LESSONS FROM THE CIF EXPERIENCE IN SCALING-UP ENERGY EFFICIENCY: SYNTHESIS REPORT

CARBON TRUST

CTF CLEAN TECHNOLOGY FUND

CONTENTS

Climate Investment Funds

The $8 billion Climate Investment Funds (CIF) accelerate climate action by empowering transformations in clean technology, energy access, climate resilience, and sustainable forests in developing and middle income countries. The CIF's large-scale, low-cost, long-term financing lowers the risk and cost of climate financing. It tests new business models, builds track records in unproven markets, and boosts investor confidence to unlock additional sources of finance.

Carbon Trust

The Carbon Trust is an independent, expert partner of leading organisations around the world, helping them contribute to and benefit from a more sustainable future through carbon reduction, resource efficiency strategies and commercialising low carbon technologies.

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EXECUTIVE SUMMARY

Multilateral development banks (MDBs) are playing an important role in helping developing countries to meet their climate goals through scaling-up emerging energy efficiency markets. MDBs help both the public and private sectors to address market barriers and mobilize private capital to increase financial flows and develop local supply chains. Investment by MDBs in energy efficiency has averaged close to $5 billion a year over the last several years, representing about 22% of MDBs' total mitigation investments.[1]

As of January 2017, the Climate Investment Funds (CIF), through its Clean Technology Fund, has approved more than $1.07 billion in concessional financing[2] for energy efficiency projects in middle-income countries. Their MDB partners can utilize these funds for a range of purposes: to incentivize local participation through attractive terms; reduce perceptions of risk by underwriting losses; and help provide technical assistance to build local capacity and skills.

The CIF were established with a mandate to generate and share lessons on how to achieve transformation toward low carbon and climate resilient development. Given the enormous market potential of energy efficiency, high demand from countries[3] and the MDBs' ambitions to ramp-up support for energy efficiency, it is now an apt time to learn and share lessons that may help MDBs and their clients to more efficiently and effectively scale-up energy efficiency investment.

This study, led by the Carbon Trust, has contributed to this objective by analyzing the CIF's portfolio of energy efficiency programs and drawing key lessons for improving such initiatives in the future. The analysis has taken stock of where the CIF money has been deployed, and to what effect, across 43 programs. From those 43, the focus of the project was an in-depth, qualitative[4] investigation of 8 case studies into how they deployed particular financial and non-financial instruments, and the best practice recommendations that can be learned from them.

This process has involved engaging with over 50 key stakeholders across the public and private sectors; international and local experts; and individuals with hands-on experience of designing, delivering and evaluating energy efficiency programs worldwide.

The outcome of this study is a set of recommendations for energy efficiency programs that involve (concessional) credit lines, guarantees, leasing and insurance – exploring why they are necessary, when they are appropriate and how they can be most effective. These detailed findings can be found in the sub-chapter 'Case study analyses' below. In addition, based on these findings developed a simple framework for understanding when different financial and non-financial instruments are found in relation to different barriers and market maturities (Figure 6).

Beyond these instrument-specific recommendations, throughout the case studies, and drawing on the wider experience of energy efficiency experts, there are some fundamental overarching conclusions about how to achieve greater scale-up of emerging energy efficiency markets:

1. **The concessionality that the CIF – and other donor funds – are able to provide is consistently highlighted as a key factor of success in kick-starting new markets**. Whilst energy efficiency remains unfamiliar and outside traditional business models, concessional finance will continue to play a fundamental role in scaling-up nascent markets. Across all of the case studies investigated in-depth this element was emphasised as fundamental to their early success, and without the more attractive rates, tenors and grace periods, stakeholders often stated that their programs would not have got off the ground due to entrenched barriers across energy efficiency markets.
2. **However, it is clear that concessional finance is finite and sustainable markets must learn to operate on commercial terms.** Therefore it is clear that an exit strategy for weaning the recipients off the concessions should be included in future program proposals. Although there is no definite best practice guide

1 Joint Report on Multilateral Development Banks' Climate Finance (years 2011-2015). Figures include commitments by the European Investment Bank.

2 Concessional finance is defined by its source - in this instance it is the donor role that the CIF plays, which enables it to provide finance that is more attractive that rates offered in local markets and by MDBs. Other sources of concessional finance include governments, the Global Environment Facility and the Green Climate Fund.

3 Fifty-one of the 72 CIF recipient countries (71 percent) include energy efficiency in the mitigation components of their INDCs.

4 Please note, due to the lack of consistent, high quality quantitative date – as a result of confidentiality – this analysis focuses on the qualitative best practice lessons when delivering energy efficiency programs, and not quantitative factors such as disbursement volumes and rates, leverage ratios and energy reduction impact.

for achieving this transition, a number of key steps consistently mentioned were: i) training permanent teams within financial institutions who have the skills to continue to pursue energy efficiency projects; ii) gradual step changes in the level of concessionality to prepare the market for commercial operations; and iii) encouraging and enabling long-term policy work to support the business case, and thus demand, for energy efficiency.

3. **Moving to self-sufficient markets may require energy efficiency programs to provide the initial carrot, but it is the long-term policy environment that can provide the essential stick.** Often across our case studies, a favourable policy environment was cited as a key determinant for the success of the program. In the long-term, without the policy framework encouraging and driving energy efficiency deployment, it is unlikely that emerging markets will reach scale because it is fundamental for driving adoption of new practices via roadmaps, incentives or regulations.

   Therefore, future programs should be designed in a way that promotes greater uptake of best practice standards, procedures, contracts and accreditation schemes for technologies and suppliers. With their expertise, MDB programs are in a strong position to work collaboratively with policymakers to educate them in best practice and promote long-term impact by making it easier for policymakers to use their information for developing follow-on energy efficiency initiatives and legislation.

4. **For every case study in our sample, technical assistance was indispensable.** Recognising that energy efficiency markets are hampered by non-financial, as well as financial, barriers is clear. Financiers will not disburse funds for energy efficiency projects unless they have the required skills and capacity to do so. Neither will they do so unless there is a high-quality bankable projects that need financing. Technical assistance is vital on both fronts. It can build the necessary skills within financial institutions so they are comfortable financing projects; whilst training and awareness-raising across the supply is crucial for developing a credible pipeline.

   In the long-term, the knowledge and skills that are developed as a result of the technical assistance will outlast any concessionality and form the bedrock for a self-sufficient market. Even in maturing markets within our sample, where technical assistance might be assumed to be less important, it has played a significant role given the realisation that to reach scale sufficient technical capabilities and capacity have to be commonplace across a wide supply chain – unfortunately, at this moment, this is very rarely the case. Therefore it is vital that technical assistance continues to play a significant role in any energy efficiency finance program, or their impact risks being short-lived at best, and negligible at worst.

In addition to these conclusions, looking towards creating sustainable energy efficiency markets requires finding new sources of capital beyond the CIF and their MDB partners. Accordingly, this study includes a supplementary analysis on how institutional investors can be incentivized to bring their large-scale, long-term financing to this emerging market in the future.

The detail in the chapter, 'The role of institutional investors', looks at specific recommendations for generating greater investment through intiaitives involving standards, information, bonds, funds and asset-backed securities. Overall, the key cross-cutting recommendations for the CIF and MDBs are:

1. **First and foremost, support pipeline development and finance at a sufficient scale (in the $100s millions) in energy efficiency markets, to enable refinancing through familiar investment products.** Institutional investors will not fundamentally change their business model, therefore the objective must be to create familiar products at scale to enable them to invest in energy efficiency. MDBs must, therefore, continue to develop energy efficiency programs that focus on pipeline development, whilst taking a long-term view on how the projects can be aggregated and packaged for institutional investors.

2. **Promote means to standardize and aggregate energy efficiency investments to reduce transaction costs is fundamental for reaching sufficient scale.** These two priorities should take a central role in future energy efficiency programs in the interests of their long-term sustainability. Working with institutional investors to understand their requirements and feeding that into the preparation of future programs will begin to lay the ground for their involvement.

3. **Develop guarantees, insurance and other products for mitigating the risks that institutional investors may perceive with novel investments.** Institutional investors are not used to evaluating and pricing the risks of energy efficiency investments, therefore initially offsetting these risks will likely be key to kick-starting their involvement.

1. INTRODUCTION

1.1 Purpose of the study

The Climate Investment Funds (CIF) were established in 2008 to provide scaled-up climate financing to developing countries to initiate transformational change towards low carbon, climate resilient development. Channelled through the multilateral development banks (MDBs), the CIF encompass two funds: the Clean Technology Fund (CTF) and the Strategic Climate Fund, which includes three targeted programs – the Forest Investment Program (FIP), the Pilot Program for Climate Resilience (PPCR) and the Program for Scaling up Renewable Energy in Low Income Countries (SREP). Contributor countries to the CIF have pledged more than USD 8.3 billion to fund preparatory activities and investments in 72 countries.

The CIF Administrative Unit, in collaboration with the CIF's multilateral development bank (MDB) partners, sought to undertake an analytical exercise to draw lessons from the experience of the CIF and international finance institutions in supporting investment in energy efficiency. The aim of this study was to better understand the effective use of public finance – in particular concessional climate finance[5] provided through the CIF – in scaling up investment in energy efficiency, mainly in middle income countries, focussing specifically on demand-side energy efficiency.

