

**Cover Page for CTF Program Approval Request**

<b>1. Country/Region:</b>	Latin America and the Caribbean	<b>2. CIF Project ID#:</b>	CIF AU will assign ID
<b>3. Project/Program Title:</b>	<i>Energy Efficiency and Self-Supply Renewable Energy Program</i>		
<b>4. Terms and Amount Requested in million USD equivalent</b>	<b>Private Sector</b> First Loss Guarantees / Subordinated Debt <sup>1</sup> : 16.00 Grant (TC activities): 3.00 Fee (for implementation of TC / KM activities): 0.15 Fee (for implementation of investment operations): 0.85 <b>Total: 20.00</b>		
<b>5. Implementing MDB(s)</b>	Inter-American Development Bank (IDB)		
<b>6. National Implementing Agency</b>	N/A		
<b>7. MDB Focal Point</b>	Headquarters- Focal Point: Claudio Alatorre, Climate Change and Sustainability Division: calatorre@iadb.org	TTL: Patrick Doyle, Structured and Corporate Finance Department: patrickd@iadb.org	

**Brief Description of Project/Program (including objectives and expected outcomes)**

The Inter-American Development Bank (IDB) proposes an Energy Efficiency and Self-Supply Renewable Energy Program (EE/SS Program) to provide the investment resources and technical expertise for the currently underserved sector of energy efficiency and self-supply renewable energy generation. The proposed USD 20 million CTF contribution for phase I of this program<sup>2</sup> will be used to provide first loss guarantees (and in some cases debt co-financing) in support of loans for energy efficiency (EE) and self-supply renewable energy (RE) projects in CIF-pilot countries in Latin America and the Caribbean. The investment resources of the facility will mainly provide guarantees for direct loans to corporations, improving the credit profile of the projects and allowing adequate access to finance.

In addition, technical cooperation (TC) grant resources are proposed to provide investment-grade energy efficiency audits and renewable energy feasibility studies to overcome information barriers in countries where there are no existing similar clean energy projects. In addition, these resources may be used on a case-by-case basis to reduce the cost of environmental and legal due diligence, which is normally absorbed by borrowers but can have a disproportionately negative impact on the economics of small projects. The grant resources would further finance some targeted capacity building activities and a strong knowledge management component needed to ensure adequate dissemination of the program’s results to corporations, financial institutions, energy service companies, government stakeholders and other development organizations (including DFIs) to ensure its demonstration effect.

With this Facility IDB expects to mobilize USD 100 million of investment in EE/SS projects, as the guarantee coverage will leverage co-financing sources (debt and equity). Additionally, these projects will help establish local engineering capacity for their technical design, help develop supply chains for equipment procurement, and demonstrate the market potential to local financial institutions (to be achieved through co-investment as well as the knowledge management activities). The market potential for EE and various types of small-scale renewable technologies (biogas, scale biomass, solar) is

<sup>1</sup> CTF resources are expected to be mostly used as first loss guarantees (and in limited cases as subordinated debt). While CTF senior debt is not relevant to overcome the financing risk barriers associated with the target investments, a set of terms for senior debt is included among the proposed instruments for some potential limited cases (not to exceed 20% of CTF resources hereby proposed) where it could be relevant, as explained in the proposal.

<sup>2</sup> An additional amount may be requested for phase II, as the pipeline is further developed and phase I resources are used.

significant, and the demonstration impact of the CTF and IDB supported projects could lead to hundreds of millions in investment in similar projects in the near future.

The program is expected to support the installation of at least 35MW of self-supply renewable energy and 43,000 MWh per year saved through energy efficiency projects in CIF countries, which are jointly expected to reduce GHG emissions by an estimated 1.6 million tCO<sub>2</sub>e over 20 years.

## 8. Consistency with CTF Investment Criteria

(See Section V on p.10)

## 9. Stakeholder Engagement

Significant market outreach has been held by IDB in the last two years to understand private sector potential to carry EE and self-supply RE investments throughout the region. The IDB has performed twenty-five detailed engineering and feasibility studies for the private sector using funding from the Nordic Development Fund (NDF) and Sustainable Energy and Climate Change Initiative (SECCI) multi-donor funds. This process has validated both the willingness of private companies to pursue these opportunities and the need to count with risk mitigation and TC resources to support first movers.

