power (see Section V). In fact, Ex-Im Bank will provide financing even if commercial finance is accessible, as long as its involvement promotes US exports and jobs; there is no incentive to graduate clients to commercial sources of finance. This is an important distinction for climate finance mechanisms—like the Green Climate Fund—to bear in mind when considering the role of some export credit agencies (ECAs) in channeling climate finance (compared with a development finance institution [DFI] like OPIC, which will not step in if commercial financing is available); while ECAs' attractive financing terms can often help bring projects to fruition, their finance favors exports over local activities and may not necessarily be filling a commercial financing gap.

Ex-Im Bank's loan guarantees and export credit insurance derisk climate-relevant investments, which can help attract private coinvestment. By guaranteeing commercial loans to foreign buyers, Ex-Im Bank covers the risk of nonpayment and allows

US exporters to sell essential components of renewable energy projects to project developers in developing countries at lower risk and therefore lower cost. Ex-Im Bank's loan guarantees can also make commercial lenders more comfortable supporting climate-relevant projects; four of the eight loan guarantees in the portfolio were for loans from PNC Bank, a US private financial institution; the other four were from other commercial banks (private financial institutions that provide financing for private sector projects or corporations), but none of them were based in the destination countries.

Replicable Financing Structures

Three case studies show how public financial tools can contribute significantly to growing new markets and how public actors—through coordination at operational levels—can further scale these markets.

Traditional political risk insurance can be tailored to address the unique policy circumstances of nascent climate-relevant markets. OPIC tailored its traditional political risk insurance contract to create a new product to protect Terra Global's investment in the Oddar Meanchey Reduced Emissions from Deforestation and Degradation (REDD) project in Cambodia. The result was a first-of-its-kind intervention for climate-relevant markets; OPIC provided Terra Global—a carbon developer and investor in the project—with access to a financial product that was not available commercially or from other public financial institutions. The insurance provides coverage that protects against governmental breach of contracts, which can include regulatory risk protection for actions that rise to the level of an expropriation. The REDD insurance also protects against damage to the project caused by political violence. Tailoring insurance instruments is particularly important because if the insurance policy is not drafted to fit particular aspects of the project, the investor may find filing and settling an insurance claim challenging.

Blending public finance to support markets from early-stage to commercialization is critical to mobilizing private investment over time. In 2008, despite the commercial viability of solar installations in India, Azure Power—a US-owned private sector solar power developer based in India—found it challenging to obtain commercial or public sector financing. OPIC's initial direct loan of US$6.2 million in 2009, combined with Azure Power's demonstration of successful project development, opened the door to additional public sector financing. In 2011 and 2012, Ex-Im Bank provided direct loans—of US$15.8 million and US$64 million, respectively—to the company after it had proven initial success with OPIC's assistance. These funds and Azure Power's proven track record mobilized financing from other PFIs like the IFC and DEG—a German development finance institution—as well as local commercial banks in India.

Access to a concessional loan from a committed lender can determine whether a project can overcome unforeseen challenges in the preconstruction phase and be successfully completed. Ex-Im Bank's direct loan of US$159 million for the Cerro de Hula wind farm in Honduras helped launch the first utility-scale wind farm in the country, despite setbacks from political upheaval during the preconstruction phase. The 18-year fixed-rate loan with a below-market interest rate not only enabled the project company—Energía Eólica de Honduras, S.A. (EEHSA)—to purchase turbines from Gamesa (a wind turbine manufacturer) but also helped the company secure an additional US$50 million in loans from the Central American Bank for Economic Integration (CABEI).

Institutional Barriers to Leveraging the Private Sector

Public financial institutions and mechanisms need to address institutional barriers to more effectively mobilize private investment. Current OPIC and Ex-Im Bank barriers include:

- **Limited authority:** OPIC and Ex-Im Bank are "authorized" by Congress to have a certain portfolio size and use specific financial instruments. For example, unlike some of its peers, OPIC is unable to provide equity, grants, or technical assistance. OPIC can overcome financial instrument limitations by complementing its finance with that of other public finance actors.
- **Limited staff resources:** Staff at OPIC and Ex-Im Bank felt their institutions were understaffed relative to the resources required to process the pipeline of climate-relevant projects that apply for support. Overall, OPIC's 220-person staff processed fewer but larger and more staff-intensive projects (in 2011, 92 projects). In contrast, Ex-Im Bank's 400-person staff approved nearly 4,000 transactions in 2012 alone, but most of these were less resource-intensive export credit insurance transactions. Ex-Im Bank had to outsource significant elements of its work in order to keep up with demand, thus adding costs for borrowers.

- **Limited data, monitoring, and evaluation of private sector participation and outcomes** hampers understanding the drivers, level, terms, and results of private sector participation. Increasing resources for monitoring and reporting activities, and providing aggregated data on the level and type of private sector participation in projects and the latter's success rates, would enable all climate finance actors to better identify, use, and share best practices.
- **Climate change priorities that are not fully institutionalized:** OPIC has a climate-relevant portfolio that is four times larger than Ex-Im Bank's, even though Ex-Im Bank has a larger overall portfolio.[4] This is likely a reflection of OPIC's development mandate, greenhouse gas emissions cap (50% reduction over a 15-year period by 2023), renewable resources strategic priority, and the strong leadership of the OPIC chief executive officer in executing on this mandate and priority. While Ex-Im Bank has a charter requirement—as dictated by Congress—to support renewable energy exports, its financing for numerous other key industries is at such a large scale that it has not yet met its current renewable energy investment target (10% of its annual financing) set by Congress. Neither of these two agencies have an explicit long-term mandate to support climate-relevant projects, but US president Barack Obama's climate action plan has put a halt to US government financial support for coal-fired power plants overseas, with limited exceptions.[5] This policy should not have an impact on OPIC if it keeps its greenhouse gas (GHG) emissions cap intact, but for Ex-Im Bank, the policy could help create the kind of shift in financing that will put the 10% target within reach.

Preliminary Recommendations

Findings from this paper underscore the need for public financial institutions and mechanisms, including the Green Climate Fund and its Private Sector Facility, to:

1. Tailor public financial instruments and maximize flexibility in the use of these instruments. This includes:
   a. Providing a suite of financial instruments—including loans, loan guarantees, equity/quasi-equity and insurance—to mitigate specific investment risks faced by the private sector that commercial sources may not provide. WRI's portfolio analysis reveals that the private sector took advantage of the full range of OPIC and Ex-Im Bank instruments, though some were utilized more frequently than others.
   b. Developing insurance policies that are tailored to cover political and regulatory risks unique to climate-relevant projects. For instance, OPIC has designed policies to address risk in three areas: feed-in tariffs, carbon credit/Clean Development Mechanism (CDM), and REDD.
   c. Establishing a full suite of financial instruments in an institution's governing document or building in flexibility to test or add additional instruments over time, particularly if the institution is profitable and/or is able to manage its risk appropriately.
2. Address institutional barriers to maximizing private sector investment in climate-relevant projects, for example by:
   a. Creating a governance structure, employee incentives, staffing capacity, and a long-term mandate (i.e., one that will provide continuity through changes in an institutions' board and the sponsoring governments' political leaning) that prioritizes investment and support for environmentally sustainable activities and safeguards.
   b. Improving tracking and monitoring systems, as well as data transparency and availability on total project costs, private sector participation, and public sector cofinancing, at least at aggregate levels if confidentiality restrictions present a challenge.
3. Coordinating with other agencies and donors as well as state and national governments to provide complementary policy and direct financing support for climate-relevant private sector projects. This could include creating and adopting clear, streamlined due diligence procedures, approval processes, and requirements for combining different sources and types of public sector cofinancing. Both agencies, but particularly OPIC, cofinance many projects with other development finance institutions, so having these types of mechanisms in place would facilitate collaboration, as evidenced by the agreement between OPIC and the IFC, which has helped save time and reduce costs for both institutions as well as their clients.[6]

INTRODUCTION

As global mean temperatures rise, public actors are seeking ways to mobilize the finance necessary to reduce greenhouse gas emissions and help countries adapt to the changing climate. The transition to a low-carbon, climate-resilient economy will be especially challenging for developing countries. Experts estimate that developing countries will need US$300 billion annually by 2020 and up to US$500 billion annually by 2030 for climate change mitigation *alone* based on 2008–09 projections.[7] More recent global projections find that US$5.7 trillion *annual* global investment in green infrastructure ($0.7 trillion of which will be new finance needs) is required to limit greenhouse gas emissions; much of this *new* infrastructure will come online in developing countries.[8]

As detailed in WRI's 2012 working paper "Moving the Fulcrum," private investment is playing an increasingly important role in developing country economies. Recognizing this, public actors are considering how best to harness and redirect this investment toward climate-relevant activities. To attract private investment, public actors can complement support for strong domestic climate change policies[9] and financial regulatory frameworks with direct financing that improves the risk-return calculus, size, liquidity, and transparency of climate-relevant projects in developing countries. But each sector, geography, and market will require a unique set of interventions to overcome barriers to private sector investment and participation in climate-relevant markets.

"Moving the Fulcrum" introduced general barriers to investment and identified how these barriers can be addressed through financial instruments. A second paper in this subset of the "Climate Finance" series examined financial instruments employed by the World Bank Group, Clean Technology Fund, and the Global Environment Facility to address investment barriers. Subsequent papers in the series will examine public-private fund models and national development banks.

This paper—the third in this subset of the series—maps the recent financing activities of two bilateral institutions—the Overseas Private Investment Corporation (OPIC) and the Export-Import Bank of the United States (Ex-Im Bank). From 2010 to 2012, OPIC and Ex-Im Bank collectively provided 37% of climate-relevant finance (known during this period as "fast start finance") flowing from the United States to developing countries (see Box 1 for key terms used in this paper).[10] OPIC and Ex-Im Bank are significant channels of US public climate finance flows to developing countries; unlike other US institutions channeling climate finance, OPIC and Ex-Im Bank exclusively finance private sector projects.[11] **This paper analyzes the experience of OPIC and Ex-Im Bank to inform other public financial institutions and mechanisms—including the Green Climate Fund and intermediaries of climate finance—about how financial instruments can attract private investment in climate-relevant sectors.**

The paper uses a mix of project data analysis, consultations with institution staff, and case studies. It is not an exhaustive treatment of how public actors leverage private capital. Rather, by developing a better understanding of how public actors can employ financial instruments, the paper takes a critical step toward a more comprehensive examination of the role of public financial institutions in using financial instruments to mobilize private investment. This working paper is intended to promote further discussion and provide preliminary conclusions that will serve as the basis for recommendations in a final report synthesizing the findings of the working papers in the mapping series.

The paper is structured as follows:

- Section I contextualizes the role of OPIC and Ex-Im Bank in the field of climate finance;
- Section II outlines WRI's mapping methodology;
- Sections III and IV detail the results of WRI's mapping of OPIC and Ex-Im Bank, respectively;
- Section V offers case studies of replicable OPIC and Ex-Im Bank financing structures;
- Section VI outlines examples of relevant institutional barriers within OPIC and Ex-Im Bank.

SECTION I: THE ROLE OF OPIC AND EX-IM BANK IN CLIMATE FINANCE

By the end of 2012, developed country governments self-reported that they had delivered around US$11 billion annually in climate finance to developing countries between 2010 and 2012.[12] Much of this climate finance flowed through these countries' associated bilateral institutions, including development finance institutions; export credit, investment insurance, and aid agencies; as well as dedicated bilateral climate funds (Figure 1). For example, of the European Union countries'

Box 1 | Key Terms

Several terms used in this publication are either recently established or do not have widely accepted definitions. For reading ease, WRI defines key terms below solely for the purposes of this paper.

COUNTRY CLASSIFICATIONS

Developed countries: Annex II countries, which are a subset of industrialized countries listed in Annex I of the United Nations Framework Convention on Climate Change (UNFCCC) that excludes economies in transition. These countries are required under the UNFCCC to provide financial resources to assist developing countries to mitigate and adapt to climate change.

Developing countries: Non-Annex I countries as defined by the UNFCCC. Broadly excludes industrialized nations (Annex I) including economies in transition.

Emerging markets: A subset of developing countries that have exhibited rapid growth in recent years; examples commonly cited include Brazil, India, China, and South Africa. Russia is often categorized as an emerging market, but it is considered as a transition economy by the UNFCCC and in this paper.

Least developed countries (LDCs): A subset of developing countries that exhibit the lowest relative levels of socioeconomic development (as defined by the United Nations) among developing countries.

Transition economies or countries: Another subset of Annex I, encompassing countries not required to provide financial assistance to non-Annex I countries; examples of transition countries include Turkey and Russia.

PROJECT AND MARKET CLASSIFICATIONS

Climate-relevant projects: Projects—in renewable energy, energy efficiency, agriculture, transportation, water infrastructure and treatment, forestry, sustainable land use, adaptation infrastructure (for example, against extreme weather events and sea level rise), and other sectors—that promote greenhouse gas emissions reductions or assist in adaptation to climate change impacts.

Low-carbon projects: A subset of climate-relevant projects, defined narrowly in this publication as those within the energy efficiency, renewable energy, and related infrastructure sectors.

Demonstration and early-stage projects: Projects used to exhibit the viability of emerging or new technologies that have yet to gain market acceptance and/or prove their financial viability.

Nascent or early-stage market: A market, typically small in size, that is in an early stage of development but has the potential for growth. It is often challenging to attract private sector capital in nascent markets since the markets' financial viability is yet to be proven.

Project sponsor: Individuals or entities that have ownership in a project. Typically the project sponsor will apply for financial support but is not the actual "borrower" for the project. For project and structured finance, a special purpose vehicle (see below) acts as the legal borrower.

Special purpose vehicle (SPV): A legal entity commonly used in project and structured finance transactions to keep the project company separate from the parent company and minimize risk to the parent company. SPVs are typically the "borrower" in project and structured finance transactions.

PRIVATE AND PUBLIC SECTOR CLASSIFICATIONS

Private sector: Sector of the economy that is not controlled by the state; comprises a wide range of actors including individuals (consumers), corporations, and private associations (like philanthropies and cooperatives). This paper focuses on three types of private sector actors: capital providers (investors), project developers (including corporations, small and medium-sized enterprises, and contract project developers), and market facilitators (including banks, rating agencies, credit/liquidity providers, and information/data providers). These private sector actors may be based in developed or developing countries, but this paper focuses on their activities in developing countries.

Private sector capital or private capital: Capital provided by the "private sector" (versus the public sector), whether from foreign or domestic sources.

Private sector participation: "Private sector" investment in, financing, execution, or maintenance of a project.

Private sector project: An activity led by the private sector that involves some form of capital investment. For purposes of analysis in this paper, WRI considered a project as any transaction that involved the delivery of financial resources from a public financial institution to support a private sector activity.

Public climate finance ("climate-relevant finance"): Public finance from developed countries used to support climate-relevant projects in developing countries, including low-carbon projects. This paper discusses the use of public climate finance to mobilize private sector investment.

Public finance: Public dollars (raised through fiscal revenues such as taxes and other government income streams) used to fund the production and distribution of public goods or to address market failures.

Public financial instruments: Tools available to public institutions to provide financial support for public and private sector projects. These generally take one of three main forms:

- Debt/loans—most common source of finance for upfront and ongoing project costs
- Equity—an ownership stake in a project or company; builds a project or company's capital base, allowing it to grow and access other finance
- Derisking instruments—include insurance, guarantees, liquidity facilities, swaps, and derivatives; help projects, companies, and their investors manage specific types of risk

INSTITUTIONAL CLASSIFICATIONS

Bilateral development finance institutions (BDFIs): Public financial institutions that provide cross-border finance, typically from one developed country to multiple developing countries for economic development.[15] These institutions commonly provide some combination of debt and equity investment, guarantees, and technical assistance on a variety of terms, ranging from grants to market rates.[16]

Climate finance mechanisms: Dedicated international climate funds like the Global Environment Facility, the Climate Investment Funds, and the proposed Green Climate Fund, that channel finance from developed to developing countries for climate-relevant projects.

Domestic development finance and climate finance institutions: National development banks, government agencies, and nationally sponsored climate funds. These institutions are playing an increasingly critical role as intermediaries and providers of climate finance in their respective countries, especially in emerging markets.