The study created a common framework to analyse and evaluate the whole portfolio of CIF-funded energy efficiency programs. The framework was used to prioritise 8 programs out of the 43 comprising the portfolio, looking at drawing lessons across a variety of dimensions, including sectors (e.g., industrial, residential, buildings), program models (e.g., credit lines, energy efficiency funds, utility financing, public financing, guarantees, etc.), and scale of beneficiaries (e.g., households, SMEs, large industry). Finally, these lessons were discussed in two invitation-only dialogues featuring a broad selection of energy efficiency stakeholders including MDBs, commercial banks, funders and governments from a number of countries where the CIF is active.

The study also set out to explore how concessional finance can best be utilized to attract institutional investors to invest in energy efficiency (e.g., through investments in funds or facilities). Energy efficiency can offer very high returns, but the actual level of risk of underlying investments is poorly understood by institutional investors. In the effort to scale up investments, the participation of institutional investors would be key. However, the perceived risks of energy efficiency remain high, and there are few examples of funds that are returning the expected value to investors. The aim of this research was to systematize the current understanding of institutional investors and insurance funds' reluctance to invest in energy efficiency and find appropriate countermeasures that could be pursued by the MDBs using concessional finance.

The lessons generated through this work will inform future efforts by the CIF, its MDB partners, and other public and private actors supporting and/or undertaking investment in energy efficiency on how best to harvest this realise this opportunity.

1.2 Methodology

The process of this study was broken down into 4 work streams:

1. Review of the CIF portfolio;
2. In-depth investigation of case studies;
3. How to incentivize institutional investors; and
4. Dialogues to test initial findings.

The first step was a **high level analysis of the CIF portfolio** exploring what types of energy efficiency programs had been funded. It involved looking into what types of finance, sectors and instruments that were addressed, and unpicking trends across the portfolio. Due to the relative paucity of available data (see Table 2 below), this review was unable to uncover detailed quantitative analysis beyond the program proposals to the CIF. To illustrate, there was a lack of consistent information on volume and rate of disbursement, private sector leverage and other financial indicators to assess the portfolio. As a result, the in-depth analysis took a case study approach.

The second work stream focused on selecting a sample of **case studies** representing sufficient breadth across geographies, sectors and instruments, as well as depth of data quality, to draw useful best practice recommendations. The approach for selecting these case studies is outlined in the introduction to the chapter on 'Case study analyses'.

This process resulted in 8 case studies being selected for in-depth analysis. The dominant method for data gathering was interviews with the MDB partners, government stakeholders, program implementers and

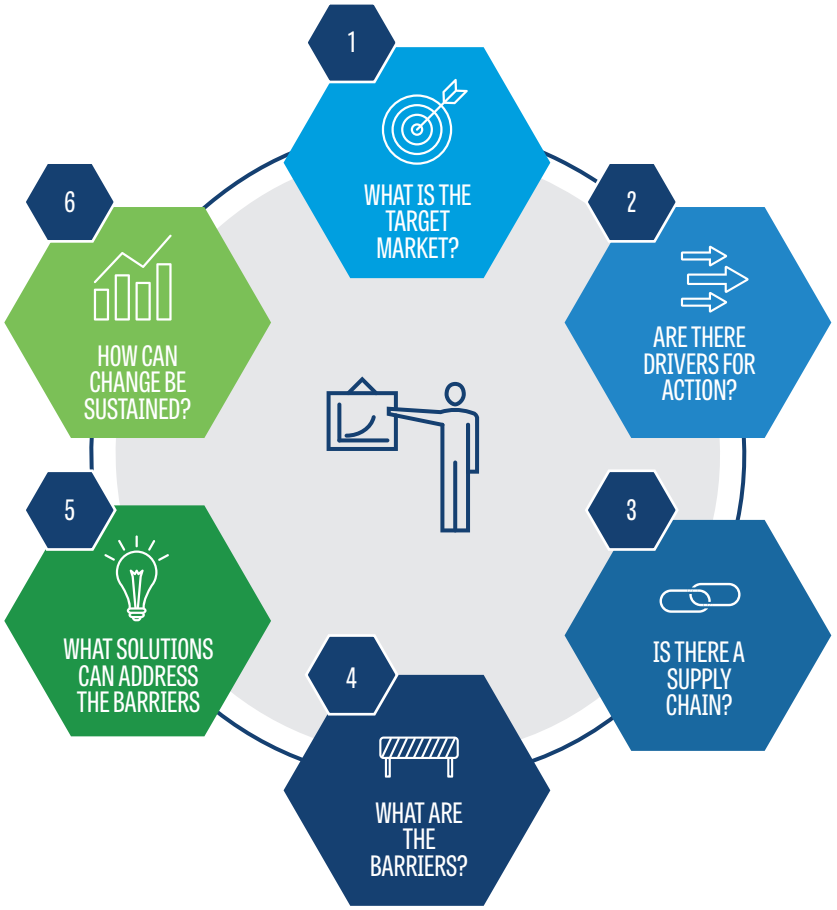
5 As per the definition in the 'Executive summary'.

local financial institutions whom were involved. The full list of organisations and individuals who contributed to this analysis is listed in the Appendix (Table 4). This methodology provided a rich seam of qualitative information on why different financial and non-financial instruments and business models were used, when they were most successful and how they can be effectively deployed. There are summaries of the findings within this report, in the section on 'Case study analyses', with the full detailed findings present in the supplementary 'Case Studies' document that underpins this synthesis report.

Each case study was scrutinized through a thorough analytical framework. Prior to this project, the Carbon Trust undertook an independent study looking into energy efficiency best practice, entitled: *Available, Attractive, Too Slow?* The study looked at 10 case studies across 4 different continents, whilst leveraging insights from over 15 interviews with leading development banks, commercial investors, program implementers and non-governmental organisations. This work was used to develop a framework that sets out the most important questions that need to be asked when designing an effective energy efficiency program or intervention. This framework formed the basis for the analysis and categorisation of the CIF-funded case studies in the present study.

The overriding question the present study asks is whether the CIF-funded programs contributed to creating sustainable change. To explain why they did, or did not, our framework asks five preceding questions (Figure 1).

Figure 1: Common assessment framework



These questions form a systematic architecture for how to think about designing effective (in terms of GHG emission reduction and energy savings) and sustainable (via continued private sector investment) programs. The framework was refined according to further literature study, as well as collaboration with Thomas Dreessen, our technical expert, and the CIF Administrative Unit. This led to a number of question that were asked of every CIF program, as illustrated in Table 1.

Identifying and appraising the **target market** is the foundation of any program. Understanding its size, projected growth and opportunity for energy efficiency outlines the 'size of the prize.' Getting to grips with its priorities, supply chain and financing determines the delivery model of an energy efficiency program. Misdiagnosing the target market will lead to an ineffective solution package, and limited impact. The major target markets for demand-side energy efficiency are: residential; small- and medium-sized enterprises (SMEs); industrial and commercial; and vendors (energy efficiency service providers, such as ESCOs).

Drivers are economy- or sector-wide issues that can support or undermine the business case for energy efficiency, ahead of any other factors. Economic drivers include energy prices, carbon prices, and export competitiveness. Policy drivers include standards, regulations and incentive mechanisms. Supportive drivers are essential for sustainable markets and energy efficiency program can help create favourable drivers and ameliorate negative ones.

Table 1: Common assessment framework questions

Target market	Drivers	Supply chain	Barriers	Solutions	Impact & sustainability
• What sector? • What size of organization? • What market scale? • Eligibility of technologies and/or organisations	• Are the drivers supportive (positive) or subversive (negative) for EE? • Policy: targets, standards, regulations, pre-existing support • Economic: energy price, productivity, competitiveness	• What bodies are delivering the program? • Sources of capital: CIF, MDBs, host governments • Financial intermediaries: local banks, leasing companies, utilities • Suppliers and consultants: equipment and service vendors, eg ESCOs	• What are the major barriers preventing EE deployment? • Awareness and commitment due to unfamiliarity and hassle • Technical expertise and solutions are insufficient • Financial resources are limited and/or unaffordable	• What are the instruments for addressing the barriers? • Forms of technical assistance (TA) – such as marketing training, auditing • Financial instruments – such as credit lines, guarantees, on-bill financing	• Impact: # of recipients; amount of funds disbursed; energy and CO2 savings; cost effectiveness • Sustainability: transfer of skills; continuation of lending; follow-on programs

The objective of a **supply chain** is to connect finance to bankable projects – uniting the financial and technical elements of energy efficiency. For an effective market there must be flows of:

- Information to build essential knowledge, skills and behavioural change;
- Available and affordable finance to make energy efficiency investments; and
- Technology from trusted suppliers.

Understanding the capabilities, limitations and commitment of the whole supply chain is vital. Issues that prevent the aforementioned flows include: a gap in the supply chain, without a suitable local organisation to fill it; capacity or skills shortage within key institutions or companies; synchronisation between organisations; and indispensable trust between the members of the supply chain that allows them to work together successfully.

Effectively identifying the most influential **barriers** across a supply chain will determine the optimal solution package. Leveraging extensive local knowledge is key to the success of any program.

Interlinking financial and technical barriers define the energy efficiency problem and can broadly be attributed to three overarching areas:

- Awareness and commitment;
- Technical solutions and expertise; and
- Financial resources – consisting of access to finance, return on finance and liquidity.