IDB has also conducted direct outreach to regional stakeholders in the public and private sectors through the design and implementation of its Self-Supply Renewable Energy and Energy Efficiency Facility, as well other programs throughout the region such as the Energy Efficiency Guarantee Mechanism in Brazil, and CTF-funded Energy Efficiency programs in Mexico and Colombia. The IDB has presented at regional conferences and held trainings and workshops for numerous financial intermediaries, developers, and energy service companies to build capacity and extend co-financing for investments in renewable energy and energy efficiency.

In addition, the capacity-building activities within this proposed Program will include detailed case studies, which will be produced for particular projects and presented at regional conferences. The IDB will hold workshops with local banks and associations. Open editorials will be submitted to local newspapers on the projects financed by SREP.

## 10. Gender Considerations

The IDB will explore how and to what extent business and job opportunities can be generated for women and other vulnerable groups in energy-intense businesses in the textiles, food processing, recycling, health and education sectors that would benefit from EE and self-supply RE. For this purpose, and among other possible tools, IDB will combine energy efficiency audits with gender-relevant aspects of the shared value appraisal methodology IDB has developed, where feasible.

## 11. Co-financing Indicators and Targets (consistent with results framework)

Core Indicators		Target
Avoided GHG emissions	Annual (tCO <sub>2</sub> e/year)	80,000
	Lifetime (cumulative, million tCO <sub>2</sub> e)	1.6
Increased supply of renewable energy	Installed capacity (MW) as a result of CTF interventions	35
	Additional generation from RE (GWh/year)	100
Increased energy efficiency	Energy savings as a result of CTF interventions (GWh/year)	43
Increased finance for low carbon development mobilized	Volume of direct finance leveraged through CTF funding	USD 100 M
	CTF financial leverage	1:5
Development indicators		Target
Number of technologies/applications demonstrated		6
Energy saved or generated (GWh/year) (see section V for an explanation of the development impact of energy saved or generated)		143

<b>12. Co-Financing</b>		
	<i>Amount (in USD million):</i>	<i>Type of contribution:</i>
• CTF (reimbursable)	16.0	Mainly first loss guarantee support
• CTF (non-reimbursable)	3.0	TC grant
• IDB (reimbursable)	50.0	Mainly debt
• IDB (non-reimbursable; from other Trust Funds)	0.4	TC grant
• Private Sector (please specify)	50.0	Equity or corporate; debt from local banks
<b>Co-Financing Total:</b>	<b>119.4</b>	
<b>13. Expected Date of MDB Approval</b>		
January 2015		

*Energy Efficiency and Self-Supply Renewable Energy Program*  
**IDB Private Sector CTF Proposal**  
**For Submission to the CTF Trust-Fund Committee**

**TABLE OF CONTENTS**

<b><u>List of Abbreviations</u></b>	<b><u>5</u></b>
<b><u>I. Regional and Sector Context</u></b>	<b><u>6</u></b>
<b><u>II. Program Choice – Why Energy efficiency and Self Supply Renewables?</u></b>	<b><u>6</u></b>
<b><u>III. Proposed Program</u></b>	<b><u>8</u></b>
<b><u>IV. Program’s Strategy for Achieving Market Transformation</u></b>	<b><u>10</u></b>
<b><u>V. Fit with Investment Criteria</u></b>	<b><u>10</u></b>
<b><u>VI. Annex I –Pipeline of Feasibility Studies Conducted in CIF countries</u></b>	<b><u>16</u></b>
<b><u>VII. Annex II - Estimated MDB Project Implementation and Supervision Fees</u></b>	<b><u>17</u></b>

## **LIST OF ABBREVIATIONS**

CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
DFI	Development Finance Institution
EE	Energy Efficiency
FI	Financial Intermediaries
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GW	Gigawatt
GWh	Gigawatt-hour
IDB	Inter-American Development Bank
LAC	Latin America and the Caribbean
MW	Megawatt
MWp	Megawatt Peak
MWh	Megawatt hour
PPA	Power Purchase Agreement
PV	Photovoltaic
RE	Renewable Energy
EE/SS	Energy Efficiency and Self-Supply Renewable Energy Program
TC	Technical Cooperation
USD	United States Dollars