Export credit and investment insurance agencies (ECAs): Public financial institutions whose primary aim is to facilitate home country exports and thus to support exporters and investors doing business overseas. The majority of the financing takes the form of political risk insurance and guarantees, by which the institution commits to cover the exporters' or investors' losses in the event of political or commercial upheaval.[17]

Multilateral development finance institutions: Global and regional financing institutions like the World Bank Group, the Asian Development Bank, the European Investment Bank, the European Bank for Reconstruction and Development, the African Development Bank, and the Inter-American Development Bank. These institutions provide funds using their own capital (raised using capital initially provided by multiple government donors) or on behalf of multiple government donors.

Private sector–facing development finance institutions: Public institutions that provide cross-border finance to promote private sector development in developing countries. These may be stand-alone institutions or a separate unit within an existing institution. These institutions may be bilateral (e.g., OPIC), regional, or international (e.g., International Finance Corporation).

Public financial institutions (PFIs): Public institutions that provide finance to support public and private sector projects as well as policies and programs that serve the public good, whether for economic, environmental, or social benefit. Examples include donor governments; export credit and aid agencies; multilateral, bilateral, and national development banks; and international entities.

Source: WRI

aggregate 2010–12 US$9 billion pledge, bilateral intermediation accounted for 44% and 53% in 2010 and 2011, respectively.[13, 14]

Within this category of institutions, private sector–facing bilateral development finance institutions as well as public export credit and investment insurance agencies are especially relevant to the topic of leveraging private capital. These institutions typically have institutional mandates to invest in private projects, attract private sector cofinancing, and/or provide technical assistance to private sector actors.

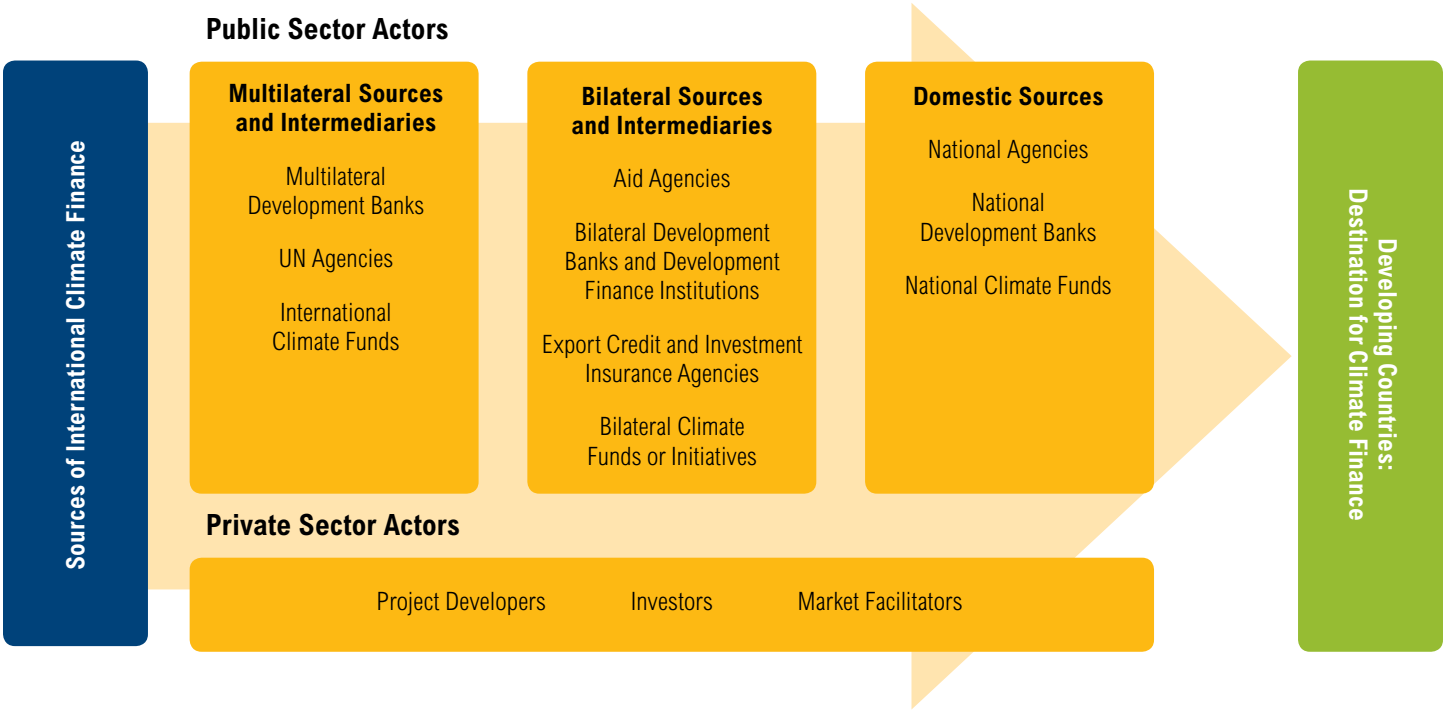
From 2010 to 2012 the United States was among the largest public climate finance donors, pledging US$7.5 billion of fast start finance (see Box 2). By WRI's estimates, this accounts for approximately 22% of developed country pledges and ranks as the second-largest commitment (after Japan's) during this period.[18, 19] This paper examines two of its institutions—one BDFI and one ECA—OPIC and Ex-Im Bank (see Table 1), which together channeled a significant portion (37%) of the US fast start finance pledge.

OPIC and Ex-Im Bank are both instruments of US foreign policy but differ in their priorities and objectives. Ex-Im Bank's primary objective is to support US exports, and while Congress has mandated Ex-Im Bank to support renewable energy, the sector is not yet a key driver of Ex-Im Bank's activities.[20] OPIC has a development objective, and encouraging the use of renewable resources is an explicitly stated and embedded strategic priority.[21]

Many other industrialized countries have their own ECAs and BDFIs that, like Ex-Im Bank and OPIC, offer a range of financial products to the private sector in other countries (see Table 2 and Box 3), including debt, equity, structured products, derisking mechanisms, and grants for technical assistance.[22] However, each ECA and BDFI offers financing at different terms, including, for example, the nature and level of risk coverage for clients. Furthermore, unlike some of its counterparts, OPIC is unable to take direct equity stakes in projects other than indirectly through debt investments in funds. It also does not provide technical assistance, grants, or advisory services.

Relative to their peers, OPIC and Ex-Im Bank have significant US content or participation requirements[23]—that is, projects supported by these institutions must include a US company, which biases their activities in favor of industries where the United States has a competitive edge or presence.

Figure 1 | **Simplified Landscape of Climate Finance Actors**



Source: WRI

Table 1 | **Overview of Overseas Private Investment Corporation and the Export-Import Bank of the United States**

	YEAR ESTABLISHED	TYPE OF INSTITUTION	MISSION	EXPORT SALES PROMOTION	DEVELOPING COUNTRY FOCUS	ELIGIBILITY FOR SUPPORT
OPIC	1971	BDFI	Mobilize private capital to promote economic development and support US business interests abroad, while also furthering US foreign policy	Sometimes: only if related to long-term investment in overseas development projects	Yes: only developing countries	Significant if not majority US participation in financing projects as well as majority private ownership and management of projects
Ex-Im Bank	1934	ECA	Assist in financing the export of US goods and services to international markets; support US jobs through exports	Yes: every transaction benefits US exporters	Neutral	Strong national content requirements; limitations on the type and level of foreign content that may be included in Ex-Im Bank's financing package

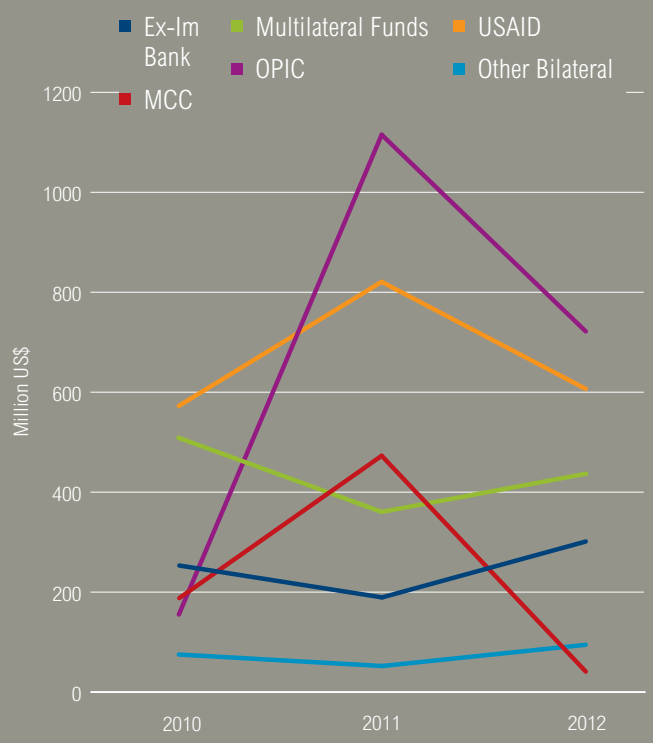
Source: OPIC and Ex-Im Bank websites and annual reports

Box 2 | US Fast Start Finance Commitments: OPIC and Ex-Im Bank Contributions

As articulated in the Copenhagen Accord,[24] and affirmed in the Cancun Agreements,[25] the United States and other industrialized nations pledged to provide finance for climate change mitigation and adaptation activities in developing countries from 2010 to 2012. These commitments, called fast start finance (FSF), amounted to US$30 billion.[26] The United States provided a total of US$7.5 billion of FSF. Of that amount, 63% was congressionally appropriated assistance channeled through numerous US government agencies: the Department of State, the Department of the Treasury, the US Agency for International Development (USAID), the Millennium Challenge Corporation, and others. Together, OPIC and Ex-Im Bank channeled the remaining 37%, or US$2.74 billion.[27] USAID and OPIC were by far the most significant FSF contributors, each channeling 27% of total US FSF (Figure 2).

Source: Abigail Jones et al., "The U.S. Contribution to Fast-Start Finance: FY12 UPDATE" (Washington, DC: World Resources Institute, 2013), 5.

Figure 2 | **US Fast Start Finance by Executing Institution, 2010–2012**



Box 3 | Leveling the ECA Playing Field

Almost all ECAs provide some level of export subsidy, typically through an interest rate subsidy relative to market rates. To level the playing field between ECAs, limit government subsidies, and provide common guidelines for national export financing programs, OECD-member ECAs—including Ex-Im Bank—have implemented a voluntary agreement called "The Arrangement on Officially Supported Export Credits." This agreement, which also includes guidance on financial terms and conditions for climate-relevant projects, harmonizes the approaches of OECD ECAs and defines limits on preferential terms for export credit and aid.

Source: Ex-Im Bank staff and OECD

Table 2 | **Financial Instruments Employed by Private Sector–Facing Bilateral Public Financial Institutions**

	COUNTRY	GRANTS	LENDING (DEBT)
Bilateral Development Finance Institutions			
OPIC: Overseas Private Investment Corporation	United States	None	■ Medium- and long-term direct loans ■ Project finance loans ■ Corporate finance loans
PROPARCO: French Investment and Promotion Company for Economic Cooperation	France	Yes	■ Senior loans, junior loans ■ Delegated credit lines and credit line refinancing
DEG: German Investment Corporation	Germany	Yes	Medium- and long-term loans
FMO: Netherlands Development Finance Company	Netherlands	Yes	■ Medium- and long-term loans ■ Syndicated loans to financial sector institutions
Norfund: Norwegian Investment Fund for Developing Countries	Norway	None	Loans
CDC: Commonwealth Development Corporation	United Kingdom	None (likely done through UK Department for International Development (DFID)	■ Infrastructure and corporate loans ■ Credit lines to financial institutions ■ Selective trade finance facilities
Export Credit and Insurance Agencies			
Export-Import Bank of the United States	United States	None	Medium- and long-term loans: corporate, project finance, and structured finance loans
COFACE: Compagnie Française d'Assurance pour le Commerce Extérieur	France	None	None

EQUITY AND QUASI-EQUITY INVESTMENTS	FUNDS AND STRUCTURED PRODUCTS	DERISKING INSTRUMENTS
None	■ Investments in private equity funds ■ Senior secured loan structures	■ Political risk insurance ■ Loan guarantees
■ Direct equity investments ■ Mezzanine finance ■ Other quasi-equity: shareholder current accounts, convertible bonds/notes, participating loans, subordinated loans	■ Equity investments in private equity and venture capital funds ■ Management of Investment and Support Fund for Businesses in Africa, or FISEA	■ Bond guarantees ■ Local currency loan guarantees ■ Liquidity guarantees of mutual funds, investment funds, and local savings mobilization funds ■ Bank loan guarantees
■ Direct equity investments ■ Mezzanine finance	Investments in private equity funds	■ Loan guarantees in local currency ■ Bond guarantees in local currency
■ Direct equity investments ■ Mezzanine finance ■ Coinvestments with private equity and mezzanine funds ■ Structured finance and debt capital market transactions	■ Structured finance and debt capital market transactions ■ Management of several funds on behalf of Dutch Government ■ Investments in private equity funds	■ Local currency financing ■ Credit guarantees for trade facilities/letters of credit, commercial paper, capital market transactions (bond issues, securitizations) ■ Trade finance risk-sharing
Direct equity investments	Investments in SME private equity funds	None
Direct equity investments	■ Investments in private equity funds ■ Management of DFID Impact Fund	None
None	None	■ Working capital guarantee ■ Loan guarantee ■ Export credit insurance ■ Finance lease guarantee ■ Supply chain finance guarantee ■ Bond guarantee
None	None	■ Export credit insurance ■ Risk insurance/guarantee: political risk, export and domestic, import, financing, investment ■ Export factoring ■ Bonds: contract bonds, customs and excise bonds

Table 2 | **Financial Instruments Employed by Private Sector–Facing Bilateral Public Financial Institutions, continued**

	COUNTRY	GRANTS	LENDING (DEBT)
Export Credit and Insurance Agencies, continued			
German Foreign Trade and Investment Promotion Scheme	Germany	None	None
NEXI: Nippon Export and Investment Insurance	Japan	None	None
KEXIM: Korea Export-Import Bank	Korea	None	■ Interbank export loan ■ United two-step loan ■ Overseas investment credit loans
UK Export Finance: Export Credits Guarantee Department (ECGD)	United Kingdom	None	Lines of credit

Source: WRI, using information from respective websites of listed institutions (see Appendix 1, accessible at http://www.wri.org/topics/climate-finance). Please note that this is not a comprehensive listing of institutions or the instruments they offer. This is a preliminary list based on publicly available data from agency websites and may be updated as WRI receives additional or new information. Please bring errors or omissions to WRI's attention so that the information can be corrected and included in subsequent working papers and other publications.

EQUITY AND QUASI-EQUITY INVESTMENTS	FUNDS AND STRUCTURED PRODUCTS	DERISKING INSTRUMENTS
None	None	■ Export credit guarantees ■ Investment guarantees ■ Untied loan guarantees ■ Other guarantees, including securitization
None	None	■ Export credit insurance ■ Trade insurance ■ Prepayment import insurance ■ Investment and loan insurance ■ Political risk insurance
Equity participation	None	■ Loan guarantee ■ Interest rate support ■ Project-related guarantee ■ Export and import factoring
None	None	None

SECTION II: MAPPING METHODOLOGY

WRI studied 87 projects approved from 2008 to 2012 and financed by OPIC, Ex-Im Bank, or both,[28] totaling over US$8.4 billion in project costs, to survey the range and trends in the use of financial instruments by sector, geography, and project type. These data represent a subset of these institutions' financing activities in climate-relevant sectors, based on the selection criteria outlined in Table 3 and, in some cases, dependent on public data availability.[29] *The objective of WRI's analysis was to draw lessons for other public financial institutions and mechanisms on the use of financial instruments by OPIC and Ex-Im Bank and to identify replicable financing structures.* The analysis does not track private sector financing in each project over time, consider whether public participation in a project led to future changes in private investment flows into a certain sector, or analyze the environmental or financial performance of a project or policy.