It is important to highlight here that the lack of finance in a market does not necessarily correspond to financial barriers – finance requires a pipeline of projects.

Solutions employed by programs often include both financial instruments and technical assistance. Synchronising the financial and technical elements is essential – including feedback loops. Solutions should be created and stress-tested with input from the supply chain – accounting for their required risk and return thresholds. Where possible, simplicity and standardisation are indispensable for reducing transaction costs, ensuring efficient implementation and enabling scale-up.

This study focuses on a range of solutions that target the financial and technical barriers faced in emerging energy efficiency markets. From the financial perspective, credit lines and guarantees are explored in-depth in this report – with similar case studies to follow on leasing and insurance. In addition, the importance of technical solutions that can demonstrate, identify, verify, standardise and accredit energy efficiency opportunities, investments and players are highlighted alongside policy development.

Finally, **impact** is about realising KPIs, such as CO2 savings; sustainability concerns the strength of the market, and its continued activity, post-program. The focus should be on how the market will continue without concessions. On the technical side there needs to be sufficient transfer of expertise across the whole local supply chain. On the financial side the program should leave in place adequate tools, confidence and skills to sustain energy efficiency investments under business-as-usual conditions. Future programs should be explicit in how they will achieve these goals. Monitoring, reporting and verification (MRV) is a key feature, which should be improved between MDBs to share lessons and push the market to the required scale.

Beyond looking into the CIF experience, the project also studied an emerging field of activity: **how to incentivize institutional investors**. In the long-term, for self-sufficient energy efficiency markets, institutional investors – such as pension and insurance funds – will need to provide the large amounts of long-term capital necessary to reach scale. This study investigated who these institutional investors are, what they look to invest in and how energy efficiency markets can attract their capital. The analysis and conclusions follows the case study analysis of energy efficiency programs and explores how the CIF, and their MDB partners, could utilise the expertise and tools to leverage this new source of capital.

The final work stream involved 2 **dialogues to test initial findings** from the research with a range of key stakeholders in the energy efficiency world (the full list of participants can be found in in the Appendix, Table 4). The participants included case study representatives, international donors and financial institutions, who as well as wider stakeholders, such as UN agencies, who hold an interest in effectively scaling-up energy efficiency markets. The discussions provided a fruitful opportunity for participants to come together and share their experiences from across the world, and rigorously examine the preliminary conclusions drawn from the research. For more information, please look at the supplementary document, 'Dialogue Summaries', which synthesises the discussions and findings from the dialogues.

The following chapters outline the findings from this methodology described above. For more in-depth information on the findings, particularly related to the case studies, please refer to the more to supplementary documents aforementioned.

2. REVIEW OF THE CIF PORTFOLIO

2.1 Introduction

In order to select the CIF programs that would be analysed more in depth, a comprehensive review of the entire portfolio was carried out. This relied primarily on a literature review of all the available documents online and from MDB partners that range from program proposals, to evaluation reports, to third party research (academic and consultant literature).

These documents provide varying levels of detail and information on this program. Table 2 provides a summary of the three main types used.

Table 1: Common assessment framework questions

	Assessment		
Document type	Description	Level of detail	Portfolio coverage
• Program proposal	• Written by the MDB program team applying for donor funding. • Outlines details on the rationale for the program, its objectives and its methodology. • Provides an overview of the design of the program, but no information on its implementation and efficacy, therefore is insufficient for making judgements on best practice.	Medium	83%
• Program completion and evaluation	• Produced by in-house, or independent, evaluation teams. • Comprehensive insights into all of the design, implementation and efficacy of a program. • The most useful documentation for drawing lessons on best practice.	High	3%
• Third party literature	• Literature produced by academics or consultants – where available across the CIF-funded portfolio, there is an even split between these two types of author. • More variation in information quality than the official evaluations, but often provide insights into all of the design, implementation and efficacy. • Helpful for investigating best practice, but usually not as complete was the official evaluations.	Medium- High	11%

2.2 Findings

Of the 43 programs, 38 have sufficient data for analysis. Of these, 30 have specific data on the amount of CTF funds provided, totalling $1.07bn for a range of different instruments. These were categorised as: direct **loans** to end-users and credit lines via financial intermediaries; **technical assistance**, including awareness-raising, capacity building and pipeline generations; and **risk mitigation**, including guarantees, insurance and hedging.

24 CIF-funded programs are 'pure' energy efficiency programs, as opposed to both hybrid programs with both energy efficiency and renewable energy components. Of these, 19 have data on the amount of CIF funds provided, totalling $510m. $290m has funded 16 demand-side programs, defined as reducing levels of energy demand at point of use. Another $220m has funded 8 supply-side programs, defined as increasing the efficiency of energy supply.

Figure 2: Use of CIF funds across the portfolio ($ million)

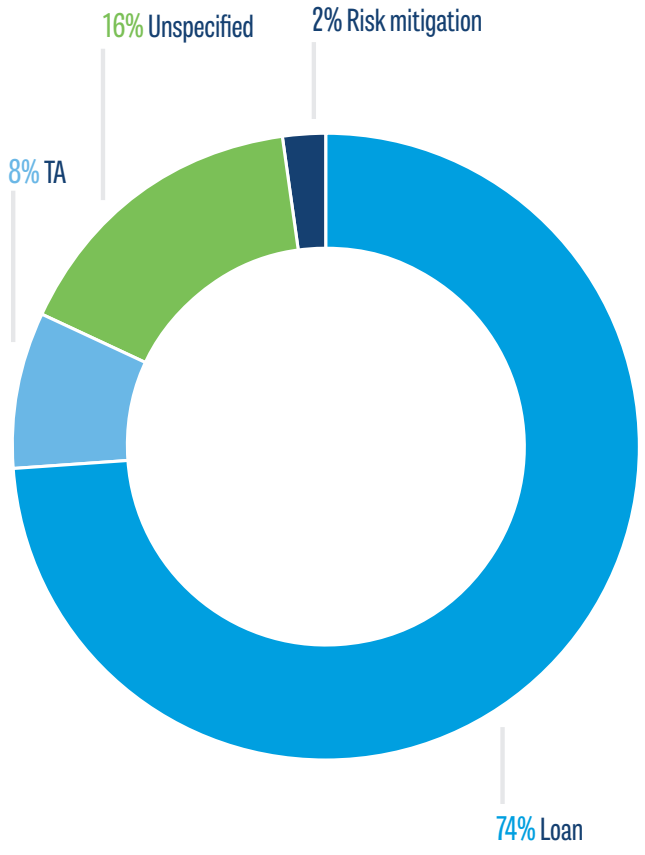
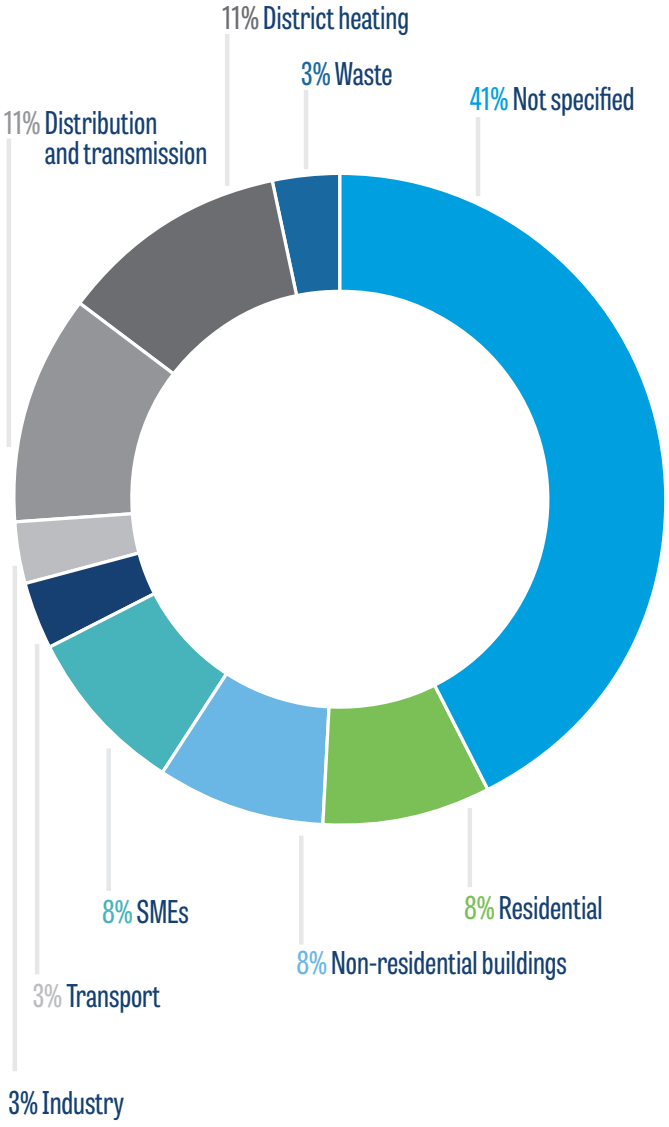