## **I. REGIONAL AND SECTOR CONTEXT**

The strong economic growth in most of Latin America and the Caribbean (LAC) over the last decade has resulted in higher standards of living for millions—but also rapidly increasing energy demand. In contrast to what has happened in the industrialized world, Latin American energy intensity—the total amount of energy consumed to generate one dollar of GDP—has not improved in recent years. In part because much of this economic growth has been based on energy-intensive natural resource industries, overall energy demand grew at an average annual rate of 4.5%.<sup>3</sup> Even under more modest economic growth conditions, electricity demand will double by 2030, requiring an additional 239 GW of installed capacity, much of which is expected to be derived from fossil fuel-based thermal generation under business as usual conditions.<sup>4</sup> Although the LAC region has the highest share of RE of any region (69% of electricity generation)—comprised mainly of large hydro—the share has fallen gradually over the last two decades and is expected to decline even more rapidly through 2030.

Energy efficiency (EE) and self-supply with small-scale renewable energy (RE) systems are widely regarded as the most pervasive, lowest risk and least costly opportunities to mitigate climate change. LAC as a whole could reduce energy consumption by 10% over the next decade by investing USD 16 billion in widely available technologies.<sup>5</sup> However, despite the fact that these opportunities have long been considered “low hanging fruit” from a risk and cost perspective, it is increasingly accepted that they are “still hard to reach”. The barriers to these projects are well documented, and include: limited information; lack of technical or managerial expertise; high transaction costs relative to project values for project identification, design and finance; lack of access to finance; and project financial payback periods that are longer than available loan tenors. Although cleaner technologies are increasingly competitive and can provide long-term energy price security, it can be difficult to attract investment to these projects given the high initial capital costs and uncertainty regarding long-term performance. As renewable technologies generally have higher initial capital costs and longer pay-backs than more polluting alternatives, any risk premiums—including traditional credit, currency and political risks—are amplified.

## **II. PROGRAM CHOICE – WHY ENERGY EFFICIENCY AND SELF SUPPLY RENEWABLES?**

Energy efficiency and distributed power from self-supply renewable energy could have many benefits: reducing the strain on the electricity generation and transportation systems; decreasing electricity costs; enhancing grid stability; and improving energy security—in particular by reducing dependence on imported oil. In addition, capturing the methane gas from wastewater or using biomass waste directly can provide significant greenhouse gas reductions, and provide other local environmental benefits. Self-generation of energy from on-site RE systems is increasingly economical as technology costs decrease, fossil fuel prices rise, and new business models for financing projects emerge. EE and small-scale self-supply projects serve as a powerful tool for private sector companies to provide themselves greater financial and operational stability given the high costs and frequent outages. Unfortunately, there remain considerable market barriers to companies in Latin America and the Caribbean which wish to implement these technologies.

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<sup>3</sup> Latin American Energy Organization (OLADE).

<sup>4</sup> Meeting the Balance of Electricity Supply and Demand in Latin America and the Caribbean (The World Bank).

<sup>5</sup> How to Save USD 36 Billion Worth of Electricity (Without Turning off The Lights), A Survey of Energy Productivity in The Americas. IDB.

Energy efficiency and small-scale, self-supply RE generation projects are underserved by the banking sector. The project sizes are small relative to other utility-scale energy projects; therefore energy divisions in banks typically do not cover them. However the projects are large in comparison with the corporate balance sheets of the companies that are often implementing these projects. In addition, despite the fact that these projects often have high financial returns, banks generally apply standard, asset-based risk criteria to companies seeking loans for EE or self-supply RE investments. This results in unnecessarily high risk premiums, high collateral requirements, and short loan tenors. Consequently, EE and RE opportunities are often postponed or missed entirely, resulting in wasted energy and avoidable GHG emissions.