WRI performed two sets of portfolio analyses: one on OPIC projects and one on Ex-Im Bank projects. WRI's detailed methodology (summarized in Table 3) is accessible at http://www.wri.org/topics/climate-finance. Key data points collected and examined included:

- The amount of finance and instrument used to fund a project and—where information was available—the terms and structure of the financing
- Project characteristics, including the project's geography, technology, and sector, as well as the specific use of the financing
- The amount and type of financing provided by public and private cofinanciers, if available

Table 3 | **Summary of WRI's Analysis Methodology: Overseas Private Investment Corporation and the Export-Import Bank of the United States**

INSTITUTION/PROJECTS REVIEWED (US$MM)	CRITERIA	MAIN SOURCES	FINANCIAL INSTRUMENTS USED (US$MM)[c]
OPIC 42 projects, total cost: (5,832)[a] OPIC finance (2,738) Estimated cofinance[b] (3,094)	**Includes:** ■ Projects with a clear climate change mitigation/adaptation intent/impact approved from FY2008 to FY2012 **Excludes:** ■ Investment funds approved but not committed ■ Water and agriculture projects that did not have an explicit climate change mitigation/adaptation intent/impact	■ OPIC annual reports ■ Project description documents ■ State Department fast start finance (FSF) reports ■ OPIC staff	■ Loan guarantee (1,733) ■ Direct loan (789) ■ Investment fund (143) ■ Insurance (73)
Ex-Im Bank 45 projects, total cost: (2,593)[a] Ex-Im Bank finance (702) Estimated cofinance[b] (1,891)	**Includes:** ■ Projects with a clear climate change mitigation/adaptation intent/impact approved from FY2008 to FY2012 **Excludes:** ■ Working capital guarantees ■ For FY2010–12, projects that were not reported as FSF projects ■ Projects not in developing countries	■ Ex-Im Bank annual reports ■ DATA.gov ■ State Department FSF reports ■ Ex-Im Bank staff	■ Direct loan (594) ■ Loan guarantee (78) ■ Insurance (25) ■ Loan guarantee + direct loan (5)

Note: Refer to WRI's methodology document (http://www.wri.org/topics/climate-finance) for additional information.

[a] Total project costs were available for 41 of 42 OPIC projects. Total project costs were only available for 20 of 45 Ex-Im Bank projects; for 10 of these, total costs were estimated based on average cost assumptions provided by Ex-Im Bank staff.

[b] Includes public and private cofinance; calculated as the difference between total project costs and finance provided by either OPIC or Ex-Im Bank. Figure is an estimate based on data available for total project costs.

[c] Financial instruments OPIC and Ex-Im Bank used to channel financing.

Source: WRI

SECTION III: OPIC MAPPING

Since its establishment in 1971, OPIC has supported over US$200 billion of investment in more than 4,000 projects.[30] OPIC has recently made supporting climate-relevant projects an agency-wide priority. In 2008, OPIC committed to lowering greenhouse gas emissions across its portfolio by 50% over a 15-year period ending in 2023.[31] In tandem with this commitment, OPIC made "renewable resources" an explicit priority area. Initially focused on clean energy, OPIC has expanded its renewable resources efforts to include food security (agriculture) and clean water. OPIC's portfolio devoted to renewable resources has increased tenfold, from US$131 million in 2009 to US$1.55 billion in 2012 (from 4% of total commitments in 2009 to nearly 40% in 2012).[32] While OPIC estimates that every dollar of its support has leveraged an average of US$2.60 in private investment, business confidentiality requirements prohibit dissemination of data to verify this calculation, and a standardized leverage calculation methodology employed by all public financial institutions does not yet exist.[33]

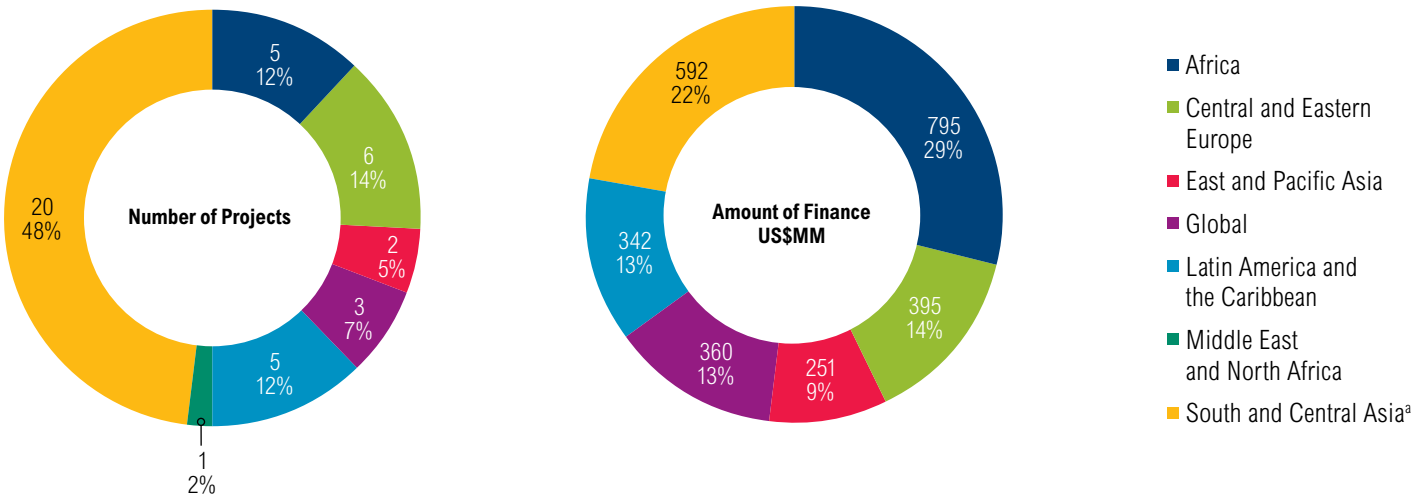
The mapping section will first provide a snapshot of OPIC's climate-relevant portfolio from 2008 to 2012 and then hone in on insights.

Snapshot of OPIC's Climate-Relevant Portfolio, 2008–2012

WRI reviewed 42 OPIC-supported projects totaling over US$5.8 billion[34] in total project costs and receiving $US2.74 billion in support from OPIC. Key observations from this project mapping include:

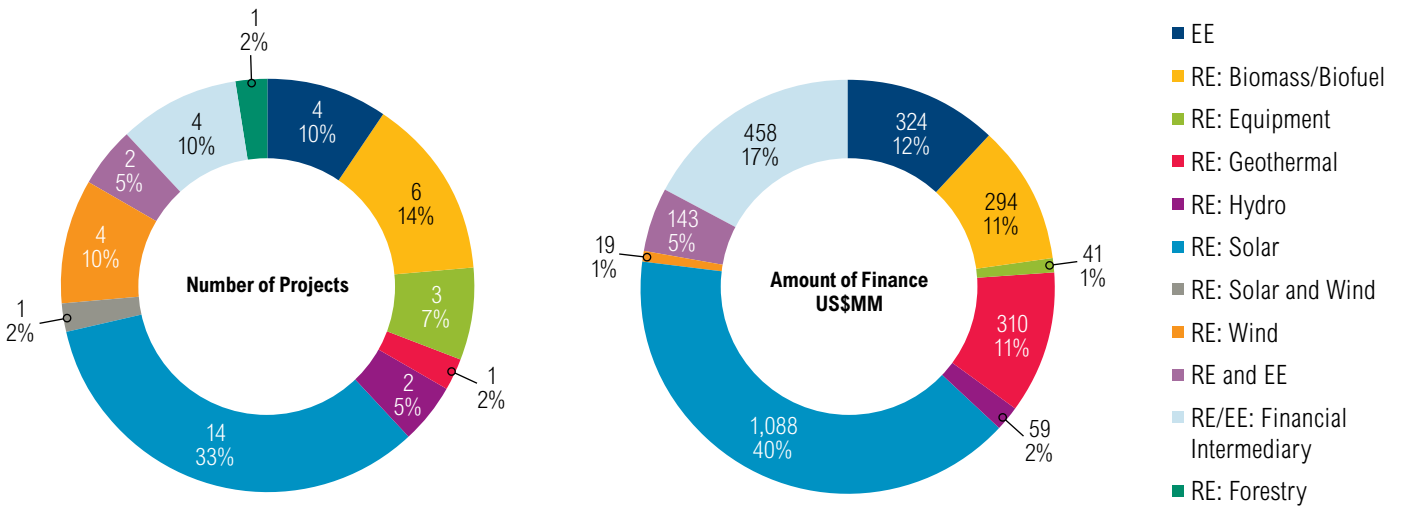
- *Geographic Trends:* The majority of OPIC climate-relevant projects were in South and Central Asia—14 in India alone. However, average project costs in South and Central Asia were less than one-third of the average project costs in Africa—the region that received the highest overall support (Figure 3a).
- *Sectoral Trends:* Renewable energy projects accounted for the largest share of OPIC's climate-relevant portfolio by number (74%) and also received the majority of financing (66%), partly reflecting OPIC's institutional priority and the global growth of renewable energy markets. Solar power was the dominant sector overall, with 33% of the project portfolio by number and 40% of financing by volume. Wind projects had the smallest average amount of OPIC support, US$4.7 million, and OPIC's one geothermal project had the largest amount of support, US$310 million (Figure 3b).

Figure 3a | **OPIC Climate-Relevant Finance by Region, 2008–2012**



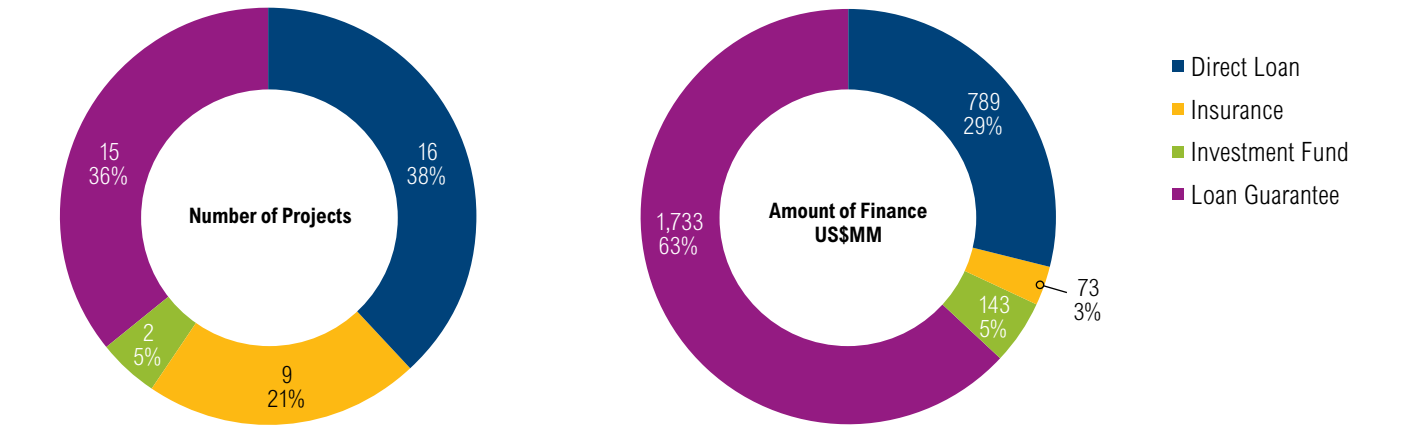
[a] South and Central Asia includes information for one regional investment fund.

Figure 3b | OPIC Climate-Relevant Finance by Sector, 2008–2012



Note: EE = energy efficiency; RE = renewable energy

Figure 3c | OPIC Climate-Relevant Finance by Instrument, 2008–2012



Source: WRI, using OPIC data. See WRI's accompanying Methodology Document for data selection criteria.

- **INSTRUMENT TRENDS:** OPIC provided 63% of its support in the form of loan guarantees, typically for larger projects that were often cofinanced by other PFIs. The average size of a loan guarantee (US$115.5 million) was more than double the average size of a direct loan (US$49.3 million), while the average insurance instrument provided was significantly smaller (US$8.1 million). Average fund investments were US$71.4 million but used sparsely; these investments allow OPIC to take indirect equity positions in private sector projects (Figure 3c).

The Role of OPIC Financial Instruments

OPIC's financial instruments are organized around its three functional areas of focus: (1) investment financing—including direct loans and loan guarantees; (2) political risk insurance; and (3) private equity investment funds. At the close of fiscal year 2012, almost two-thirds of OPIC's US$16.4 billion portfolio was composed of investment finance; the other third was composed of investment funds and political risk insurance,[35] with a slightly larger share devoted to political risk insurance. OPIC is not authorized by Congress to issue grants or make direct equity investments. WRI's analysis of OPIC's climate-relevant portfolio revealed the following insights by instrument—refer to Appendix 2 (accessible at http://www.wri.org/topics/climate-finance) for additional details on these financial instruments.

1. Investment Financing

OPIC's investment finance group offers direct loans or loan guarantees of up to US$250 million per project with repayment periods (tenors) ranging from 3 to 20 years, typically to cover the capital costs associated with establishing or expanding a project or, if the borrower is a financial services provider, to expand lending capacity.[36] Within the investment finance group, OPIC has a specific financing window for projects that promote small and medium-sized enterprises (SMEs) with revenues of less than US$400 million.[37] Table 4 (see page 22) provides an overview of OPIC's investment financing instruments.

Direct loans for small and medium-sized enterprises (SMEs) seeking to scale up can help unlock additional financing from private investors and public institutions. OPIC's direct loans are generally reserved for SMEs that need help expanding into developing markets, including early-stage SMEs without the track record of success required to secure debt financing from other financial institutions (both public and private). For instance, OPIC was the first public financial institution (PFI) to support Azure Power (US$6.2 million) and Husk Power Systems (US$750,000), both clean energy SMEs operating in India. Following OPIC's loans, these companies were able to obtain capital from a range of other public and private sources. For instance, Husk Power Systems, which received its OPIC loan in 2009, raised US$5 million worth of equity in 2012 from private sector investors Bamboo (Oasis Fund) Finance, Acumen Fund, and LGT Venture Philanthropy.[38] The Azure Power case study in Section V provides greater detail about that company's financing.

OPIC has designed its loan guarantees—typically used in larger projects—to mobilize private capital from US debt capital markets. OPIC sells a certificate of participation (COP, an investment note) to capital markets investors (e.g., a pension fund) and uses the proceeds of the sale to fund its loan to project borrowers. The borrower then repays the COP holder instead of OPIC, and OPIC guarantees full repayment to the COP holder (see Figure 4, page 23). By taking this approach, OPIC is able to offer its own attractive terms to borrowers while mobilizing private sector capital from new sources that would not have invested without OPIC's backing. This structure is dependent on OPIC's creditworthiness—that is, its ability to step in and cover repayment if borrowers default.