Figure 3: Distribution of CIF programmes by target market



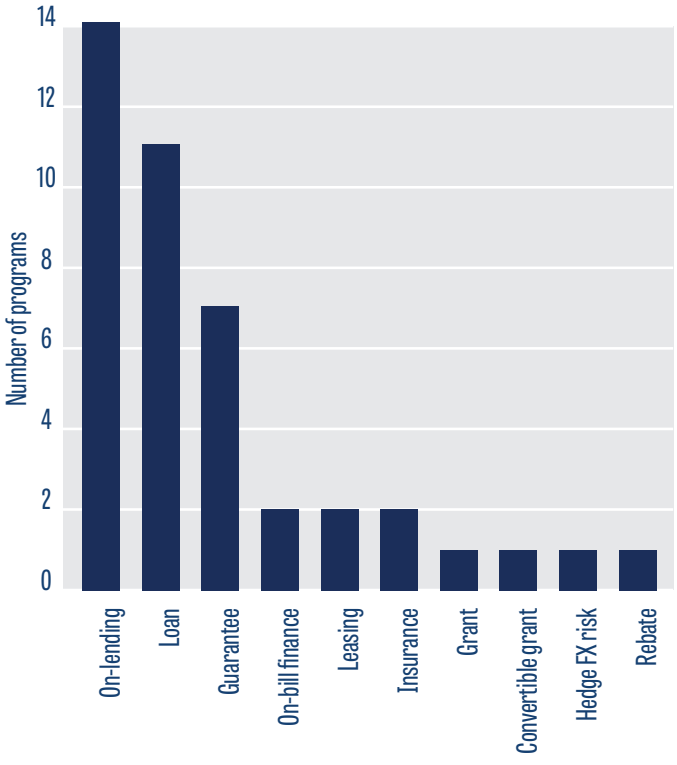
The CIF portfolio covers a wide range of target markets, and includes a significant proportion 'not specified', which is indicative of the cross-sector impact of energy efficiency.

A large variety of instruments and business models were used across the portfolio, with credit lines and loans dominating.

[6] The breakdown is similar for the pure energy efficiency programs as well. However, only loans, guarantees, on-lending and on-bill payment were used for supply-side energy efficiency programs. On the demand side more variety of instruments once again prevailed, but on-lending and guarantees being clearly dominant.

To assess the effectiveness of these instruments and business models, we undertook a case study analysis. This process uncovered best practice lessons for why certain instruments and business models were deployed, when they were most effective and how they can be used and improved for future initiatives. Other key factors that could be important in assessing their efficacy would be: i) leverage ratios of public to private finance; ii) disbursement rates; and iii) rate of payback or non-performance. However, this study did not have the information to investigate these factors and therefore is focused on extracting best practice for implementing these instruments and business models in the future.

Figure 4: Financial instruments and business models used across all programs



6 This refers not to the specific use of CIF funds, but the financial instruments deployed by MDBs and their local partners across CIF-funded energy efficiency programs. Note that a program may use more than one instrument. For example, a demand-side energy efficiency program might provide loans to companies for energy efficiency investment and guarantees to local financial institutions that cover energy efficiency loans: such a program uses two instruments.

3. CASE STUDY ANALYSES

3.1 Methodology

The portfolio analysis provided a high level overview of the different types of the programs that the CIF had been investing. To uncover the lessons around best practice, there was a need to dig deeper into particular case studies.

In order to select a suitable number of case studies for more in-depth analysis a prioritisation exercise was undertaken looking at a number of criteria based on CIF feedback:

MDB preference

- We asked MDBs to nominate 1-2 case studies that could provide the most illuminating lessons for future programs.

Availability of data

- After MDBs' preferences have been accounted for, we considered the data available for each program. Programs with more data available were prioritised to provide a better evidence base for our final recommendations.

Range of geographies, models and instruments

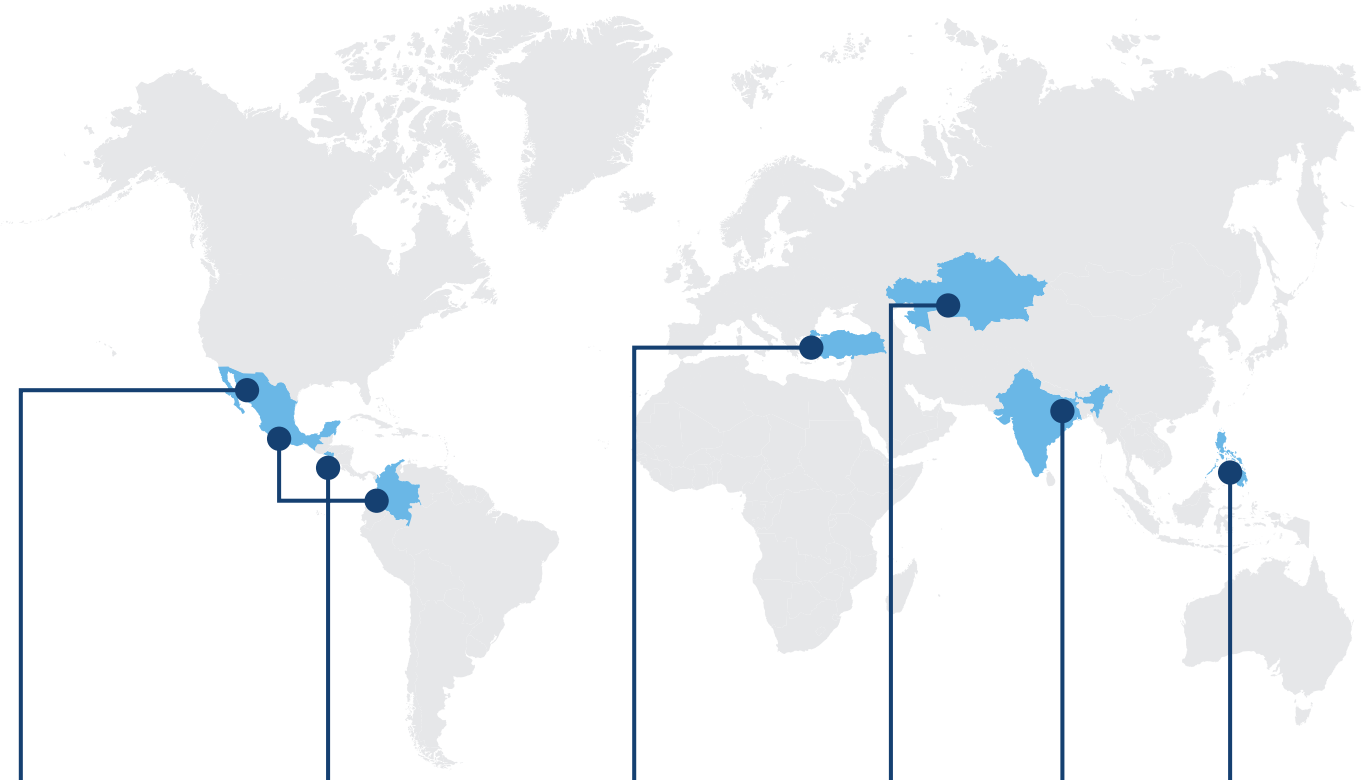
- Variety of local markets, supply chains and characteristics.
- Different delivery models such as on-lending through local financial institutions versus direct lending to end-users.
- Various financial and non-financial instruments to include both widely used and more innovative solution types.

Ultimately, this process led to 8 programs that were selected for in-depth analysis (Figure 5).

This final selection covers a significant cross-section of sectors, business models and instruments – both financial and non-financial. However, it is evident from Table 3 below that this is not a comprehensive view of all the different combinations. For instance, notably the CIF does not finance energy efficiency programs in the public sector. This incomplete cross-section should be the motivation for future studies to add to the lessons we draw from our sample.

The analysis of each case study involved interviews and two workshops with the key individuals involved in the design and implementation of each program. The participants included MDB representatives, participating local financial institutions, implementation partners and wider energy

Figure 5: Final case study selection



Mexico: EcoCasa (IDB)

Mexico, Colombia, El Salvador: Energy Savings Insurance (IDB)

Turkey:
i) Turkey Sustainable Energy Financing Facility (EBRD);
ii)Commercializing Sustainable Energy Finance (IFC);
iii) Private Sector Renewable Energy and Energy Efficiency Project (IBRD)

Kazakhstan: District Heating Modernisation Framework (EBRD)

India: Partial Risk Sharing Facility (IBRD)

Philippines: Philippines Sustainable Energy Finance Program (IFC)

Countries with case study

efficiency stakeholders who could draw from their extensive personal experiences delivering these programs.

The overarching objective was to deduce what lessons could inform the CIF-funded programs of the future through tackling issues across our common assessment framework (Figure 1). In order to extract useful and applicable lessons for future programs, the findings from the case study analysis are structured around the key financial instruments and business models deployed. This has driven the evaluative conclusions based on **why** would you use a particular instrument or business model, **when** it is most effective and **how** it can be best deployed for sustainable impact in the future.