Instability in grid-supplied electricity also encourages higher CO<sub>2</sub> emissions through reliance on diesel generators for back-up electricity. Uncertainty over future savings is common, as project economics are impacted by many factors including power and fuel tariff structures, which can vary widely between and within countries and have uncertainty in the long-term. Other technology-specific risks, such as the resource risk for wind or solar, also present a perceived disadvantage to cleaner technologies. Therefore, access to affordable, long-term finance is essential to level the playing field with traditional, more polluting investments.

The EE/SS Program builds on the IDB's experience with its Self-Supply Renewable Energy and Energy Efficiency and Finance Facility (SREEEFF). This Facility is designed to address the above described financial barriers by providing loans with minimal transaction costs, at sufficiently long tenors and without high collateral requirements due to credit enhancements provided by donor guarantees. The IDB's unique role is to act as the anchor investor and attract other co-financing investment of at least 50 percent of the total cost of each project, which would help build the expertise and capacity to finance similar projects. As needed, the IDB Facility could provide risk and cost mitigation to attract lending by local financial intermediaries.

Currently, knowledge gaps exist for many EE and RE technologies. In many countries in the region, companies and financiers are unaware of their potential to reduce costs and GHG emissions while enhancing their energy security. And while these technologies are commercially proven and increasingly economical in developed countries, considerable uncertainty exists, particularly with regards to the capital and operating costs and energy production expectations for solar, biomass and biogas technologies.

To address these gaps, the SREEEFF also provides investment-grade energy studies from top international engineering firms. These firms work with local partners or subsidiaries, transferring knowledge to the local workforce. In addition the studies are done in conjunction with the corporations' own engineers and maintenance managers, educating them on the viability and helping them justify the projects to senior management. These studies are crucial to providing the knowledge, vision and confidence necessary for companies to take longer-term investment decisions. In addition, the IDB has developed and disseminated detailed case studies for projects supported. These case studies serve to increase knowledge of EE and self-supply RE technology project performance and costs, which should lead to increased financing for these projects.

### III. PROPOSED PROGRAM

#### A. General Description

**General Project/Program Description:** The proposed USD 20 million CTF contribution will be used to establish an Energy Efficiency and Self-Supply Renewable Energy Program (EE/SS Program) that will provide first-loss guarantees (and in limited cases debt co-financing) to IDB and other lenders' for energy efficiency and self-supply renewable energy projects in the LAC region. The Program will also provide technical cooperation resources in support of the preparation of such projects.

In 2013, the IDB's Structured and Corporate Finance (SCF) Department established a USD 50 million Facility to offer loans ranging in size from USD 500,000 to USD 5 million for investments in energy efficiency and self-supply ("behind the meter") renewable energy projects. The IDB has also been conducting detailed EE and self-supply RE engineering feasibility studies in Central America with grant funding from the Nordic Development Fund. These investment-grade studies have demonstrated the economic viability of numerous energy efficiency, solar PV, solar thermal, and biogas projects to local companies and their management. However, in many cases, the loan size, tenors, and security requirements of these investments exceed both local bank and the IDB's risk tolerances.

The USD 20 million CTF EE/SS Program will combine USD 16 million in CTF investment resources, with a USD 3 million CTF grant contribution for the technical cooperation component. The investment resources will be used to provide first-loss guarantees (and in some cases debt co-financing) in support of loans from IDB and/or other lenders, improving the credit profile of the projects and allowing their implementation through access to appropriate finance. With this Program, the Bank expects to mobilize over USD 100 million of investment in EE and self-supply RE projects in CIF countries in Latin America and the Caribbean, as the CTF allows IDB to expand the scope of concessional guarantee and technical cooperation support beyond Central America. Additionally, these projects will establish local engineering capacity for their technical design, help develop supply chains for equipment procurement, and demonstrate the market potential to local financial institutions.

The proposed USD 3 million grant contribution would support training and capacity building activities to catalyze investment, as well as additional feasibility studies and environmental or legal costs if they make the projects economically unviable. The market potential for EE and various types of small-scale renewables (biogas, scale biomass, solar) is significant, and the demonstration impact of the CTF and IDB supported projects could lead to hundreds of millions in investment in similar projects in the near future.