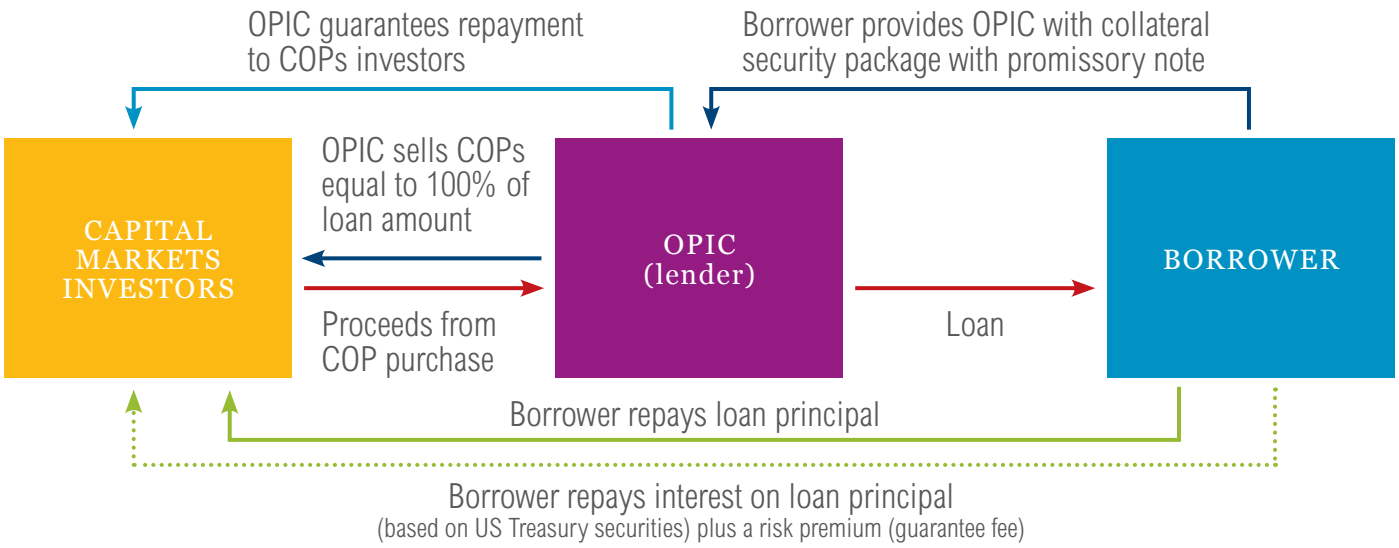
Table 4 | **Overview of OPIC Investment Financing**

INSTRUMENT	TYPE OF INSTRUMENT	DESCRIPTION	AVAILABLE STRUCTURES
Direct loan	Debt	OPIC lends to the eligible borrower. OPIC participates on a senior basis, meaning that it has a first claim on fixed assets and other collateral if the borrower fails to pay.	■ Corporate loans—secured with collateral from borrower's assets ■ Limited recourse project finance—secured with the assets of the "special purpose company" and the cash flows of the project ■ Portfolio facilities—OPIC works with a US financial services provider that creates a portfolio of loans meeting preagreed parameters
Loan guarantee funded by certificates of participation	Debt/derisking instrument	■ OPIC lends to the eligible borrower, but raises funds for the loan by issuing certificates of participation (COPs) in US debt capital markets. Instead of repaying OPIC, borrowers pay COP holders and COP holders are guaranteed payment by OPIC. ■ OPIC participates on a senior basis, meaning that it has a first claim on fixed assets and other collateral if the borrower fails to pay.	■ Corporate loans—secured with collateral ■ Limited recourse project finance—secured with cash flows of the project ■ Portfolio facilities—OPIC works with a US financial services provider that creates a portfolio of loans meeting preagreed parameters
Loan guarantee to third-party lenders	Derisking instrument	■ A third-party lender (TPL) lends to the eligible borrower and OPIC guarantees the TPL that if the borrower fails to make payments on its loan, the TPL may make a claim to OPIC for payment. ■ Typical TPLs include insurance companies, pension funds, and commercial banks. ■ OPIC participates on a senior basis, meaning that it has a first claim on fixed assets and other collateral if the borrower fails to pay.	■ Corporate loans—secured with collateral ■ Limited recourse project finance—secured with cash flows of the project ■ Portfolio facilities—OPIC works with a US financial services provider that creates a portfolio of loans meeting preagreed parameters

Source: WRI, based on OPIC website and correspondence with OPIC staff

HOW BARRIERS ARE ADDRESSED	TYPICAL USE
■ By providing access to financing for projects that cannot obtain it commercially ■ By offering longer repayment periods, which improve the financial viability/feasibility of climate-relevant projects ■ By helping attract additional sources of finance after demonstration of success	To finance projects of small- and medium-sized enterprises
■ By providing access to financing for large-scale projects that cannot obtain it commercially ■ By offering longer repayment periods, which improve the financial viability/feasibility of climate-relevant projects ■ By drawing funding for these guarantees from the US debt capital markets, which could make capital markets investors more comfortable with climate-relevant investments	To provide debt finance to investment funds and very large projects
By mobilizing private capital in markets where private lenders would be unwilling to lend or offer attractive terms without a guarantee backed by the full faith and credit of the US Government	To support on-lending by private financial intermediaries (i.e., financing in which a private sector financial institution loans the amount guaranteed by OPIC to one or more borrowers)

Figure 4 | **OPIC Loan Guarantees Funded by Certificates of Participation**



Source: WRI, based on OPIC website and correspondence with OPIC staff

Table 5 | **Overview of OPIC Political Risk Insurance**

INSTRUMENT	TYPE OF INSTRUMENT	DESCRIPTION	AVAILABLE STRUCTURES	HOW BARRIERS ARE ADDRESSED	TYPICAL USE
Political Risk Insurance	Derisking instrument	OPIC provides insurance to US investors, contractors, exporters, financial institutions, and nongovernmental organizations to protect their international investments. OPIC agrees to pay or settle valid claims if losses arise.	■ Coverage for three types of political risk: □ currency inconvertibility □ expropriation □ political violence ■ Tailored contracts for climate-relevant investments that protect against changes in policy	■ By mitigating investment risks ■ By helping attract additional investors to the project	To protect investments and improve their perceived risk-reward profile in markets where political and policy risk exist

Source: WRI, based on OPIC website and correspondence with OPIC staff

Lower transaction costs can make climate-relevant investments more profitable and therefore more attractive. By transforming direct loans or loan guarantees into portfolio facilities, OPIC supports numerous projects through a single transaction that is more cost effective. For example, OPIC structured a US$250 million direct loan for ContourGlobal Holdings Solutions Ltd. to serve as a loan facility for a portfolio of more than 15 energy efficiency projects across Europe and Africa.[39] It also designed a US$250 million loan guarantee for SunEdison Thailand to function as a revolving construction bridge financing facility for the construction and initial operation of roughly 50 solar photovoltaic power projects in Thailand.[40]

WRI's examination of projects that received OPIC loans or loan guarantees suggested two other lessons that are broader than the financial instruments themselves:

- **PFIs that share mandates and approaches and follow similar standards may be more likely to collaborate and thus provide a better financing package to investees.** Based on publicly available information, the IFC was the most frequent source of public cofinancing for OPIC projects; 19% of OPIC's climate-relevant projects received IFC support, usually in the form of equity.[41] Cooperation between the IFC and OPIC makes sense on paper, considering that the two institutions have a master cooperation agreement and OPIC uses the IFC's Performance Standards on Social and Environmental Sustainability.[42] But their collaboration may also reflect their similar mandates and approaches, as well as the easier coordination that results from close geographic proximity.
- **Familiar project sponsors (individuals or entities eligible to apply for OPIC assistance) with a track record of success may appeal to OPIC because they lend themselves to a streamlined approval process but may also potentially crowd out other private sector players.** OPIC provided investment financing to the same sponsor for multiple projects; for instance, it gave MEMC Electronic Materials five loan guarantees for solar projects in Asia, Africa, and Eastern Europe. Several other sponsors benefited from repeated OPIC support, including Azure Power, Buchanan Renewables Fuel, and Anthony Woods from Sustainable Energy Services Afghanistan. Although no evidence suggests that OPIC's current practices have in fact crowded out project sponsors or companies with viable projects that meet OPIC's congressionally mandated eligibility requirements, careful client management remains critical to avoid the risk that supporting repeat clients will come at the expense of other players.

2. Political Risk Insurance

OPIC's insurance group specializes in political risk insurance that offers protection against currency inconvertibility, governmental interference or expropriation, and political violence, including terrorism (Table 5). The insurance covers up to US$250 million per project for up to a 20-year term at a fixed premium.[43] OPIC can insure up to 90% of an eligible equity investment, with coverage for up to 270% of the investment as it grows over time.[44] OPIC political risk insurance is backed by the full faith and credit of the US Government.

Investors seek political risk insurance because it reduces the risk of unexpected lost revenue or additional costs and facilitates access to other sources of financing; OPIC is one of the few institutions that actively promote political risk insurance for climate-relevant projects. While other development finance institutions like the Multilateral Investment Guarantee Agency (MIGA) also provide political risk insurance to private sector projects, few have explicit priorities like OPIC to support climate-relevant sectors. In the period reviewed, OPIC tended to provide insurance for smaller climate-relevant projects; the average project cost was US$14 million and the average size of an insurance policy was US$8.1 million. This is the result of two factors: first, countries with more unstable political environments tend to have smaller climate-relevant markets and, second, OPIC often uses smaller projects to test new insurance policies in new sectors.

Innovative OPIC insurance contracts that address specific climate-relevant risks like a change in renewable energy feed-in tariffs could be game changing, but implementation challenges remain. OPIC has tailored its standard insurance contracts to create a new set of contracts—which can be further customized for each project—to provide protection against changes in regulatory regimes that could harm climate-relevant investments in three areas: feed-in tariffs (FiT), carbon credit/CDM, and REDD. OPIC has provided these new insurance products for both REDD projects (see Terra Global case study in Section V) and for carbon credit/CDM solar projects in India. Unfortunately, while the FiT insurance product would fill an important gap, OPIC's eligibility requirements have made it difficult to find eligible investors and projects, and OPIC is unwilling to offer insurance after a country has changed its FiT policies and breached its contracts with investors. In addition, OPIC's insurance rates are set according to base rates[45] and the risk profile of the investment, so if a project faces considerable imminent risk it could also be difficult to price the product low enough to attract investors.

Insurance instruments can be bundled in a manner that streamlines the approval process and lowers transaction costs. Master contracts are useful when the same investor has or plans to have multiple projects in the same country. This was the case with three Southern Energy Partners projects in India. Southern Energy Partners had a master contract with OPIC for a maximum coverage over the life of the policy. The contract allowed the company to add projects without having to revisit the broad terms of the insurance policy with OPIC, thereby lowering transaction costs and processing times. Even without a master contract, OPIC was able to bundle insurance coverage for three separate ContourGlobal cogeneration projects in Nigeria under one policy. The US$32.7 million insurance transaction was OPIC's largest climate-relevant offering, and it covered the equity investment plus a portion of the projects' future earnings, which further reduced the investor's risk.

3. Private Equity Investment Funds

While OPIC is not authorized to conduct equity investments itself, it can provide debt capital to private equity (PE) funds that invest in developing countries (Table 6). OPIC's support of climate-relevant funds dates as far back as 1994, starting with a US$50 million commitment to the Global Environment Emerging Markets Fund. OPIC provides senior debt of up to US$250 million to fund PE funds and funds of funds. OPIC selects the PE funds through a competitive process, but the fund managers make investment decisions.

OPIC's finance to PE funds fills an important gap in climate-relevant sectors, but the ability of these funds to attract private coinvestment remains to be seen, partly as a result of the recent global financial crisis.

Table 6 | **Overview of OPIC Private Equity Fund Investments**

INSTRUMENT	TYPE OF INSTRUMENT	DESCRIPTION	AVAILABLE STRUCTURES	HOW BARRIERS ARE ADDRESSED	TYPICAL USE
Investments in private equity (PE) funds via loan guarantees funded by certificates of participation (COPs)	Debt/derisking instrument	OPIC provides senior debt to investment funds that pool investments in the equity of multiple projects or companies. PE funds aim for investment growth through capital gains or dividends.[46]	COP issued in US debt capital markets; proceeds of COP provided as loan to PE fund; COPs guaranteed by full faith and credit of US Government	By mobilizing private equity capital in developing countries	To provide debt portion of PE fund's capital base; PE fund responsible for raising additional equity funding

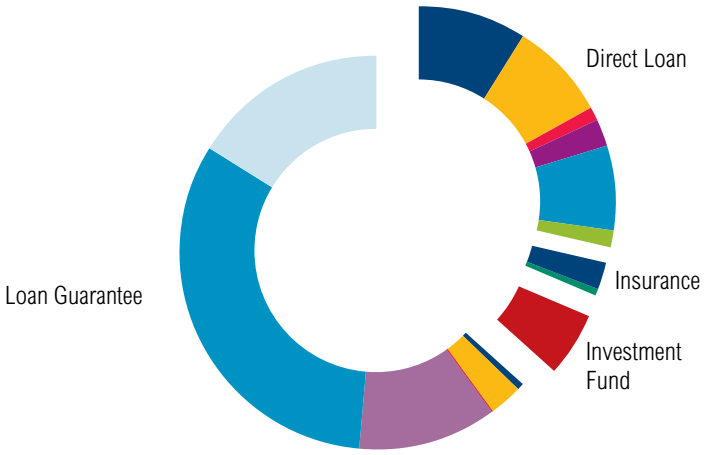
Source: WRI, based on OPIC website and correspondence with OPIC staff

The OPIC Board approved investments in 13 climate-relevant private equity investment funds from 2008 to 2012. Two of these funds have a commitment (totaling US$143 million) and are included in this report's data; a commitment is reached following initial Board approval, when OPIC commits a final specific amount of debt to the fund (channeled in the form of a loan guarantee). OPIC is negotiating with another six approved funds, meaning that eight of the 13 approved funds continue to move forward. In OPIC's experience, funds can fail to reach a commitment, or a commitment can expire for a variety of reasons, but mainly because the PE funds are not able to raise sufficient equity. This was especially the case during the recent global financial crisis, which depressed the fundraising and investing environment for private equity worldwide.

OPIC's eight Board-approved climate-relevant fund investments target a total of US$694 million in committed capital from OPIC alone. However, many of the funds have not reached these commitments or a financial close because of a slowdown in emerging market private equity fundraising over the period. The South Asia Clean Energy Fund (SACEF), for which OPIC's Board approved a US$42.7 million investment in 2008, is one recent fund that has successfully closed. SACEF has received over US$65 million in equity investment from other DFIs, including the Asian Development Bank, the Belgian Investment Company for Developing Countries, the IFC, and the Japanese Bank for International Cooperation.[47] Because of confidentiality restrictions, it is unclear how much of SACEF's US$200 million[48] of capital is from private sources; a rough estimate based on publicly available information would suggest it is around US$92.3 million—46%—a significant portion of its overall capitalization.

Figures 5a and 5b summarize OPIC's use of financial instruments by sector and region, respectively. These figures are intended to provide a snapshot of OPIC's overall climate-relevant portfolio during 2008–12 and highlight where and how OPIC finance was channeled.

Figure 5a | OPIC by the Numbers: Financial Instruments across Sectors, 2008–2012 (volume of finance)



Direct Loan
- EE
- RE: Biomass/Biofuel
- RE: Equipment
- RE: Hydro
- RE: Solar
- RE: Other

Insurance
- EE
- RE[a]

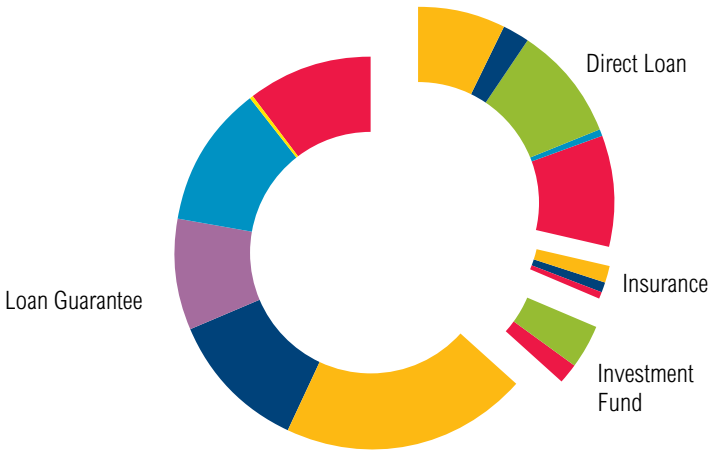
Investment Fund
- RE and EE

Loan Guarantee
- EE
- RE: Biomass/Biofuel
- RE: Equipment
- RE: Geothermal
- RE: Solar
- RE/EE: Financial Intermediary

[a] RE includes one insurance transaction of US$0.9 million in the forestry sector that was too small to appear in this figure in its own standalone category.

- Nearly 30% of OPIC support was in the form of direct loans, with 30% of that for just one energy efficiency project—the Contour Global portfolio loan facility.
- There was only one geothermal project and it received US$310 million—the largest loan guarantee for one project.
- Average size of financial instruments:
  - Direct loans: US$49.3 million
  - Political risk insurance: US$8.1 million
  - Investment fund commitment: US$71.35 million

Figure 5b | OPIC by the Numbers: Financial Instruments across Regions, 2008–2012 (volume of finance)



Direct Loan
- Africa
- Central and Eastern Europe
- Global
- Latin America and the Caribbean
- South and Central Asia

Insurance
- Africa
- Central and Eastern Europe
- South and Central Asia

Investment Fund
- Global
- South and Central Asia

Loan Guarantee
- Africa
- Central and Eastern Europe
- East and Pacific Asia
- Latin America and the Caribbean
- Middle East and North Africa
- South and Central Asia

- The average size of direct loans made to Africa (US$100MM) were larger than the average size of all other instruments for any other region.
- OPIC provided political risk insurance to nine of its 42 climate-relevant projects. Two-thirds of the insurance transactions were in S&C Asia.
- Of the 20 projects in the S&C Asia region, 14 were in India alone.
- US$560 million in loan guarantees in Africa, the largest instrument offered in any region, was just for two projects.
- Over 60% of total available finance was provided to just 3 out of 7 regions (Africa, S&C Asia, and CEE).

Source: WRI, using OPIC data. See WRI's accompanying Methodology Document for data selection criteria.