Table 3: Cross-section of instruments, business models and sectors found in our case study sample

Instrument type		Public sector	Transmission/distribution	Industrial and commercial	SMEs	Residential
Financail instruments	Loan		■	■	■	■
	On-Lending			■	■	
	Guarantee				■	
	Insurance				■	
	Leasing					
	On-bill financing					
	Equity finance					
Non-financial instruments	Policy development		■	■	■	
	Accreditation				■	■
	Standardisation			■	■	■
	Verification		■	■	■	■
	Identification		■	■	■	■
	Demonstration		■			

3.2 Findings

3.2.1 Credit lines

A credit line is the injection of capital from a donor, MDB, government or a private institution to a financial intermediary who is able to on-lend to their clients. Credit lines address the limited liquidity in energy efficiency markets, increasing the willingness of financial institutions to lend to, and end-users to invest in, energy efficiency projects.

They are the optimum instrument for facilitating lower costs of finance and longer tenors, particularly if they are sourced from donors, such as the CIF, or international financial institutions, such as MDBs, who can access cheaper credit through their strong balance sheets. Therefore, the primary barriers they target are the limited available capital for energy efficiency as well as the lack of incentives and demand for committing to new investments – both for financiers and end-users.

CASE STUDIES IN FOCUS:

TurSEFF (EBRD)

EcoCasa (IDB)

Why would you use a credit line?

- To **incentivize** participation of financiers and end-users with attractive terms related to the rate, tenor or grace period of a credit line, when compared with alternative offers in the market.
- The attractive terms can help to offset extra **transaction costs** for financiers that have to set up new teams and products to provide energy efficiency finance.
- By ring-fencing their use, they provide an incentive for financiers to **build a track record and confidence** to develop the skills and capacity for new permanent lines of business.

When is a credit line most effective?

- Concessional terms were regularly cited as vital for **triggering a new market**; however, moving towards non-concessional terms to **sustain a growing market** is key for creating self-sufficient supply chains that can operate commercially.
- By not limiting the types of eligible energy efficiency projects, credit lines can test out **market strengths and weaknesses** by monitoring where the capital flows, highlighting areas of success that need less attention and those that struggling for future initiatives to target.
- Markets with a strong, stable banking sector that holds existing **relationships** with the target market and across the supply chain can make disbursement and, therefore, impact easier – however, in the long-term banks should be encouraged to branch out to more unfamiliar territory, potentially through attaching new conditions and/or incentives to the terms of future credit lines.

How can a credit line be best deployed for sustainable impact in the future?

- Blending with CIF's concessions consistently highlighted as key for triggering new markets, but a move towards commercial terms is necessary for sustainability – yet there appears to **no general template for reducing concessions.**
- A number of key themes emerged across the case studies that can help smooth the transition to commercial terms: **training permanent teams** to ensure longevity within the financiers business model; **gradual step changes** in the terms of the credit that are planned through an exit strategy at the program's conception; and **encouraging and enabling policy development** to establish favourable conditions in the long-term.
- **Substantial technical assistance** throughout the supply chain is indispensable to stimulate disbursement – a lack of lending is not always due to the lack of available capital, but often due to problems developing a bankable pipeline – and engender sustainable change.

3.2.2 Guarantees

Guarantee facilities act as a reserve for losses incurred by financiers lending to energy efficiency projects. This is often provided for a premium that the beneficiary has to pay. The presence of donor funds, such as the CIF, enables the facility to be provided at a concessional rate or underwrite the first losses with grant finance that expects no return.

The focus of a guarantee mechanism is the high perception of risk. This could be associated with the technology and its performance, due to unfamiliarity with energy efficiency and its cash flow based on future cost savings; or because there is high credit risk associated with the end-users, such as SMEs with a limited balance sheet. By reducing the high perception of risk, guarantees can improve the access to finance for end-users seeking to invest in energy efficiency.

CASE STUDIES IN FOCUS:

PRSF (IBRD)

PSEF (IFC)

Why would you use a guarantee?

- When the risk of an investment is unknown, and therefore often misunderstood, financiers will prefer **business-as-usual** and either neglect, or prohibitively price, novel investments such as energy efficiency.
- Due to the high perception of risk, the target market struggles to **access finance** for investments due to the lack of experience and/or lack of trust in the performance associated with energy efficiency improvements.
- Provide a safety net for financiers so that through experience they can become **comfortable pricing and delivering loans** once the risks are fully understood.

When is a guarantee most effective?

- Unlike insurance (discussed later), guarantees are most appropriate when **financiers perceive high risk, but end-users do not** – this means that there is demand for energy efficiency, but it is not satisfied because of upstream difficulties with risk perception.
- For a guarantee to be effective, there should be a visible **pipeline of bankable projects,** that is access to previously unattainable finance – this includes sufficient demand from the target market and a supply chain with the skills and capacity able to fulfil it.
- There must be a strong and liquid banking sector **able to provide its own credit at affordable terms,** and a clear commitment to embedding the experience and skills necessary to sustain lending after the safety net of the guarantee is withdrawn.

How can a credit line be best deployed for sustainable impact in the future?

- Donor funds are often key for incentivizing involvement by softening the terms, such as providing first loss, and could work on a **revolving basis** if the money remains unused.
- As much as possible, the terms and conditions of the guarantee must be both **simple to understand** and provide **sufficient additionality** to encourage lending. Often the extra costs and requirements are cited as being too onerous and therefore off-putting for potential participants – key issues mentioned include pari-passu, reporting requirements and strict project eligibility criteria.
- The long-term success of guarantees is based on their ability to engender self-sufficient lending practices, therefore they are most effective when banks set up permanent teams – emphasising the vital importance of technical assistance to help them do so.

3.2.3 Leasing

Leasing is a relatively novel financing instrument which is rarely deployed across the CIF-funded energy efficiency programs. In fact, only one case study utilises this tool – the IFC's Commercialising Sustainable Energy Finance program in Turkey.

In spite of its scarcity, leasing has the potential to be highly impactful in sectors where access to finance is particularly difficult. These are namely those populated by businesses with small balance sheets, limited collateral or a poor credit history which prevents them from accessing extra debt finance.

Leasing enables end-users to utilise energy efficient equipment without needing to make a capital investment that is put on the balance sheet of the company. The end-users can either rent the equipment permanently (operating leasing) or until they own the kit outright (capital leasing).

This off-balance-sheet solution mitigates the high upfront costs of energy efficient equipment, spreading the financial burden, and de-risks the technology for the end-user, as each piece of kit must be tested thoroughly by the leasing company to ensure they will get their returns.

CASE STUDIES IN FOCUS:

CSEF (IFC)

Why would you use a guarantee?

- Leasing is fundamentally for accessing markets that **struggle to secure extra debt finance** - either because of their limited balance sheets and/or assets, or due to competing priorities for investment that supersede the business case for energy efficiency.
- **Off-balance-sheet approach** can be booked as operating expenditure (OPEX), which enables energy managers (those familiar with energy efficiency) to make the investment decision rather than financial officers (who often are not familiar with energy efficiency), as well as avoiding competition with other investment priorities.
- The testing processes of leasing companies can **reduce perceived technology performance risk** both for themselves and the end-users – building trust in the energy efficiency business model.

When is a guarantee most effective?

- There must be a **pre-existing leasing supply chain**, with local companies that are suitable to purchase, test and market the technologies, whilst, to aid disbursement, having experience working with the target market.
- **Accounting regulations** that ensure leasing is feasible for energy efficiency investments – for example, in some contexts leasing cannot be booked as OPEX, limiting its utility for energy efficiency.
- **Particular technologies** are better-suited to the leasing model, such as standardised appliances, and not bespoke components, to minimise the transaction costs.

How can a credit line be best deployed for sustainable impact in the future?

- MDBs can provide **credit lines** to enable (and perhaps incentivize with attractive terms) leasing companies to expand their business model into the energy efficiency market.
- **Technical assistance** to provide leasing companies with the skills and tools so they can **test and market** energy efficiency technologies self-sufficiency is vital for the long-term health of the market.
- Connecting potential end-users, who struggle to access finance, with leasing companies through **awareness raising and match making** initiatives, particularly in markets where leasing is not well known, is important for both kick-starting a market and sustaining it.

3.2.4 Insurance

An innovative solution to the persistent lack of trust in emerging energy efficiency markets is insurance. For an unfamiliar investment, in the shape of energy efficiency, insurance could be a market instrument that underpins the guarantee of repayments.

Insurance works by a claimant paying a premium to an insurance company to secure reimbursement if the insured eventuality occurs. In this case, if the energy efficient technology does not realise its expected energy savings, and therefore cost savings, then the claimant can still repay their loan through the insurance payment. Who pays for the premium may vary: in theory it could be either the end-user or the technology supplier. The process involves a third-party validator of the energy savings and technology providers.

It has so far only been trialled in Mexico by the IDB, along with partner versions getting started in Colombia and El Salvador, through its Energy Savings Insurance (ESI) initiative. As a result, the conclusions reached in this study are based on early findings when designing and implementing the Mexican program, and can only be judged as preliminary. In the case of the IDB's ESI program, it is the end-user who pays the premium.

CASE STUDIES IN FOCUS:

ESI (IDB)

Why would you use insurance?

- There is an endemic **lack of trust** in the energy efficiency business case, and/or the supply chain who sell it, which stems from its revenue model based on **promised future savings**, and stymies potential demand from end-users and/or supply of capital from financiers.
- Insurance provides a safety net for nurturing a nascent market, building its track record, with a **market instrument that could be sustained** by the private sector in the long-term.
- Insurance can underpin the security of future cash flows to **encourage commercial banks and institutional investors** to invest in energy efficiency, therefore broadening the investor-base of the market and increasing flows of private sector capital.