#### B. Program Financing Plan

Source of Funding	Amount (USD million equivalent)	Type of instrument	Percentage (%)
Co-financing FIs, Corporations, Project developers	\$50	Equity or corporate debt from local bank loans when possible	50%
IDB	\$34 (\$50M total debt, with \$16M guaranteed by CTF)	Loans	34%
CTF	\$16	Loans guaranteed by CTF	16%
<b>TOTAL</b>	<b>\$100</b>		<b>100%</b>

### C. Financial Instruments

Over the next three years, the EE/SS Program is expected to provide CTF concessional investment support to projects facing the common development and financing barriers described above. IDB financing will be provided to private sector borrowers under the SREEEFF along with additional financing from commercial lenders, companies, project developers and other development finance institutions (DFIs). CTF funds will be structured to enhance the risk profiles of eligible IDB projects to help make the project viable while using the minimum guarantee coverage necessary (or no coverage when not needed). The pricing, terms and conditions of the IDB financing offered with the benefit of a guarantee will be structured on a case-by-case basis. The guarantee support is expected to enhance the projects' credit profile to allow debt leverage in these investments. Concessionality on the pricing of the guarantees will be needed to contain the incremental cost of the guarantee in the financing structure<sup>6</sup> and thus prevent a negative effect on the internal rates of return of the investments. In the limited cases of CTF direct loans (to help bridge any gaps in the financing package), pricing could offer a discount from the IDB market rate, if justified. CTF investment criteria and principles, such as that of minimum concessionality, additionality, cost-effectiveness, and avoidance of market distortions, will be observed in all cases.

### D. Technical Cooperation & Knowledge Management

The USD 3 million grant funding requested will provide technical cooperation ("TC") aimed at (a) reducing transaction costs in eligible projects (including due diligence and legal costs that can disproportionately impact the economics of small projects), (b) conducting self-supply renewable energy, energy efficiency, and engineering feasibility studies to identify and implement potential projects, and (c) developing and disseminating capacity building materials to share lessons learned with the market, including project developers, other financial institutions, and local corporations.

Indicative TC & KM Budget

<b>Component</b>	<b>CTF (USD)</b>	<b>IDB – SREEEFF (USD)</b>	<b>Private Sector Beneficiary (USD)</b>	<b>Total USD)</b>
A) Support on environmental and legal transaction costs	750,000	100,000	400,000	1,250,000
B) Engineering feasibility studies and project implementation support	2,000,000	250,000	500,000	2,750,000
C) Capacity building and dissemination	250,000	50,000		300,000
Total	3,000,000	400,000	900,000	4,300,000

These capacity building activities will include detailed case studies, which will be produced for particular projects. These case studies will be presented at regional conferences. The IDB will hold workshops in

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<sup>6</sup> In some cases the final cost to the borrower may not increase (it would rather decrease), as IDB would be able to reduce the spread on its loans as part of the risk is transferred to the CTF.

particular countries with local banks and associations. Open editorials will be submitted to local newspapers on the projects financed by CTF.

#### **IV. PROGRAM'S STRATEGY FOR ACHIEVING MARKET TRANSFORMATION**

The proposed Program financial structure is innovative in that it will allow the IDB and other FIs to provide debt to private companies in CIF countries where this would otherwise be impossible. It will also support innovative energy efficiency and renewable projects, effectively creating a more robust market for these technologies in the region. Lastly, it may support new business models such as third-party finance of projects within companies' facilities. This third-party finance or "PPA" model has greatly expanded the growth of the solar industry in the U.S., resulting in over half the installed solar for residential and commercial consumers in recent years. The primary technologies proposed are solar PV, solar thermal, and the use of non-sugar cane agricultural wastes and wastewater to produce biogas or biomass thermal and electrical energy.