SECTION IV: EX-IM BANK MAPPING

Ex-Im Bank provides working capital guarantees (pre-export financing), export credit insurance, loan guarantees, and direct loans (buyer financing).[49] In 1994, the US Congress mandated Ex-Im Bank to increase its support for environmentally beneficial exports, which led to the creation of Ex-Im Bank's Environmental Exports Program.[50] The program provides enhanced financial support for renewable energy and other environmentally beneficial exports, for instance, repayment terms of up to 18 years.[51] In 2009, Ex-Im Bank became the first ECA to adopt a carbon policy; this policy established support for low-carbon renewable energy exports, called for the support of exports that contribute to substantial increases in energy efficiency, and addressed the reduction of the carbon footprint of fossil fuel projects.[52] The policy also established a US$250 million renewable energy facility.[53] In FY2012, Ex-Im Bank authorized US$614.5 million in financing to support over $1.18 billion of US exports of environmentally beneficial goods and services—this financing only comprised 1.7% of its total authorizations that year.[54]

The mapping section will first provide a snapshot of Ex-Im Bank's climate-relevant portfolio from 2008 to 2012 and then hone in on insights.

Snapshot of Ex-Im Bank's Climate-Relevant Portfolio, 2008–2012

WRI reviewed 45 projects totaling US$2.6 billion[55] in climate-relevant sectors that received US$702.2 million in financial support from Ex-Im Bank. Key observations from this project mapping include:

- **GEOGRAPHIC TRENDS:** 49% of projects were located in Latin America and the Caribbean (LAC) reflecting broader US export activity; however, the Asian region received a slightly greater volume of finance, most frequently for projects in India (Figure 6a).
- **SECTORAL TRENDS:** Ex-Im Bank climate-relevant projects were all renewable energy projects, predominantly in the solar sector (67% of projects, 50% of finance volume), followed by the wind sector (Figure 6b). Ex-Im Bank supported the same exporters multiple times; for instance, First Solar, Southwest Wind Power, and OutBack Power Technologies received multiple rounds of Ex-Im Bank support.
- **INSTRUMENT TRENDS:** Ex-Im Bank frequently utilized export credit insurance (56% of transactions), but it channeled 85% of its support for climate-relevant projects through direct loans (US$594 million). Direct loans and loan guarantees were typically employed for larger project finance or structured finance transactions. Insurance instruments tended to be smaller than

Figure 6a | **Ex-Im Bank Climate-Relevant Finance by Region, 2008–2012**

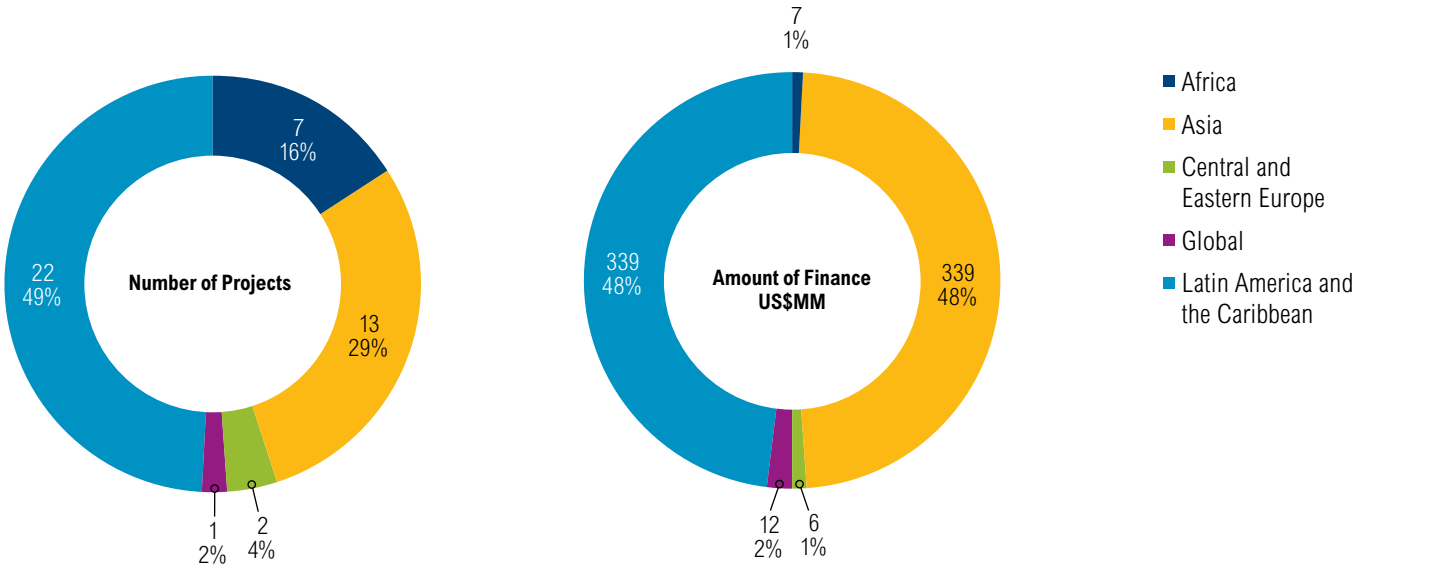


Figure 6b | **Ex-Im Bank Climate-Relevant Finance by Sector, 2008–2012**

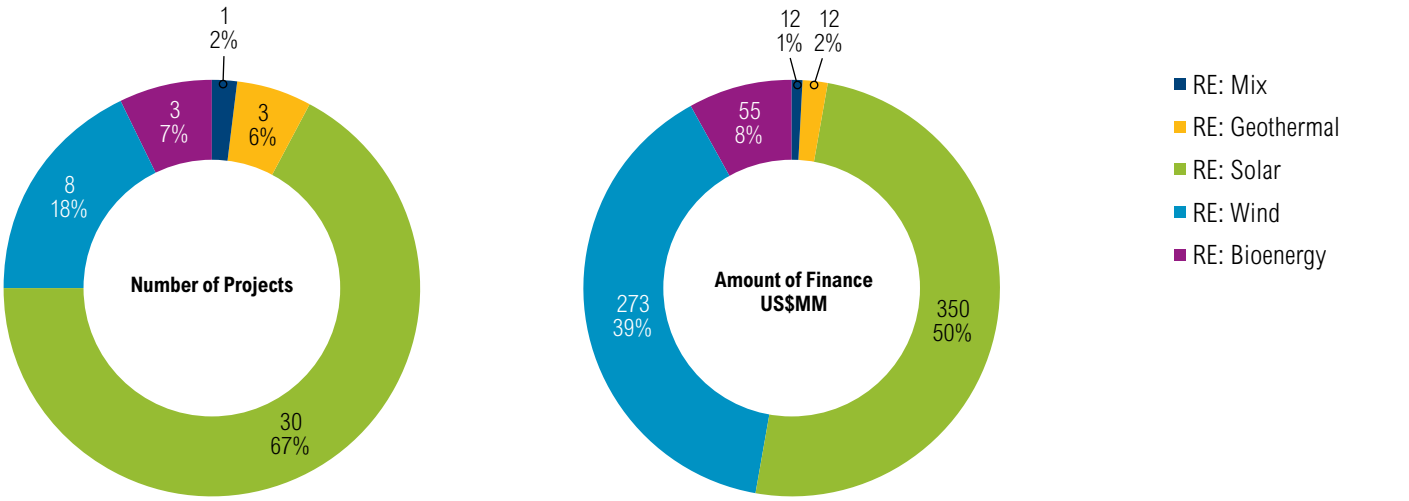
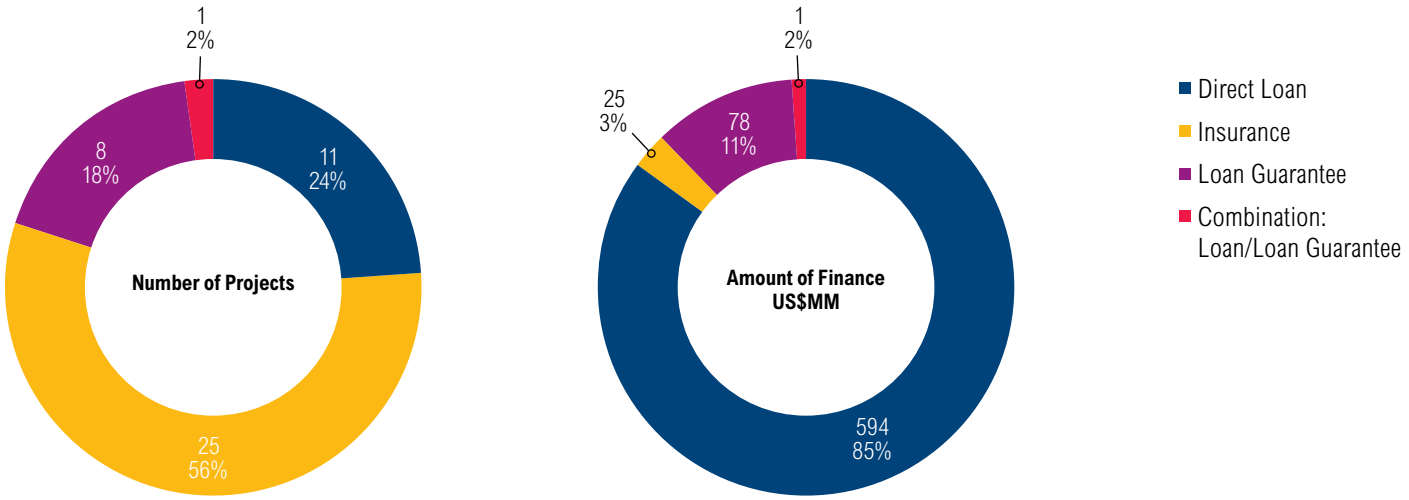


Figure 6c | **Ex-Im Bank Climate-Relevant Finance by Instrument, 2008–2012**



Source: WRI, using Ex-Im Bank data. See WRI's accompanying Methodology Document for data selection criteria.

direct loans and loan guarantees. Multibuyer insurance policies were the smallest instrument, with an average size of US$1.6 million (Figure 6c).

The Role of Ex-Im Bank Financial Instruments

Ex-Im Bank employs direct loans, loan guarantees, export credit insurance, and working capital guarantees (not examined because data were unavailable) to support renewable energy exports. The OECD's Arrangement on Officially Supported Export Credits, introduced in Section I, permits maximum ECA repayment terms of 18 years for renewable energy–related exports.[56] This extended term is critical for renewable energy projects since they have long payback periods and commercial sources typically do not offer financing with such long tenors. Please refer to Appendix 2 (accessible at http://www.wri.org/topics/climate-finance) for more details on Ex-Im Bank's financial instruments.

1. Direct Loans

Ex-Im Bank provides direct loans to foreign buyers to help them purchase US products and finance international projects (Table 7). These direct loans—which come in the form of corporate loans, project finance, or structured finance—have fixed interest rates based on a 1% spread over US Treasury notes, resulting in a very low cost of capital relative to what borrowers could access from commercial sources, whether locally or internationally. From 2008 to 2012, Ex-Im Bank provided 11 direct loans to (see Table 8) solar projects in India (7) and renewable energy projects in Latin America and the Caribbean (4). **Typically, Ex-Im Bank provided corporate loans to the smallest projects, structured finance loans to medium/large projects, and project finance loans to the largest.**

Direct loans are not homogenous; they can take different forms to better match a project's size and the borrower's balance sheet. Ex-Im Bank corporate loans benefit smaller projects since these types of loans are based strictly on the borrower's balance sheet—Ex-Im Bank evaluates whether borrowers meet credit standards such as having a positive operating profit and net income for the last two years and a ratio of Ex-Im Bank exposure/total net worth of less than 40%. Ex-Im Bank's project finance and structured finance loans are designed to offer more flexibility than corporate loans. For larger projects, Ex-Im Bank provides limited recourse project finance to a special purpose company borrower (usually the project itself), and project cash flows serve as the source of repayment.

Table 7 | **Overview of Ex-Im Bank Direct Loans**

INSTRUMENT	TYPE OF INSTRUMENT	DESCRIPTION	AVAILABLE STRUCTURES	HOW BARRIERS ARE ADDRESSED	TYPICAL USE
Direct loan	Debt	Ex-Im Bank lends to the eligible borrower—a foreign buyer—to support the purchase of US exports. Ex-Im Bank lends on a senior basis, meaning that it has a first claim on fixed assets and other collateral if the borrower fails to pay.	■ Corporate loans—secured with collateral from borrower's assets ■ Limited recourse project finance—secured with the assets of the special purpose company and the cash flows of the project ■ Structured finance—secured with a combination of collateral, cash flows of the project, and credit enhancements to the borrower's balance sheet	■ By mobilizing private capital in markets where private lenders would be unwilling to lend or offer attractive terms without a guarantee backed by the full faith and credit of the US Government ■ By helping attract additional sources of finance	■ Corporate loans typically used for small transactions ■ Project finance loans typically used for large transactions ■ Structured finance loans typically used for projects too large for corporate finance loans but too small for project finance loans

Source: WRI, based on Ex-Im Bank website and correspondence with Ex-Im Bank staff

Structured finance is critical for projects that may be too large to be feasible strictly based on the borrower's balance sheet but too small to justify the high transaction costs of project finance. With structured finance, Ex-Im Bank provides a loan and has full recourse to the borrower's balance sheet, but the balance sheet is strengthened with special credit enhancement features that minimize Ex-Im Bank's risk, such as special purpose accounts (e.g., escrow/reserve accounts or other accounts subject to Ex-Im Bank's control), default provisions, insurance, or letters of credit (guarantees from the project sponsor to Ex-Im Bank). Structured finance is particularly beneficial for companies in developing countries that may not have sufficient credit strength to provide reasonable assurance of repayment for multi-million-dollar projects.[57]

Ex-Im Bank's combination of long tenors and inexpensive debt improves the risk/reward profile of climate-relevant investments, which can help increase private sector participation in climate-relevant projects.[58] All of Ex-Im Bank's loans in the sample reviewed had long tenors, ranging from 12 to 18 years, and a very low overall average interest rate of 4% based on rates pegged 1% above US Treasury notes (Table 8).

Table 8 | **Ex-Im Bank Direct Loans to Climate-Relevant Projects in Developing Countries**

	NUMBER OF PROJECTS	AVERAGE AMOUNT OF EX-IM FINANCE (US$MM)	AVERAGE TOTAL PROJECT COST (US$MM)	AVERAGE INTEREST RATE
Corporate loan	2	2.1	3.4	3.4
Project finance	6	80.7	152.8	4.2
Structured finance	3	35.3	71	4.1
Overall	11	54.0	106.6	4.0

Source: WRI, based on Ex-Im Bank and DATA.gov websites. See WRI's accompanying Methodology Document for data selection criteria

2. Loan Guarantees

Ex-Im Bank will guarantee loans made by commercial banks (US or foreign) to a foreign buyer with a 100% unconditional repayment guarantee (Table 9). Loans guaranteed by Ex-Im Bank are fully transferable and may be securitized, thereby offering the commercial lender an additional way to reduce its risk of lending to the project. Ex-Im Bank provides loan guarantees as medium-term insurance or as project or structured finance loan guarantees.

Ex-Im Bank's loan guarantees and export credit insurance protect US exporters from nonpayment by their buyers. By providing loan guarantees to foreign buyers, Ex-Im Bank helps buyers obtain financing from commercial sources and reduces risk to US exporters by insuring against nonpayment by the buyers. Within Ex-Im Bank's portfolio of climate-relevant projects, the loan

Table 9 | **Overview of Ex-Im Bank Loan Guarantees**

INSTRUMENT	TYPE OF INSTRUMENT	DESCRIPTION	AVAILABLE STRUCTURES	HOW BARRIERS ARE ADDRESSED	TYPICAL USE
Loan guarantee	Derisking instrument	A commercial bank provides a loan to a foreign buyer and then Ex-Im Bank guarantees repayment of the loan if the foreign buyer fails to pay.	■ Medium-term insurance for loans up to 10 years ■ Limited recourse project financeloan guarantee—up to 18 years ■ Structured finance loan guarantee—up to 18 years	■ By offering international buyers competitive term financing they may not have been able to obtain from commercial lenders without Ex-Im Bank guarantee ■ By helping attract additional sources of finance	For transactions where a commercial lender or US exporter is concerned about potential commercial or political risk involved in the sale of US exports to a foreign buyer

Source: WRI, based on Ex-Im Bank website and correspondence with Ex-Im Bank staff

guarantees had tenors from 10 to 18 years, but most were on the lower end of that range. As with OPIC, Ex-Im Bank tended to employ loan guarantees for larger projects; the average project cost for a project with a loan guarantee was US$141.3 million, versus US$106.6 million for a project with a direct loan (Tables 8 and 10). However, the total cost of projects that received loan guarantees were mostly rough estimates based on cost assumptions provided by Ex-Im Bank staff, so this comparison is not definitive. The size of loan guarantees was smaller on average, US$9.8 million, versus US$54 million for direct loans.