When is insurance most effective?

- Unlike a guarantee, **both the end-users and financiers perceive high risk** regarding energy efficiency investments, preventing both the development and financing of a potential pipeline.
- As a result of insurance agencies both not having experience in the market and relying on large sums of many individual premium payments, there must be **sufficient scale** in the potential pipeline to interest them in this new venture and reduce their transaction costs.
- **Well-known, standardised technologies** are easier to monitor so that insurers can be confident in their commitment and potential claims are easily verified.

How can insurance be best deployed for sustainable impact in the future?

- The end-user or technology supplier pays a premium for the **coverage of losses from non-performance** of the technology. As ESI shows, the insurance mechanism can be further supported by credit lines, guarantees or performance-dependent payments.
- To attract participants and grow a market, it is important to **simplify the validation process, insurance scheme and supply chain** as much as possible to minimise extra transaction costs and hassle, which are already commonly perceived as barriers to energy efficiency investments without the inclusion of insurance.
- **Technical assistance for standardising contracts and procedures** is key for underpinning confidence in the model and enabling speed in achieving scale in the pipeline.

4. THE ROLE OF INSTITUTIONAL INVESTORS

4.1 Introduction

An important additional element of consideration for this study was to assess what potential role institutional investors could play in supporting energy efficiency finance. This research should be considered of great importance, since to limit temperature increases to 2°C, annual global energy efficiency investment must increase by a factor of nine to $1.1 trillion by 2035 and at current spending levels, public funds alone will be insufficient to meet this investment need

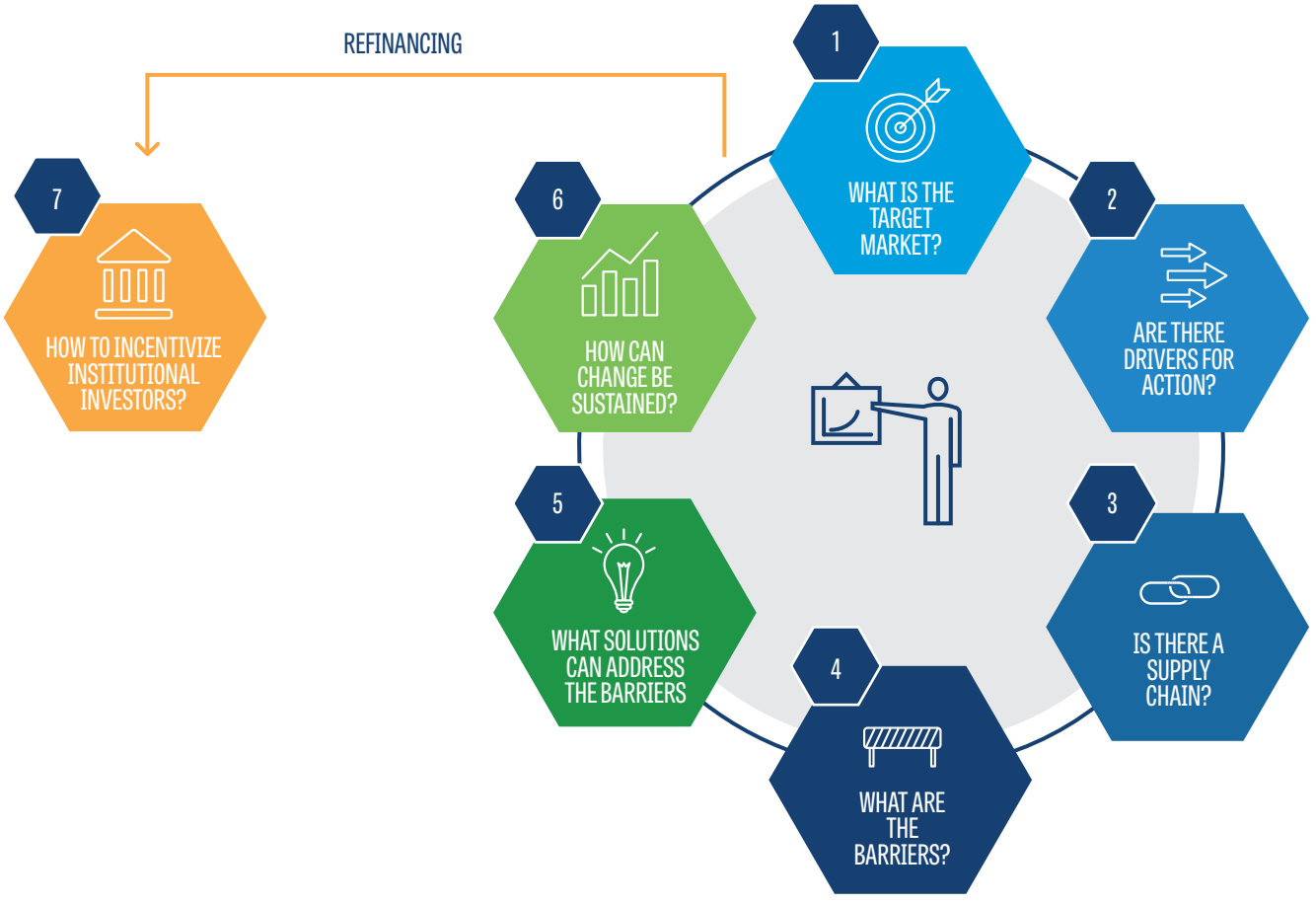
Private sector funds are required to fill the investment gap and fund energy efficiency, and institutional investors hold large quantities of private sector capital: these resources can be channelled to energy efficiency to meet the investment gap. Therefore, public donors must act to catalyse institutional investment in energy efficiency. Figure 7 shows how this component of the analysis fits into the overall framework used to assess the CIF's energy efficiency portfolio.

This component of the study set out to answer a set of key questions via desk research and interviews with selected stakeholders. The questions were:

- Who are institutional investors?
- How does energy efficiency fit within their investment portfolios?
- Has anything been done already to catalyse institutional investment in energy efficiency?
- What interventions could the CIF and MDBs put in place to catalyse more institutional investment in energy efficiency?

The work was carried out together with Vivid Economics and the Climate Bond Initiative (CBI).

Figure 7: Role of institutional investors within the energy efficiency common assessment framework



4.2 Who are institutional investors?

Institutional investors" is an umbrella term covering pension funds, insurance companies, official institutions and other 'alternative' investment funds. These institutions have over USD 100 trillion of assets under management globally. However, different institutional investors will have different aims and objectives, invest in different products, and be subject to different regulations.

Institutional investors' investment decisions are driven by certain constraints which determine their return needs. The allocation of institutional investors' capital is driven by mandates that influence allocation decisions – these represent specific objectives, investment horizons and risk tolerances, and also present constraints in terms of scale, liquidity, currency exposure and creditworthiness or ratings of assets.

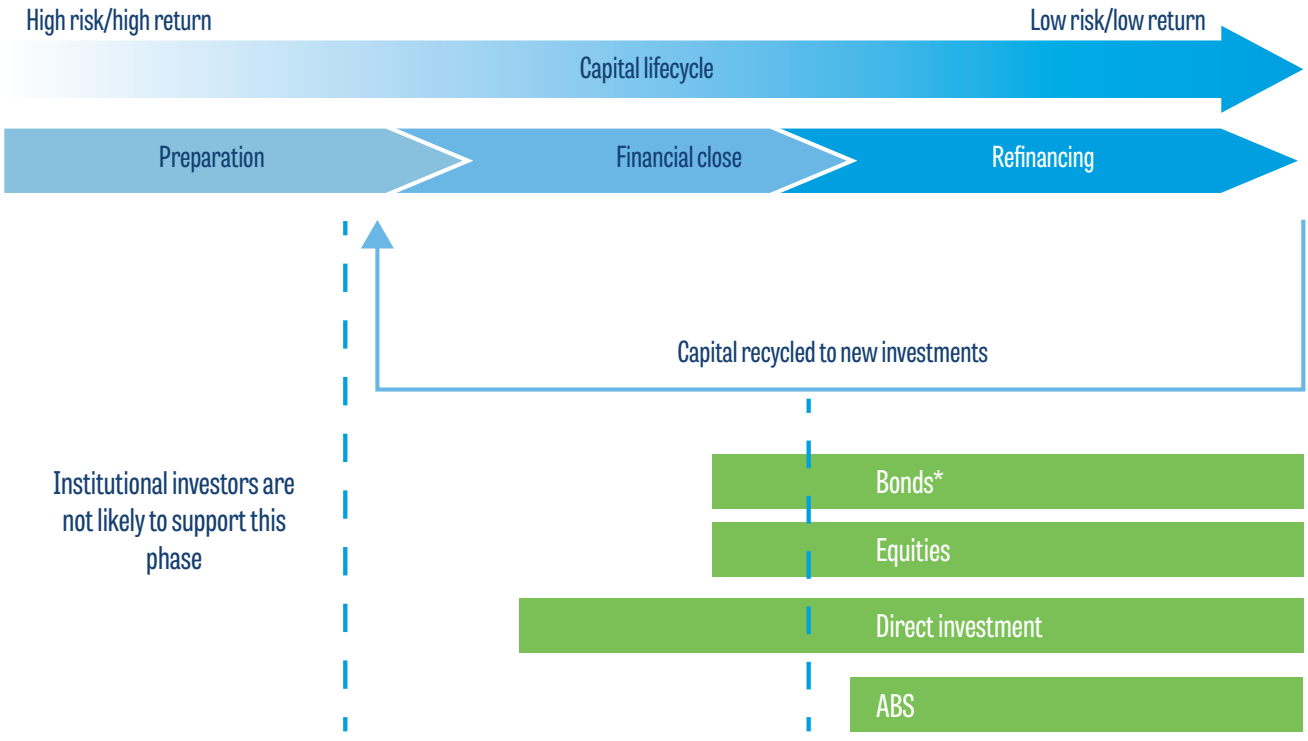
Certain types of institutional investors may also seek to achieve particular financial or social objectives. In addition, regulatory constraints can also impact asset allocation. Institutional investors have long-term, reasonably predictable liabilities, which they seek to balance through their investment portfolio.