These transformations will lead to the availability of more adequate commercial financing for economically viable projects through:

- Use of concessional finance and technical cooperation to address risk factors and transaction cost barriers, allowing adequate financing and catalyzing the development of EE and self-supply projects.
- Targeted investments to demonstrate the technical, commercial, and financial performance of EE/SS projects.
- A portfolio of supported projects encompassing a variety of EE and RE technologies, applications, business models, and country contexts to amplify demonstration effects.
- Use of TC resources for capacity-building activities with financial intermediaries, project developers, and borrowers.
- Effective knowledge management interventions to achieve the desired demonstration by lowering informational barriers and adequately disseminating the Program's outcomes.

#### **V. FIT WITH INVESTMENT CRITERIA**

##### **A. Potential GHG Emissions Savings**

The Program will support projects expected to reduce GHG emissions by an estimated 1.6 million tCO<sub>2</sub>e over 20 years<sup>7</sup>. The IDB will document the GHG reductions and other environmental benefits such as waste reduction. Other co-benefits that will be at significant scale to be documentable include increasing energy security, reducing fossil fuel imports, and decreasing the need for costly electricity grid investments.

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<sup>7</sup> GHG emissions reductions over 20 years assuming 35MW of installed RE capacity, capacity factors of 20% for solar PV and 75% for biomass systems, 3 year average payback for EE projects, and a regional combined margin grid emissions factor of 0.5 tCO<sub>2</sub>e /MWh for LAC based on Clean Development Mechanism estimates.

## B. Cost-Effectiveness

Given the direct GHG mitigation potential mentioned above, the cost effectiveness of CTF investments would be ~0.08 tCO<sub>2</sub>e/USD, or USD12.5/tCO<sub>2</sub>e (this estimate corresponds to Program lifetime abatement of 1.6 million tCO<sub>2</sub>e and a total of USD 20 million of CTF resources).<sup>8</sup> Assuming an estimated financial leverage of at least 1:5 of CTF resources (i.e. CTF providing ~20% of the total investment resources needed) and a realistic project portfolio based on an existing pipeline of feasibility studies, the total investment considering other sources beyond CTF would be around USD72/tCO<sub>2</sub>e.

## C. Demonstration Potential at Scale

As introduced in the previous point, while this Program is expected to support directly at least 35MW of power RE generation capacity, the demonstration effect is expected to help catalyze further self-supply renewable investment and development. While the technologies are proven, there are still technological risks, and the Program would develop confidence among private companies and local banks about using their time, capital or debt capacity to invest. The prospect for replication is supported by the vast potential in the industrial-heavy cities in these countries, but also the agricultural and industrial sectors. To maximize the demonstration potential at scale in industry within CTF countries, the projects supported by the Program, their impact, and lessons learned will be profiled in case studies and shared in presentation at regional conferences in which the IDB participates regularly.

Given the broad variety of EE and self-supply RE technologies, and the vast potential and untapped opportunities in the region, it is reasonable to assume that the direct demonstration offered by these investments could be replicated by at least a 5x factor (the potential is much higher; this is just a conservative estimate for the following 5-7 years). This would result in GHG emission reductions of at least 8 MTON of CO<sub>2</sub>.

## D. Development Impact

This Program has a significant number of potential development co-benefits. Many of these are expected to have immediate direct impact and all are expected to become significant as the demonstration effect of the Program impacts in a scale larger than that of the directly supported investments. Expected co-benefits are:

- **Energy Stability:** Energy efficiency and self-supply RE projects provide greater stability to industrial clients whose operations rely on consistent flow of energy to maintain productivity. This is especially pronounced in countries with weak grids, unsound utility companies, unpredictable prices and electricity rationing. This high level of instability creates productivity losses and worsens the business climate for the important manufacturing industry which relies on high levels of energy consumption. In addition, energy efficiency and self-supply RE projects reduce demand on the unstable electrical grid which benefits the general public as well.
- **Energy security:** In spite of a large share of hydroelectricity, more than 75 percent of total primary energy supply in LAC is based on fossil fuels.<sup>9</sup> The energy matrix is increasingly vulnerable to changing hydrological profiles in countries throughout the region, particularly in

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<sup>8</sup> Ibid. (used actual supplier quotes and feasibility studies for installed costs in LAC).

<sup>9</sup> World Development Indicators (World Bank).