This type of support from Ex-Im Bank is crucial because:

- **Loan guarantees allow project developers in developing countries to purchase essential components of renewable energy projects at lower risk and therefore lower cost.**
- **Loan guarantees can help make commercial lenders more comfortable supporting climate-relevant projects in developing countries;** four of the eight guarantees were for loans from PNC Bank; the other four were each from different commercial banks.

Table 10 | **Ex-Im Bank Loan Guarantees to Climate-Relevant Projects in Developing Countries**

	NUMBER OF PROJECTS	AVERAGE AMOUNT OF EX-IM FINANCE (US$MM)	AVERAGE TOTAL PROJECT COST (US$MM)[a]
Medium-term Insurance	5	3.8	35.8
Project finance	2	13.6	31.9
Structured finance	1	32.1	782
Overall	8	9.8	141.3

[a] Total project costs for the majority of projects with loan guarantees were rough estimates based on cost assumptions provided by Ex-Im Bank staff.
Source: WRI, based on Ex-Im Bank and DATA.gov websites and correspondence with Ex-Im Bank staff. See WRI's accompanying Methodology Document for data selection criteria.

Bond guarantees, which Ex-Im Bank has offered the aircraft industry, may be applied to renewable energy projects. Ex-Im Bank is considering providing renewable energy projects with guarantees for capital market borrowing (bond issuances).[59] A project sponsor or developer would sell a bond on the capital markets and use the proceeds raised to finance its project. Ex-Im Bank would guarantee payment of the bond's interest to the bondholders, which would enhance the credit rating of the bond and allow the project sponsor or developer to pay a low rate of interest. The guarantee could attract new sources of finance for large renewable energy borrowings: investors who may not wish to hold corporate debt of a company or project but who wish to hold investment-grade bonds with reduced risk and long-term returns.

3. Export Credit Insurance

Ex-Im Bank's export credit insurance minimizes the risk of nonpayment and enables exporters to offer competitive financing to their clients to purchase renewable energy products (Table 11). Ex-Im Bank offers export credit insurance to US exporters to insure credit repayments of foreign buyers. US exporters use the export credit insurance to offer short- and medium-term credit directly to their customers. Ex-Im Bank had over 25 climate-relevant export credit insurance transactions from 2010–12. All but one of these transactions were under multibuyer policies with an average size of US$1.6 million. The single-buyer export credit insurance trans-action was larger than any of the multibuyer policies; Ex-Im Bank provided US$6.3 million to cover services associated with the coordination and exploration of new geothermal energy generation projects in Kenya.

Ex-Im Bank minimizes transaction costs by authorizing multibuyer insurance policies that allow exporters to extend credit to various buyers without having to reapply for insurance each time. Multibuyer policies insure short-term sales to multiple international buyers on open account terms without requiring confirmed letters of credit. Of the multibuyer insurance transactions, 58% were in Latin America and the Caribbean, and half of these were in Mexico. The remaining projects were in Chile, Brazil, and Jamaica. Mexico is one of the top destinations for US exports (it ranked number two in 2012, after China), so this could explain why so many transactions took place in that country.[60]

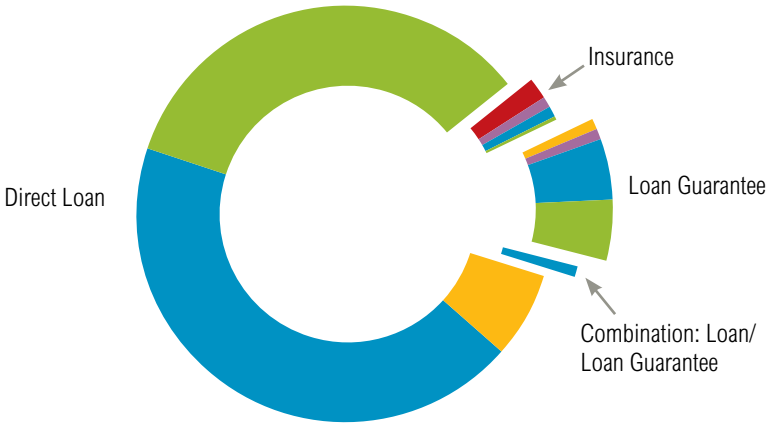
Figures 7a and 7b summarize Ex-Im Bank's use of financial instruments by sector and region, respectively. These figures provide a snapshot of Ex-Im Bank's overall climate-relevant portfolio during 2008–12 and highlight where and how Ex-Im Bank finance was channeled.

Table 11 | **Overview of Ex-Im Bank Export Credit Insurance**

INSTRUMENT	TYPE OF INSTRUMENT	DESCRIPTION	AVAILABLE STRUCTURES	HOW BARRIERS ARE ADDRESSED	TYPICAL USE
Export Credit Insurance	Derisking instrument	Ex-Im Bank provides insurance to US exporters to cover the risk of buyer nonpayment for commercial reasons (e.g., bankruptcy) and certain political ones (e.g., war or the inconvertibility of currency). Ex-Im Bank agrees to pay or settle valid claims if losses arise.	The following types of export credit insurance: ■ Short-term or medium-term ■ Single-buyer or multiple-buyer ■ Comprehensive (commercial and political) credit risk or only political risk	■ By limiting international risk, enabling US exporters to increase sales of climate-relevant goods and services ■ By helping obtain additional sources of finance	■ To mitigate potential commercial or political risk that would prevent a foreign buyer from paying the US exporter for its goods or services ■ To extend credit to foreign buyers

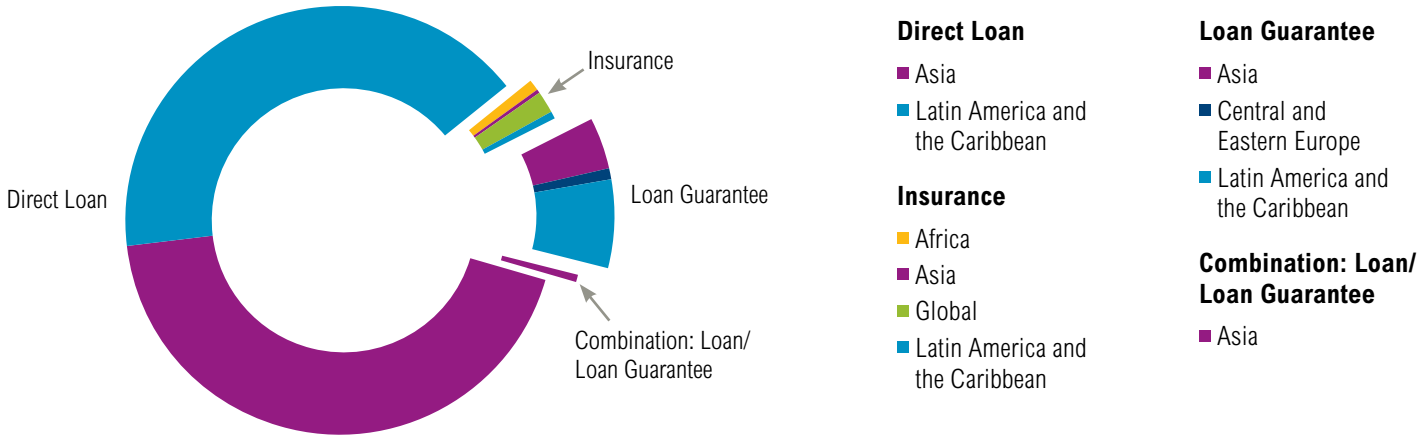
Source: WRI, based on Ex-Im Bank website

Figure 7a | **Ex-Im Bank by the Numbers: Financial Instruments across Sectors, 2008–2012 (volume of finance)**



- 56% of projects had export credit insurance, which accounted for the smallest average amount of Ex-Im Bank support at US$996,000.
- Direct loans to 11 projects were the largest instruments, with an average size of US$54 million.
- Wind and solar energy were predominant recipients of funds within a renewable energy-only portfolio.

Figure 7b | **Ex-Im Bank by the Numbers: Financial Instruments across Regions, 2008–2012 (volume of finance)**



- Asia received as much funding as Latin America and the Caribbean overall (48%), but the LAC region hosted the most projects (49%).
- Of the total 13 projects in Asia that accounted for 48% of total financing, 12 were located in India alone.
- Asia received the smallest amount of funding as insurance compared to every other region.
- Average size of financial instruments:
  - Direct loans: US$54 million
  - Loan guarantees: US$9.8 million
  - Export credit insurance: US$996,000

Source: WRI, using Ex-Im Bank data. See WRI's accompanying Methodology Document for data selection criteria.

SECTION V: CASE STUDIES

This section describes three replicable cases that illustrate how the targeted use of financial instruments by OPIC and Ex-Im Bank—and public finance support more broadly—can be critical to a project's viability and to moving a market from nascency to commercialization and replication.

1. **An OPIC political risk insurance policy for a forestry (REDD) project in Cambodia** demonstrates how an insurance product can be tailored to climate-relevant markets.
2. **OPIC and Ex-Im Bank loans for solar power projects in India** demonstrate the complementary roles of OPIC and Ex-Im Bank in helping a project developer scale activities.
3. **An Ex-Im Bank loan for a wind project in Honduras** demonstrates the importance of reliable long-term financing to overcoming hurdles in a project's preconstruction phase.

WRI compiled these case studies using multiple sources, including project documents, secondary research, and informal consultations and interviews with the public and private entities involved in each of these projects; the analysis and feedback from these sources are not necessarily independent or unbiased evaluations. Additional case studies in WRI publications are available at http://www.wri.org/topics/climate-finance.

Case Study I: Terra Global and the Oddar Meanchey Project in Cambodia

OPIC tailored its political risk insurance contract to provide the first political risk insurance ever for a REDD project. The case study demonstrates that insurance instruments for climate-relevant projects may require enhanced tailoring in order to be effective.

A. Project and Investment Context

The Oddar Meanchey project is Cambodia's first REDD[61] effort. Oddar Meanchey Province, located in northwestern Cambodia near the border with Thailand, suffered defor-

estation at an average annual rate of 2% in recent years.[62] In 2008, the Forestry Administration of the Royal Government of Cambodia, Terra Global Capital, Pact Cambodia, and Community Forestry International developed the REDD project in collaboration with NGOs and 13 community forestry groups comprised of 58 villages. The project protects a 56,050 hectare project area within a total of 64,318 hectares of community forests. The project should sequester roughly 8.2 million metric tons of CO2 over 30 years and reduce poverty among nearly 10,000 participating households through shared revenues from an estimated US$50 million worth of carbon credits.[63]

Terra Global Capital is a forest land-use carbon advisory and investment company. In 2008, Terra Global established a 30-year contract with the Royal Government of Cambodia. The company managed the carbon credit registration process, developing the project description documents for the Verified Carbon Standard (VCS) and the Climate, Community, and Biodiversity Alliance (CCBA) validations required to register the project's carbon credits. Terra Global manages the sale of the project's carbon credits on behalf of the Royal Government of Cambodia. At least 50% of the net income must go to the local Cambodian forest groups.[64] As the carbon developer for the project, Terra Global has invested over US$1.38 million in the carbon component of the project; it expects the investment to be paid off through the sale of carbon credits.

B. Project and Financing Challenges

The project had many challenges in the development stage, ranging from limited government capacity to implementation risk. The Forestry Administration of the Royal Government of Cambodia had to dedicate time and resources to becoming familiar with VCS and CCBA validation requirements. The project had to aggregate the 13 community forestry sites into a consortium and required extensive coordination (see Figure 8). The long-term viability of the project depends on three major implementation elements: (1) the Forest Administration's providing 50% of revenues to community groups for sustainably managing the land, (2) the Technical Working Group on Forestry and Environment's ensuring that project revenues flow in a transparent, accountable manner, and (3) community forestry groups' consistently reporting cases of deforestation to local authorities, who reliably enforce the law and apply relevant penalties.

Figure 8 | **Key Players in the Oddar Meanchey REDD Project Development and Implementation**

Implementing Organization	Forestry Administration of the Royal Government of Cambodia
Implementing Partners	■ Pact Cambodia (main) ■ Children's Development Association, Cambodia ■ The Buddhist Monks Association of Oddar Meanchey ■ The communities of Oddar Meanchey Province
Project Identification and Design	Community Forestry International
Carbon Development and Offset Marketing	■ Terra Global Capital (main) ■ William J. Clinton Foundation–Clinton Climate Initiative ■ Cambodia Technical Working Group on Forests and the Environment
Legal Advisor	SNR Denton
Funding Support	■ The John D. and Catherine T. MacArthur Foundation ■ Multi-Donor Livelihoods Facility, jointly funded by Danida, DFID, and NZAID ■ William J. Clinton Foundation–Clinton Climate Initiative (through a grant from the Rockefeller Foundation) ■ Recently the Japan International Cooperation Agency (JICA) and the United Nations Development Programme have also provided funding.

Source: WRI, Verified Carbon Standard project database

For Terra Global, one of the central challenges in the project concerned REDD carbon credits. REDD carbon credits are currently traded in voluntary emissions reductions markets, but these markets may change depending on the outcome of international political negotiations. It is possible that a new international agreement will require that some or all of these REDD credits be traded in compliance markets instead. As international and national REDD frameworks evolve, projects may be nested within state- or national-level REDD accounting systems that change the way REDD targets are measured, potentially preventing projects from earning carbon credits. The

potential that returns on investment will diminish as a result of policy changes heightens the risk for investors in REDD projects. Terra Global has a grandfathering clause in its contract with the government, but as its investment in the project grew, the company felt it prudent to insure that investment against political risk. Terra Global tried to obtain insurance from another public financial institution but made no progress in a year and a half of negotiations. Terra Global finally approached OPIC in the fall of 2010.

C. Financing Structure and Results

Multiple donors have provided funding to support the carbon development and implementation activities of this project, including Danida (Denmark's development corporation), the UK Department for International Development (DFID), the New Zealand Agency for International Development (NZAID), the William J. Clinton Foundation–Clinton Climate Change Initiative, the John D. and Catherine T. MacArthur Foundation, Pact, the US Department of State, the Japan International Cooperation Agency (JICA), and the United Nations Development Programme. The total project cost is estimated at over US$21.3 million, of which 85% is implementation-related (to support community sustainable forest management activities) and 15% is carbon-related (e.g., validation and registration fees, carbon data).

As of March 2013, Terra Global had invested US$1.38 million worth of equity in the project. The large size of the investment relative to the total component cost reflects the resources that the company had to dedicate to developing the first validation methodology ever for a mosaic REDD project. In June 2011, OPIC provided US$900,000 of expropriation and political violence insurance to protect Terra Global's investment. OPIC insurance usually has a 20-year coverage period, but Terra Global chose a 5-year term because of the project's dynamic nature.

Terra Global is also currently fundraising for the US$100 million Terra Bella Fund—one of the first privately owned and privately managed funds to invest exclusively in REDD projects—for which OPIC has approved a US$40 million loan guarantee. OPIC support for the Terra Bella Fund builds on the work undertaken by other US and international public and private institutions—including the US Agency for International Development (USAID), the US State Department, and the US Treasury—to develop an enabling environment for REDD projects. Terra Global may make the Oddar Meanchey project a portfolio investment of the fund and would seek political risk insurance for the fund overall.

OPIC has standard contracts for political risk insurance coverage against political violence and expropriation, but it tailored them to develop an insurance policy specifically for the Oddar Meanchey REDD project. The REDD insurance provides arbitral award/denial of justice coverage that protects against governmental breach of contracts, which can include regulatory risk protection for actions that rise to the level of an expropriation. The REDD insurance also protects against damage to the project resulting from political violence.

D. Lessons Learned

OPIC's insurance for Terra Global was the first REDD insurance contract ever, and the transaction has been hailed as highly innovative.[65] Encouraged by their experience with Oddar Meanchey, Terra Global and OPIC are both exploring other REDD projects in countries like Colombia, Brazil, and Indonesia. Key lessons from this case study include:

Political risk insurance can be a valuable instrument to reduce a project's risk and attract more investors to REDD projects. Leaders of both OPIC and Terra Global have noted that for many investors, the risk of investing in REDD projects is too high, especially in unstable political conditions.