According to their mandates and decision-making structures, institutional investors usually invest largely in **bonds** and **equities**, with very little exposure to **direct investment** and **alternative assets**.

4.3 Institutional investors and energy efficiency

As shown in Figure 7, institutional investors are likely to invest primarily at the refinancing stage, which is for assets that have already been financed, using the types of financial instruments described in the previous section (Figure 7). This is because this stage of the capital lifecycle is lower risk and provides larger opportunities for investment via aggregation of multiple underlying assets through bonds or asset backed securities. Given the large size of their portfolios institutional investors need to be able to make decisions in the tens of millions on a weekly basis, meaning

Figure 8: Capital lifecycle and financial instruments



that project-level energy efficiency is unlikely to meet their requirements.

The strict conditions described above create considerable barriers for energy efficiency to turn into an investable product for institutional investors. This is mostly due to the small and disaggregated nature of energy efficiency assets, which leads to the following issues:

- A **lack of standardisation and aggregation** of individual energy efficiency assets and projects into larger portfolios with clear risk profiles
- A **lack of information** on the overall performance of energy efficiency assets, in terms again of risk profile and revenue stream volatility
- The small size of energy efficiency assets creates transaction costs for aggregation which represent a **financial barrier** to bundling into investable products
- The **lack of institutional knowledge** of energy efficiency within institutional investors themselves

To overcome these barriers, MDBs need provide support in order to turn energy efficiency assets into bundled revenue streams which can be refinanced as bonds or other more familiar investment products, using different forms of financial engineering.

4.4 Case studies

Figure 9 shows a selection of case studies mapped against the barriers described in the previous sections. The majority of those are from the US and Europe, where more developed financial and energy efficiency markets allow for a greater degree of financial engineering.

Under the **standards** box, the ICP provides standardised Energy Performance Protocols to help aggregate energy efficiency assets, and then a final certification and quality assurance to increase confidence in the solidity of the financial profiles of the underlying assets. The European Mortgage Federation - European Covered Bond Council Energy Efficiency Mortgages Initiatives seeks to carry out similar activities but with a specific focus on mortgages.

On the **information** front, DEEP provides an open source database of energy efficiency investment performance for monitoring and benchmarking purposes. They also provide interpretation of the gathered data and guidance on standardised risk/performance modelling methodologies.

In terms of **bonds**, the Engie green bond is a classic example of a corporate bond specifically aimed at funding renewable energy and energy efficiency projects. Kommuninvest and QECB are instead public bonds issued by municipal authorities and backed by their credit ratings.

Green bonds have been successfully issued by both public and corporate entities. Green bonds trade at a discount to conventional bonds – suggestive of high demand for these products. However, energy efficiency amounts to only 6% of all green bonds by value. 'Pure' energy efficiency bond (as opposed to general green bonds) issuance by public sector bodies and publicly funded companies has been successful. However, the feasibility of corporate pure energy efficiency bonds that have high credit ratings (i.e. AA+) is unclear. A publicly issued bond that aggregates multiple private sector projects appears an attractive possibility – but requires a proof of concept.

While all the examples of **funds** listed have energy efficiency components, they all also include renewable energy. A number of publicly supported funds have focussed upon energy efficiency. Public funds have been successful in supporting energy efficiency, but have had limited profitability. However, data are limited, and it is unclear whether there are purely private sector energy efficiency funds. These funds appear dependent upon technical assistance to build a pipeline of bankable projects. Interviews suggest that additional technical assistance may be required to drive success. Finally, a robust regulatory and policy framework is required to drive action and support a pipeline of bankable projects.

ABS represent perhaps the most sophisticated type of financial intervention, with the ability to integrate fairly diverse energy efficiency asset portfolios into single investable products. Publicly supported asset backed securitisations of building mortgages have had some success in the USA. In Europe, Part 1 of the EMF-ECBC energy efficiency mortgages initiative suggests that further standardisation and better informational tools are required before purely private sector ABS can occur. The IDB/GCF energy efficiency bond and WHEEL shows the need for standardisation of contracts and highlight the costs involved in standardisation. ABS depends upon functioning primary markets for energy efficiency finance (loans / leasing for energy efficiency assets) and as such this is a necessary precondition to ABS. Technical assistance may be required to build expertise in financial engineering of investable energy efficiency ABS products. However, securitisation volumes have slumped since the financial crisis, due to concerns around risk modelling and the underlying safety of the securitised assets. As such, greater availability of data on underlying assets could improve the attractiveness of these products.

Figure 9: Selection of case studies of institutional investment in energy efficiency

Overarching problem: energy efficiency is not an investable asset for institutional investors

Key barrier: lack of standards & information	Key barrier: lack of investable products
• Energy efficiency projects are heterogeneous • Lack of standardisation in the way projects are developed, documented and reported • Lack of information on investment performance • Accsessing, processing and interpreting EE data is costly and requires specialist expertise	• Energy efficiency projects are often small-sized: transaction costs are relatively high, such that individual projects are not attractive investments • Pipeline of (financed) energy efficiency projects is small, as is market for energy efficiency assets

	Standards	Information	Bonds	Funds	Asset backed securities
Case studies	• Investor Confidence Project (ICP) • EMF-ECBC EE Mortgages Initiative	• De-risking Energy Efficiency Platform (DEEP)	• IDB Mexico EE warehousing • Engle green bond • Kommuninvest green bond • Qualified energy conservation bonds • PACE EE retrofit bond securitisation	• European Energy Efficiency Fund (EEF) • MGM innova Capital Sustainable En ergy Fund • Global Energy Efficiency and Renewable Energy Fud	• US Warehouse for Energy Efficiency Loans (WHEEL)

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Case study analyses

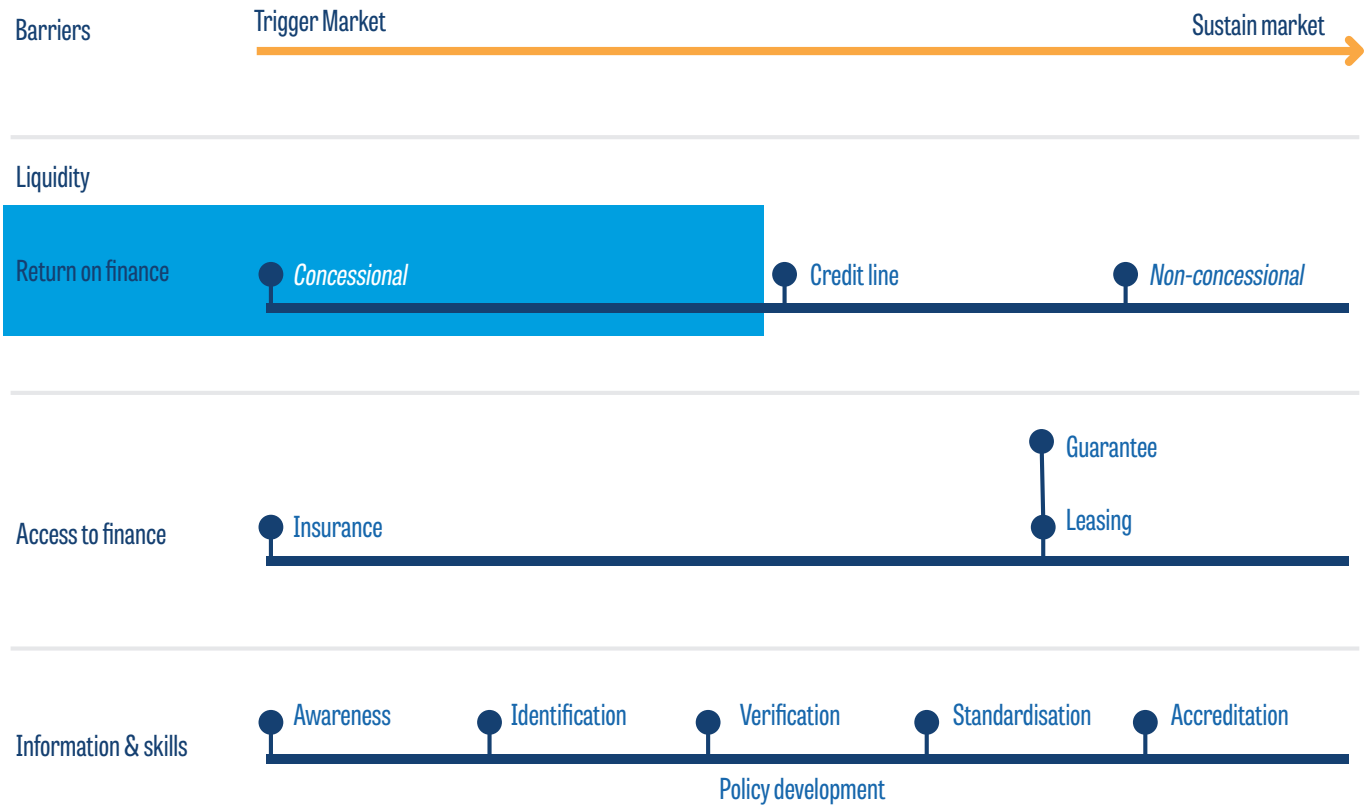
In sum, as the case study analysis proves, there are many different approaches to scale-up energy efficiency in emerging markets. This is a symptom of the nuances found across a range of different markets – from economic and political differences, levels of supply chain maturity and particular barriers present. Therefore understanding when to apply certain financial and non-financial instruments requires an in-depth appreciation of each particular market.