Having agreements and certifications in place can speed up the evaluation and approval process. OPIC has bilateral agreements with country governments that outline the availability of OPIC services in the country; in certain countries, statutory and policy constraints may limit availability of the full range of OPIC services.[66] The bilateral agreement with Cambodia permitted OPIC to provide investment support without requiring Cambodian government sign-off on specific projects. In addition, Terra Global had already finalized and signed its Agreement with the Royal Government of Cambodia and prepared project description documents for Verified Carbon Standard (VCS) and Climate, Community, and Biodiversity Alliance (CCBA) validation. With the bilateral agreement in place and project description documents complete, OPIC was able to complete the due diligence

and approval process in a timely, resource-efficient manner. The transaction came together in about six months, despite its being the first of its kind.

Insurance instruments for climate-relevant projects may require enhanced tailoring in order to be effective. In climate-relevant sectors, each project may have a unique set of circumstances, so a standard contract may only serve as a starting point. By tailoring the insurance instrument for each project, OPIC minimizes argument of coverage, leading to speedier resolution of disputes. Tailoring insurance instruments is particularly important because if the policy is not drafted to fit particular aspects of the project, the investor may have a very difficult time filing and settling an insurance claim.

Case Study II: Azure Power, India

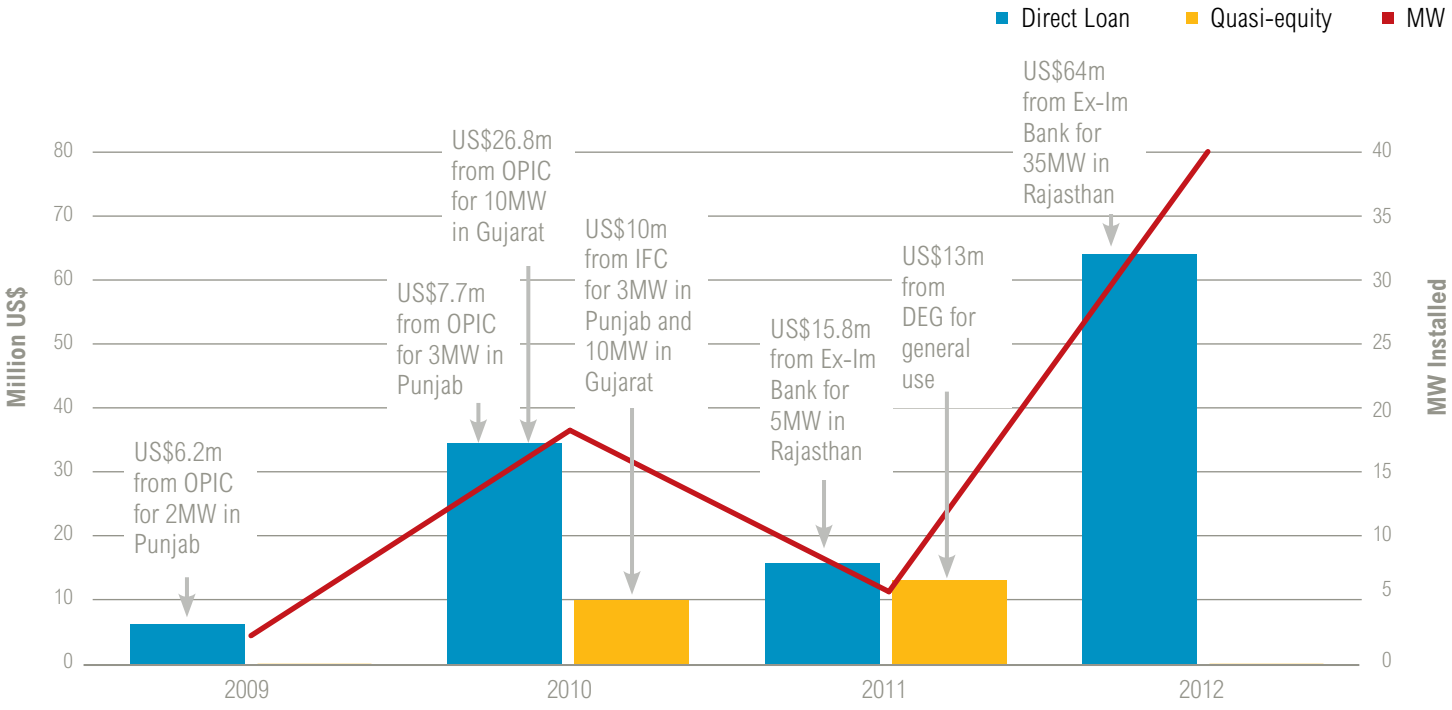
This example demonstrates the role of OPIC and Ex-Im Bank in supporting a project developer from the early demonstration phase to the commercialization phase. It underscores how public institutions, by blending their finance effectively, can catalyze private coinvestment and grow markets.

A. Financing Challenges

Azure Power is an independent solar energy service provider that is headquartered in the United States but has all of its projects and operations in India. In 2008, Azure Power was an early-stage SME that could not obtain any commercial financing despite the significant market opportunity for solar power in India. Several DFIs and ECAs were active in India at the time, including the Asian Development Bank, the German Investment Corporation (DEG), KfW (a German government-owned development bank), OPIC, and Ex-Im Bank. As a young company trying to break into a relatively new market, Azure Power found that its options were limited even among DFIs and ECAs. OPIC provided the strongest lead, particularly because it has a mandate to help create new markets for small US businesses and it is willing to take on early-stage risk.

In 2009, OPIC became the first DFI to support Azure Power, providing the company with a US$6.2 million direct loan for a solar power plant in India's Punjab State. The 2-megawatt facility was the first megawatt-scale independent power project solar facility to sell clean, sustainably generated electricity to India's grid system.[67] The facility provides electricity to 32 villages and 20,000 people in the Amritsar district of Punjab.[68]

Figure 9 | **Public Sector Financing for Azure Power Projects, 2009–2012**



Source: WRI, based on information from OPIC, Ex-Im Bank, IFC, Bloomberg

OPIC's initial direct loan, combined with Azure Power's demonstration of successful project development, opened the door to additional public sector financing. In 2010, Azure Power received a US$7.7 million loan from OPIC to support a 3-megawatt expansion of the Punjab facility. At the same time, the IFC gave Azure Power US$10 million worth of quasi-equity financing to support the expansion of the Punjab facility and a new 10-megawatt facility in Gujarat.[69] In 2010, OPIC also provided debt financing for the Gujarat facility, in the form of a US$26.8 million direct loan.

By the time Azure Power sought financing for its solar facility in the Indian state of Rajasthan in 2011, it was able to garner significant support from a new source—Ex-Im Bank—through a US$15.8 million direct loan for the 5-megawatt project. Shortly thereafter, Azure Power raised US$13 million of mezzanine financing from DEG.[70] Finally, for the 35-megawatt expansion of its Rajasthan facility, Azure Power received a US$64 million loan from Ex-Im Bank. Notably, it was also able to bring together a consortium of local banks to help finance the project. Figure 9 illustrates the public sector financing Azure Power has received for its projects over time.

B. Lessons Learned

Public financial institutions are often the only source of financing for project developers in climate-relevant sectors in developing countries; financing from these institutions can benefit the private sector most while markets are still in their demonstration and early growth stages. Once a project developer has demonstrated success and the wider market begins to reach scale, it is easier to obtain funding from sources in private financial markets.

OPIC's willingness to assume off-take risk was critical to the project's viability. The first round of OPIC financing for the Punjab facility was 66% debt, 33% equity. Azure Power was able to negotiate for nonrecourse terms, meaning that OPIC agreed to rely solely on the cash flows from the energy sales as the source of payment. In essence, OPIC was prepared to assume off-take risk. Off-take risk is the risk that the actor (usually a utility/distribution company) that signed the power purchase agreement (PPA) with the project developer will fail to make payments. Electricity pricing subsidies can put utilities under financial stress and impact their ability to honor the PPA, which is potentially the case in India.

Project developers need various types of financing depending on their own stage of growth, as Azure Power's case demonstrates. After financing their business with equity to start it off, project developers will typically seek debt financing. As the business matures, project developers need to capitalize their balance sheets and therefore seek equity in order to expand and carry the debt. Meanwhile, project finance continues to be necessary to finance large-scale projects.

OPIC and Ex-Im Bank provide complementary financing—institutional coordination can be powerful. OPIC and Ex-Im Bank played roles that were aligned with their mandates. As the first lender to Azure Power, OPIC played an important role in helping the company demonstrate success and unlock other sources of financing. OPIC has a unit dedicated to financing small and medium-sized enterprises and it has explicitly prioritized support for renewable resources projects, so supporting Azure Power fit well with its priorities. Although it tried, Azure Power was not able to lock in financing from Ex-Im Bank until it was developing larger-scale projects; Ex-Im Bank did not play a catalytic role like OPIC and instead financed Azure Power only after the company had demonstrated success.

Case Study III: Globeleq Mesoamerica Energy and the Cerro de Hula Wind Farm in Honduras

Ex-Im Bank's commitment to provide a direct loan to the Cerro de Hula wind farm sustained the project through massive political challenges and launched the first utility-scale wind farm in Honduras. Attractive financing terms and stability of finance are essential for renewable energy projects in developing countries, particularly a project that is the first of its kind in a country or region.

A. Project and Investment Context

Cerro de Hula (CDH), a 102MW wind farm in Honduras that became operational in late 2011, is the first utility-scale wind project in the country and currently the largest in Central America. The wind farm is located 24 kilometers south of Tegucigalpa and consists of 51 60Hz wind turbines that generate roughly 6% of the country's power; at the time Ex-Im Bank reviewed the project, it would have provided 10% of Honduras' generation capacity. Ex-Im Bank's involvement in the CDH project dates back to 2007. WRI's interviews suggest that without Ex-Im Bank's sustained commitment it is unlikely the project developer would have been able to proceed with the project.

Mesoamerica Energy, the project developer of CDH, created a subsidiary, Energía Eólica de Honduras, S.A. (EEHSA), to be the project company so that it could obtain project financing in a limited-recourse structure. EEHSA received its environmental permit from the Honduran Natural Resources and Environment Ministry (SERNA) in 2005. In October 2008, it executed a 20-year power purchase agreement (PPA) for 100 megawatts with the state-owned utility company, Empresa Nacional de Energía Eléctrica.

In 2010, Globeleq acquired Mesoamerica Energy, and the company became Globeleq Mesoamerica Energy. Globeleq, backed by the private equity group Actis, provided a majority of the equity funding for project construction. Globeleq Mesoamerica Energy secured debt financing from Ex-Im Bank and the Central American Bank for Economic Integration (CABEI) in the fall of 2010. Gamesa and Iberdrola Ingeniería y Construcción constructed the wind farm, and the same group now serves as the operator, while Globeleq Mesoamerica Energy holds ownership of and manages the project.

B. Project and Financing Challenges

In June 2009, the Honduran National Congress voted to remove President Manuel Zelaya from office, forcing him into exile. Ex-Im Bank could not complete its due diligence and close on the transaction until a new government came into power, so the project suffered costly delays during six months of political uncertainty. When the new president of Honduras came into power, Ex-Im Bank had to have a special meeting with the president, key ministers, and Mesoamerica to ensure government support for the project so that it could continue. During the delay, input and construction prices fluctuated and Globeleq Mesoamerica Energy had to redo its financial model for the project. The delay also forced the project developer to find another vendor for the project's high-voltage substation transformer, so the developer ordered one from India, only for it to be held hostage in transport by Somali pirates. Other logistical challenges, including high winds, challenging terrain, and significant transportation requirements, added unexpected costs.

C. Financing Structure and Results

The total project cost was US$280 million. Ex-Im Bank provided a US$159 million direct loan, which helped unlock an additional US$50 million loan from CABEI.[71] Globeleq Mesoamerica Energy took a US$70 million equity stake in the project, with support from Actis. WRI was not able to obtain details on the financing from CABEI, so this section focuses on the Ex-Im Bank financing.

Ex-Im Bank provided an 18-year fixed rate project finance loan to the project company, EEHSA (the special purpose company borrower), to support the purchase of Gamesa turbines. The interest rate on the loan during the construction period was 3.51% and rose to 7% once the project reached its commercial operation date, based on a 1% spread over US Treasury notes plus a country risk rating. Ex-Im Bank did not factor any technology risk into the project. The loan has a tailored semiannual repayment term with a weighted average life of 10.5 years (equivalent to a 21-year loan term).

Globeleq Mesoamerica sought financing from Ex-Im Bank for a variety of reasons. One was that the Ex-Im Bank loan reduced the project developer's risk just by having the US Government behind the financing. Another was that Ex-Im Bank terms were attractive and consistent. The project developer could not find debt as inexpensive as Ex-Im Bank's and with such reasonable reserve account and debt/equity requirements. The long-term 18-year tenor also made a significant difference to the project developer in light of the 20-year PPA.

D. Lessons Learned

This case illustrates how a strong committed lender can play an important role in overcoming political risk in developing countries. Project developers need committed lenders who will remain patient and stay with a project through turbulent periods. Commercial lenders are unlikely to be able to play this role. Ex-Im Bank, however, was committed to the project throughout the presidential reshuffle in Honduras and even helped secure continued government support when the new president came into power.

Attractive financing terms are essential for renewable energy projects in developing countries, particularly a project that is the first of its kind in a country or region. Ex-Im Bank's financing terms combined with the de facto backing of the US Government helped create an attractive risk/reward profile for the project developer. EEHSA has recently obtained more financing to expand the wind farm—in February 2012, KfW provided funding to CABEI to lend up to US$24 million to

the project; in March 2013, Ex-Im Bank announced that it will provide a US$28.6 million direct loan to support the project's expansion.

SECTION VI: INSTITUTIONAL BARRIERS AND POTENTIAL SOLUTIONS

Through interviews with public and private sector actors, as well as secondary research from public documents, WRI has compiled examples of institutional barriers commonly found in the operations of OPIC and Ex-Im Bank, which may also apply to other public financing actors and mechanisms.

Beyond the internal institutional barriers discussed below, other key factors that determine the public sector's ability to mobilize the private sector include (1) the existence of complementary domestic climate change and other relevant policies in recipient countries, and (2) recipient governments' determination of financing priorities in each of their countries. The underlying country risk, regulatory barriers, and broader investment landscape are also fundamental determining factors for private sector involvement in climate-relevant investment. (See WRI's report, *Mobilizing Climate Investment*, which discusses how climate finance can address policy, regulatory, institutional, and capacity barriers.)

1. Congressional Authorizations and Authority

While both agencies are financially self-sustaining, congressional authorizations provide the administrative budget for OPIC and Ex-Im Bank, give the agencies authority to extend financing, and set basic parameters, like their use of financial instruments and portfolio size. For example, OPIC is unable to provide equity, grants, or technical assistance (see Table 2). As discussed in Section III, OPIC can provide equity finance indirectly by supporting the creation of investment funds. However, beyond requiring that such funds comply with its standards and requirements, OPIC has limited influence on the companies the funds select as portfolio investments.

OPIC can overcome financing instrument limitations through smart collaboration with other public finance actors that provide complementary finance. Given that many projects may need a combination of different types of finance to create a complete financing package, it is all the more important for OPIC to find efficient ways to collaborate with other DFIs as well as with the US State Department and the US Agency for International Development (USAID). OPIC has a long history of cofinancing and structuring partnerships with US and international public and private institutions, but there are still more ways to collaborate going forward. In May 2011, OPIC joined 11 of its peers in signing a master cooperation agreement with the IFC. The agreement standardizes steps that lenders take when joining the IFC to cofinance projects, which should increase efficiencies and cut costs to borrowers and lenders throughout the life of a loan.[72] One way that OPIC is already actively coordinating with other US government agencies is through the US-Africa Clean Energy Finance Initiative (see Box 4), but based on our interviews there is limited operational coordination between US agencies relative to the potential synergies.

Box 4 | **Example of Enhanced Coordination among US Government Agencies: US-Africa Clean Energy Finance Initiative**

In June 2012, the US State Department, OPIC, and the US Trade and Development Agency (USTDA) launched the US-Africa Clean Energy Finance Initiative (US-ACEF). The US$20 million initiative is designed to align US government aid, technical assistance, and development finance resources to leverage private sector investment in clean energy projects in Africa. In November 2012, OPIC, Ex-Im Bank, and the USTDA created the US-Africa Clean Energy Development and Finance Center. The center will advance the US-ACEF initiative by providing a coordinated approach to clean energy project development in sub-Saharan Africa. OPIC and Ex-Im Bank are also involved in other collaborative initiatives with US government agencies, including the US India Partnership to Advance Clean Energy (PACE), and the Renewable Energy and Energy Efficiency Export Initiative (RE4I).

Source: WRI, from US government agency websites

2. Staff Resources

Increased staff resources would help OPIC and Ex-Im Bank scale their climate-relevant portfolios and better respond to demand. Based on our interviews, both OPIC and Ex-Im Bank are understaffed relative to their clients' demands for climate-relevant financing. OPIC has 220 employees and has supported more than 4,000 projects since 1971. Ex-Im Bank has a staff of about 400 and approved nearly 4,000 transactions in fiscal year 2012 alone.[73] While OPIC does much of its work in-house, Ex-Im Bank handles a much larger volume of transactions and relies on external advisory and consulting services to help structure complex transactions. The need for more external support can add to the cost structure, may require more coordination by the borrower or sponsor (especially new borrowers), and can lead to lengthier transaction processing times.

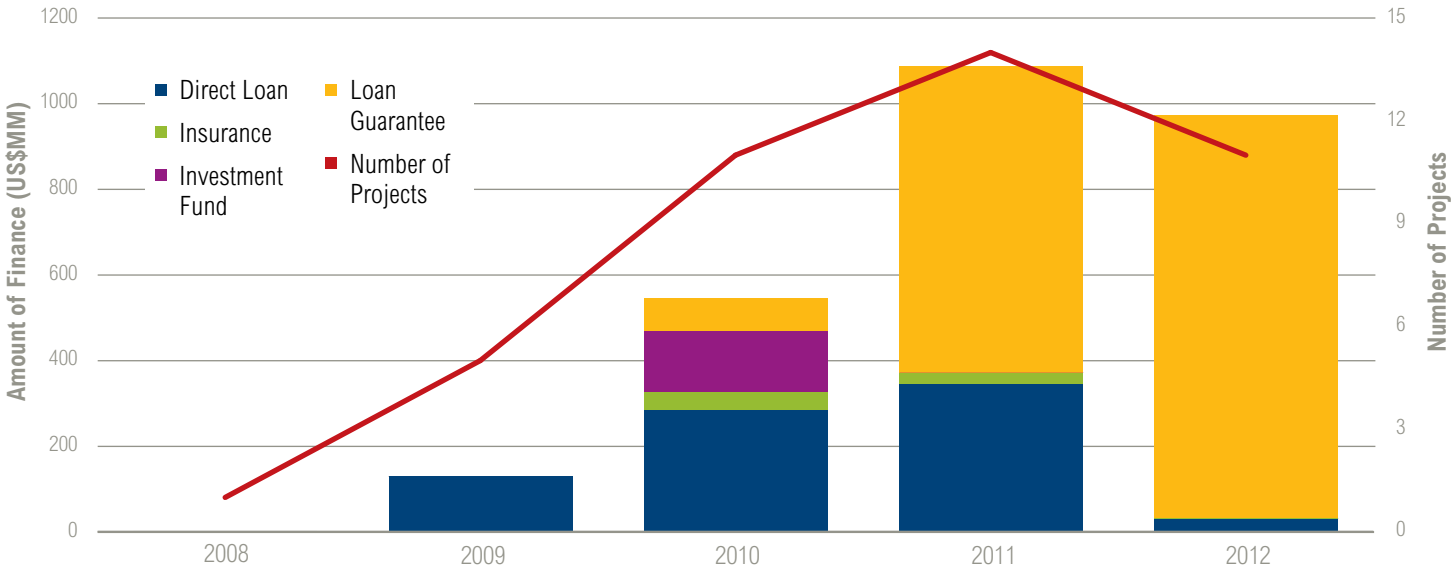
3. Data, Monitoring, and Evaluation of Private Sector Outcomes

OPIC, Ex-Im Bank, and their peers would benefit from systematically collecting and disseminating data on private sector participation to the public. A key challenge to WRI's analysis was the lack of transparency and limited data on the level and form of private sector participation in projects as well as on monitoring and evaluation of private sector projects. These data constraints prevent WRI and public climate finance providers from understanding the drivers, level, terms, and longer-term results of private sector participation in transactions. Without this kind of disclosure and retrospective analysis, donors could cannibalize private sector investment, create finance gaps in certain markets, or both. Providing aggregated data on private sector projects would at least enable PFIs to better identify, use, and share best practices in leveraging private sector participation.

4. Leadership, Priorities, and Authority

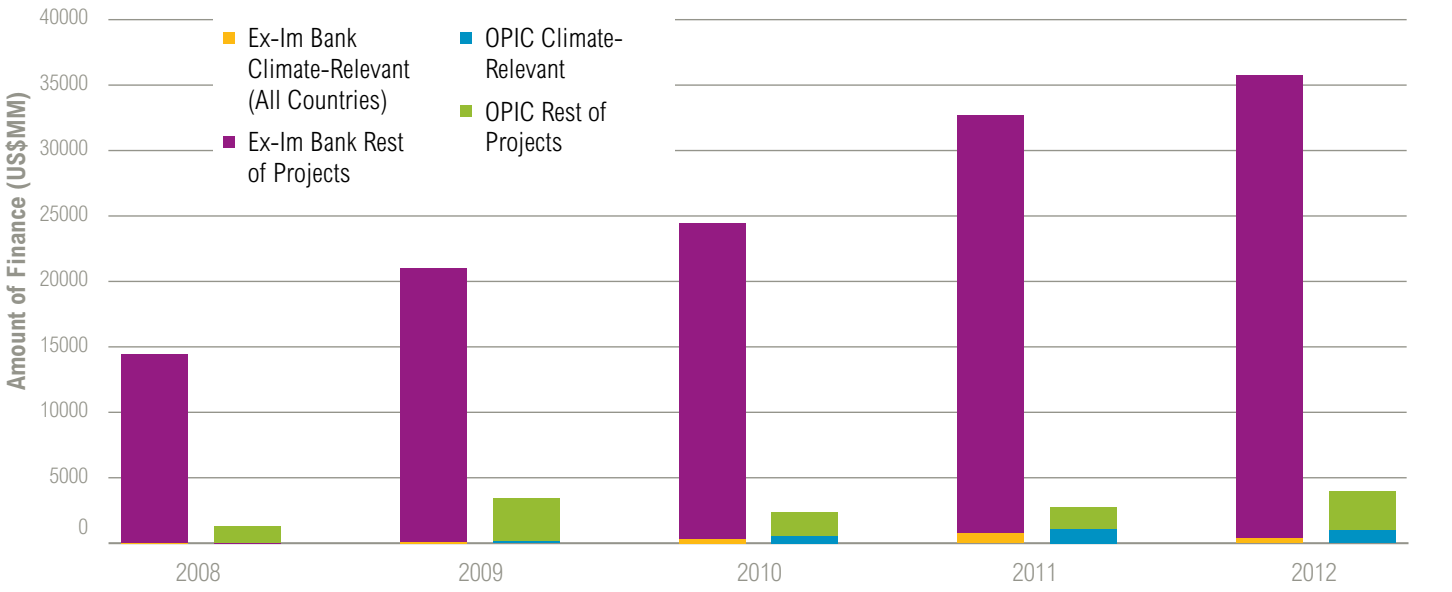
Fully institutionalizing long-term climate focused mandates—as OPIC has demonstrated—is critical to supporting climate-relevant sectors. OPIC's greenhouse gas emissions cap on new projects in its portfolio (introduced in Section III) shows how formal mandates can create significant shifts in institutional priorities.[74] Since fiscal year 2009, OPIC has had an explicit strategic priority to promote renewable energy (and later renewable resources more broadly). Under the influence of both the emissions cap and Chief Executive Officer Elizabeth Littlefield, OPIC's climate-relevant portfolio has grown significantly since 2008 (see Figure 10).

Figure 10 | **OPIC Climate-Relevant Projects by Instrument, 2008–2012**



Source: WRI, using OPIC data. See WRI's accompanying Methodology Document for data selection criteria.

Figure 11 | **OPIC and Ex-Im Bank Total Annual Financial Support Authorized/Committed, 2008–2012**



Source: WRI, based on OPIC and Ex-Im Bank data. See WRI's accompanying Methodology Document for data selection criteria

The same year that OPIC established its GHG reduction targets, Congress mandated Ex-Im Bank to allocate 10% of its annual financing to renewable energy and environmentally beneficial exports; in 2009 Congress narrowed the 10% target to a subset of environmentally beneficial exports—renewable energy and energy efficient technologies.[75] A 2010 US Government Accountability Office (GAO) report found that Ex-Im Bank was far from achieving its 10% target, with 1.57% and 1.79% of its financing dedicated to environmentally beneficial exports in 2008 and 2009, respectively.[76] Ex-Im Bank's financing for renewable energy projects as a percentage of its overall financing grew each year between 2008 and 2011 but fell in 2012. It cited market-related challenges beyond its control for the contraction in 2012.[77]

Nevertheless, Ex-Im Bank has not come close to achieving its congressional mandate. This could reflect Ex-Im Bank's overarching mandate to promote US exports—which are subject to market pressures and fluctuations—and the demand-driven nature of Ex-Im Bank's financing. It could also indicate the need for Ex-Im Bank to ramp up its efforts to address the recommendations of the GAO report: to consistently follow strategic planning practices such as involving and communicating with stakeholders, assessing internal and external environments, and realigning staff and resources to correspond with priorities. In addition, adopting even a slightly higher risk tolerance for renewable energy projects in developing countries would help ensure a shift from brown (e.g., fossil fuel sector) to green investments.

ECAs, including Ex-Im Bank, have been criticized for their significant fossil fuel financing.[78] Critics argue that the negative effects from financing fossil fuel projects could cancel out the emissions reduction benefits of financing climate-relevant projects. For instance, in 2012 Ex-Im Bank provided a record US$9.6 billion in financing for natural-gas plants, oil exploration, pipelines, and refineries, compared to US$355 million for renewable energy (all countries, not just developing ones).[79] Unlike OPIC, whose GHG emissions cap compels it to walk away from carbon-intensive projects, Ex-Im Bank, until the recent announcement of US president Barack Obama's Climate Action Plan, was able to finance coal projects as long as projects with a high level of carbon emissions have verifiable offsets to reduce the project's carbon dioxide intensity to below 850g of CO_2/kwh.[80, 81] The effect of these contrasting mandates is evident in the size of the two agencies' climate-relevant portfolios—OPIC's climate-relevant commitments in the last 5 years are nearly twice as large

as Ex-Im Bank's (when counting all countries of activity, not just developing countries), even though Ex-Im Bank provides significantly more finance (see Figure 11).

US president Barack Obama's climate action plan will put an end to US government financial support for coal-fired power plants overseas, with limited exceptions.[82] This policy should not have a significant impact on OPIC considering its existing GHG cap, but for Ex-Im Bank, it could create the kind of shift in financing that will put the 10% target within reach.

CONCLUSION

By examining how OPIC and Ex-Im Bank deploy a suite of financial instruments across their portfolios of climate-relevant projects, this paper highlights some initial lessons for other public financial institutions and mechanisms about how different financial instruments can be used to promote private sector investment in climate-relevant sectors. These lessons are particularly pertinent to members of the Green Climate Fund Board as they operationalize the fund's Private Sector Facility, as well as national development banks and other development finance institutions evaluating their own offering of financial instruments.

WRI's analysis illustrated that it is both necessary and feasible to tailor traditional financial instruments to address investment risks specific to climate-relevant sectors in order to unlock new sources of private finance. The analysis also highlighted the opportunity for public financial institutions to maximize their impact by playing complementary roles depending on their risk profiles and instrument offerings.

OPIC and Ex-Im Bank are two players in a broad landscape of climate finance actors. Support from institutions like theirs can be further complemented by financing from other multilateral and bilateral public financial institutions—either concurrently or at different points in time. The Green Climate Fund and its Private Sector Facility could play a critical role in this landscape by acting as a coordinating body between public financial institutions to fill various gaps, including providing financial instruments and finance at the right terms, helping test innovative financial instruments, and opening up new sources of private coinvestment by pooling investments from various institutions.

Future papers in this series will map the activities of public-private funds as well as a national development bank. Aggregated, these papers will create a comprehensive set of lessons for public financial institutions and climate finance mechanisms that will give these actors some of the tools needed to close the climate finance gap in developing countries.

ENDNOTES

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14. Calculating the quantum of finance bilateral institutions provide and/or intermediate is made challenging by the lack of standardized definitions, methodologies, and data for tracking public climate finance flows. Studies by the Climate Policy Initiative (2012) and the Organisation for Economic Co-operation and Development (2012) have tried to estimate bilateral development finance flows and export credit finance flows, respectively. Unfortunately, despite the best efforts of the studies' authors, their estimates do not reflect a comprehensive picture of bilateral climate finance since this information is not available in a standardized, comprehensive, and transparent format.
15. Shayerah Ilias, *The Overseas Private Investment Corporation: Background and Legislative Issues* (Washington, DC: Congressional Research Service, 2011), 1.
16. Shally Venugopal et al., "Public Financing Instruments to Leverage Private Capital for Climate-Relevant Investment: Focus on Multilateral Agencies" (Washington, DC: World Resources Institute, 2012), 52–55.
17. James Harmon et al., *Diverging Paths: What Future for Export Credit Agencies in Development Finance* (Washington, DC: World Resources Institute, 2005), 1.
18. Based on self-definitions and self-reporting; Japan and the United States include development finance and export credit as FSF. Other countries often provide this same type of support but do not claim it as FSF.
19. Clifford Polycarp et al., "Developed Country Fast-Start Climate Finance Pledges: A Summary of Self-Reported Information," World Resources Institute, November 26, 2012, http://pdf.wri.org/climate_finance_pledges_2012-11-26.pdf.
20. Ex-Im Bank supports several key industries: oil and gas, mining, agribusiness, medical equipment and services, construction equipment and services, aircraft, power generation and related services, and renewable energy. Export-Import Bank of the United States, "What We Do—Key Industries," http://www.exim.gov/about/whatwedo/keyindustries/.
21. OPIC, "OPIC 2011 Annual Report," http://www.opic.gov/sites/default/files/051912-annualreport-FINAL.pdf.
22. For further explanation of these financial instruments, please refer to Appendix 1 of the 2012 WRI working paper, "Moving the Fulcrum: A Primer on Public Climate Financing Instruments Used to Leverage Private Capital," http://www.wri.org/publication/moving-the-fulcrum.
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25. For details, see United Nations Framework Convention on Climate Change, "The Cancun Agreements," http://cancun.unfccc.int.
26. United Nations Framework Convention on Climate Change, "Fast-Start Finance," 2013, http://unfccc.int/cooperation_support/financial_mechanism/fast_start_finance/items/5646.php.
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28. OPIC- and Ex-Im Bank–supported projects received a combined total of more than US$142 billion during the period, of which over US$3.4 billion, or 2.4%, was authorized for climate-relevant projects in developing countries (figures based on publicly reported data and staff estimates).
29. Though they do not include all the projects financed, the 87 projects reviewed provide a representation of the types of financial instruments and structures used to finance climate-relevant projects. Data on cofinancing and private sector participation were not publicly available for either OPIC- or Ex-Im Bank–supported projects. Where total project costs were available, we could measure total cofinancing from public and private sector sources; project-level information on private sector participation, such as specific actors, amounts, instruments, and so on, was unavailable because of confidentiality restrictions.
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WRI's "Climate Finance" series tackles a broad range of issues relevant to public contributors, intermediaries, and recipients of climate finance—that is, financial flows to developing countries to mitigate greenhouse gas emissions and adapt to climate change impacts. A subset of this series, including this paper, examines how different types of public climate finance providers and intermediaries, or international finance entities like the proposed Green Climate Fund, can help meet the significant investment needs of developing countries by mobilizing private sector investment. These publications acknowledge the importance of overarching support for complementary climate change policies that create attractive market conditions domestically *but focus on the use of financial instruments.*

Readers may refer to "Moving the Fulcrum," the first publication in this subset of the "Climate Finance" series, for more information on the financial instruments referenced in this paper, investment barriers faced by the private sector, and background on how public actors can mobilize private capital. Other publications in this series are available at http://www.wri.org/topics/climate-finance.

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