That said, on a general level it can be useful to picture when the range of different financial and non-financial instruments discussed are most appropriate and effective. The framework below (Figure 6) is an attempt to classify when different solutions – financial and technical – are most applicable, given the relative maturity of the market and the barriers they address based on the case studies above. The aim is to try to create a simple tool for picturing how different instruments relate to the various barriers and market maturities found across our sample.

The key barriers are listed on the left, with the solutions in dark blue placed within the boxes where they are most relevant in relation to these barriers (please note, the dark blue boxes are self-contained – for example, the 'concessional' and 'non-concessional' labels only refer to credit lines). The arrow at the top signifies the maturity of the market – from entirely new markets that require triggering; to those that are more developed and therefore need sustaining.

It is important to note that the real world is considerably more complex and messier than this framework, and that is why it is no substitute for in-depth, first-hand analysis of a local market. However, it paints a picture that is useful to communicate how the different instruments relate, both to the markets they are found in and each other.

Figure 6: Framework classifying solutions according to market maturity and relevant barriers



Beyond the lessons and best practices recommendations made above for each instrument, there are some key overarching conclusions to draw from our analysis of the CIF's portfolio of energy efficiency programs:

1. **The concessionality that the CIF – and other donor funds – are able to provide is consistently highlighted as a key factor of success in kick-starting new markets**. Whilst energy efficiency remains unfamiliar and outside traditional business models, concessional finance will continue to play a fundamental role in scaling-up nascent markets. Across all of the case studies investigated in-depth this element was emphasised as fundamental to their early success, and without the more attractive rates, tenors and grace periods, stakeholders often stated that their programs would not have got off the ground due to entrenched barriers across energy efficiency markets.
2. **However, it is clear that concessional finance is finite and sustainable markets must learn to operate on commercial terms.** Therefore it is clear that an exit strategy for weaning the recipients off the concessions should be included in future program proposals. Although there is no definite best practice guide for achieving this transition, a number of key steps consistently mentioned were: i) training permanent teams within financial institutions who have the skills to continue to pursue energy efficiency projects; ii) gradual step changes in the level of concessionality to prepare the market for commercial operations; and iii) encouraging and enabling long-term policy work to support the business case, and thus demand, for energy efficiency.
3. **Moving to self-sufficient markets may require energy efficiency programs to provide the initial carrot, but it is the long-term policy environment that can provide the essential stick.** Often across our case studies, a favourable policy environment was cited as a key determinant for the success of the program. In the long-term, without the policy framework encouraging

and driving energy efficiency deployment, it is unlikely that emerging markets will reach scale because it is fundamental for driving adoption of new practices via roadmaps, incentives or regulations.

Therefore, future programs should be designed in a way that promotes greater uptake of best practice standards, procedures, contracts and accreditation schemes for technologies and suppliers. With their expertise, MDB programs are in a strong position to work collaboratively with policymakers to educate them in best practice and promote long-term impact by making it easier for policymakers to use their information for developing follow-on energy efficiency initiatives and legislation.

4. **For every case study in our sample, technical assistance was indispensable.** Recognising that energy efficiency markets are hampered by non-financial, as well as financial, barriers is clear. Financiers will not disburse funds for energy efficiency projects unless they have the required skills and capacity to do so. Neither will they do so unless there is a high-quality bankable projects that need financing. Technical assistance is vital on both fronts. It can build the necessary skills within financial institutions so they are comfortable financing projects; whilst training and awareness-raising across the supply is crucial for developing a credible pipeline.

   In the long-term, the knowledge and skills that are developed as a result of the technical assistance will outlast any concessionality and form the bedrock for a self-sufficient market. Even in maturing markets within our sample, where technical assistance might be assumed to be less important, it has played a significant role given the realisation that to reach scale sufficient technical capabilities and capacity have to be commonplace across a wide supply chain – unfortunately, at this moment, this is very rarely the case. Therefore it is vital that technical assistance continues to play a significant role in any energy efficiency finance program, or their impact risks being short-lived at best, and negligible at worst.

5.2 The role of institutional investors

In the long-term, institutional investors could play an important role in scaling up finance for energy efficiency, however they do not represent a magic bullet. The nature of their investment mandates means that their resources can only be used at the re-financing stage, meaning efforts must have already been expended to create an underlying pool of energy efficiency assets. Furthermore, a certain depth and complexity of a country's capital markets is required before the necessary financial engineering to turn energy efficiency assets into investable product can be successfully carried out.

In summary, the key success factors for incentivizing institutional investment in energy efficiency are:

- Presence of a sufficiently mature energy efficiency market at significant scale for the portfolio requirements of institutional investors;
- Depth and breadth of the capital markets; and
- Financial engineering to turn energy efficiency assets into investment products which are familiar to institutional investors

While an ideal long-term goal may be to encourage a change in institutional investors' operational behaviour, so that they are more likely to fund energy efficiency, in the short- to medium-term this is unlikely to happen. As such MDBs should focus on greening financial products, rather than the financial system itself. This means:

1. **First and foremost, support pipeline development and finance at a sufficient scale (in the $100s millions) in energy efficiency markets, to enable refinancing through familiar investment products.** Institutional investors will not fundamentally change their business model, therefore the objective must be to create familiar products at scale to enable them to invest in energy efficiency. MDBs must, therefore, continue to develop energy efficiency programs that focus on pipeline development, whilst taking a long-term view on how the projects can be aggregated and packaged for institutional investors.
2. **Promote means to standardize and aggregate energy efficiency investments to reduce transaction costs is fundamental for reaching sufficient scale.** These two priorities should take a central role in future energy efficiency programs in the interests of their long-term sustainability. Working with institutional investors to understand their requirements and feeding that into the preparation of future programs will begin to lay the ground for their involvement.
3. **Develop guarantees, insurance and other products for mitigating the risks that institutional investors may perceive with novel investments.** Institutional investors are not used to evaluating and pricing the risks of energy efficiency investments, therefore initially offsetting these risks will likely be key to kick-starting their involvement..

6.APPENDIX

6.1 Interviewees and workshop participants

We would like to thank the following organisations and individuals for their contributions to this project.

Table 4: List of interviewees and workshop participants

Name	Organisation
Eunjoo P Minc	BDO
Jo Ann B Eala	BPI
Arturo Palacio	Carbon Trust
Richard Lovell	CEFC
Tristan Knowles	CEFC
Diego Lizana	Chilean Energy Efficiency Agency
Javier Galván	Consejo Colombiano EE
Alvaro Sedlacek	Desenvolve SP
Mrray Birt	Deutsche Bank
Adonai Herrera-Martinez	EBRD
Daniel Bradley	ECBC
Luca Bertalot	ECBC
Pedro Pablo Silva	Efizity
Mohit Khatri	Energy Efficiency Services Ltd
Elizabeth Bellis Wolfe	Energy Programs Consortium
Ernesto Fernandez Arias	FIRA
Ahmet Tohma	Garanti Bank
Ming Yang	GEF
Masako Ogawa	GEF
George Soares	Government of Brazil

Angela Sarmiento	Government of Colombia
Catalina Rueda	Government of Colombia
Santiago Crehueras Diaz	Government of Mexico
Leticia Riquelme Arriola	IDB
Claudio Alatorre	IDB
Gmelina Juliana Ramirez Ramirez	IDB
Omar Villacorta Alvarez	IDB
Jose Antonio Urteaga Dufour	IDB
Maria Tapila Bonia	IDB
Alexander Vasa	IDB
Lucila Serra	IDB
Ana Lepure	IEA
Martin Dasek	IFC
William Beloe	IFC
Benoit Lebot	IPEEC
Ailin Huang	IPEEC
Emiliano Detta	KfW
Joel Sánchez Briseño	Mexican National Housing Commission
Murat Sarioglu	MWH Global
Ivan V Cornejo Villalva	NAFIN
Santiago Creuheras Díaz	SENER
Ernesto Infante Barbosa	SHF
Neeraj Verma	SIDBI
Coşkun Kanberoğlu	TSKB
Bettina Schreck	UNIDO
Rana Ghoneim	UNIDO
Joonkyung Seong	World Bank
Ashok Sarkar	World Bank
Jari Vayrynen	World Bank

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