Central America and the Caribbean, who have experienced price or supply shocks due to heavy reliance on imported fossil fuels. In addition, higher power supply costs result in reduced competitiveness of industry (and particularly in energy intensive, commodity producing sectors where cost increases cannot always be proportionally transferred to prices). Energy security concerns are heightened by the fact that two base-load technologies (large hydro and coal) have been facing significant environmental, economic, and social barriers for further development in the region.

- **Employment:** These companies employ hundreds of women and men who will benefit from the project due to the companies lower long-term energy costs, increased energy security and enhanced competitiveness, which should normally contribute to continuous and increased employment. The lower cost power and the resulting increased competitiveness of local industry (as explained in the point above) has the potential to protect and promote employment, as local products become more competitive internationally and export volumes can be maintained or increased. This assists the manufacturing industry that is trying to climb the value chain, but often limited by lower productivity levels in part caused by operational disruptions from unreliable energy.

#### E. **Implementation Potential**

This Program will be implemented immediately upon its approval by the CTF Trust Fund-Committee and the IDB Board, which is required to amend the existing facility. The IDB has already approved the supplemental USD 50 million Facility, allowing the IDB to provide loans of up to USD 5M per project with facilitated approval procedures for these EE and self-supply RE projects. This Facility will be amended to incorporate CIF countries and funding. IDB has previous experience with similar donor-backed Guarantee Programs and has established legal and administrative procedures.

Over the past two years, with funding from the Nordic Development Fund, IDB has completed over twenty five detailed EE and self-supply RE feasibility studies with private companies in Central America, as well as additional studies with CTF and IDB Sustainable Energy and Climate Change Initiative funds in other countries in Latin America and the Caribbean. Through these projects we have come to understand the market and technologies well, and have strong connections with market players including companies, developers and local bankers. These studies demonstrate the economic viability of an investment pipeline of over USD 75 million in solar PV, solar thermal, and wastewater biogas projects with diverse companies including, among many other, an aquaculture producer, a recycling plant, a meat processor, a university, as well as beverage plants and commercial buildings. The USD 3M in grant funding requested will support additional studies as necessary in CIF countries, where similar grant resources from other sources are not available.

IDB is currently conducting financial due diligence with six of these companies that could immediately benefit from the proposed Program, one of which is implementing what will be the largest rooftop solar plant in Central America to date (3.1MWp). A first-loss guarantee from CTF will greatly facilitate IDB's ability to finance these types of projects, as many corporations have risk profiles that prevent access to the long-term capital needed for their implementation.

## **F. Additional Costs & Risk Premium**

The EE and RE investments to be supported by the Program are currently perceived as having higher technology and implementation risks and therefore face higher financing costs and first-mover implementation costs when compared to conventional energy sources such as diesel and bunker fuels. Given the high initial capital expenditure involved with EE and RE, as opposed to high ongoing fuel costs with more established energy sources, these perceived risks result in limited access to financing and high premiums for EE and RE projects.

Due to the degree of knowledge that IDB has developed in CTF countries by working with private companies on feasibility studies the economic viability of these projects is understood, when projects have access to financing with adequate terms and requirements. As the proposed projects are “behind the meter” and do not require regulatory approval, this significantly lowers implementation risks. Currently, the private sector in the region is interested in long-term investments such as the renewable energy projects proposed, but these investments require access to long-term debt, which at this stage in the market requires developmental institution risk-sharing.

## **G. Financial Sustainability**

The Program’s financial sustainability is inherent in the economic viability of identified EE and RE investments and the demonstration that these projects will offer, which will reduce perceived risks (and therefore the need for risk mitigation support such as these CTF guarantees), as well as financing costs in the market for future projects. Furthermore, the Program’s efforts will involve local FIs, companies, and developers through co-financing, technical cooperation and training, and the dissemination of case studies profiling the projects supported. Specifically, the USD 3 million in grant funding requested will be used in part to provide additional training to local banks focused on the opportunities to lend for energy efficiency and small-scale self-supply projects. The IDB will lend no more than 50 percent of the total project costs to each project, and although the remaining 50 percent is expected to be corporate equity until risk perceptions are reduced, the IDB will seek local bank co-financiers for the remaining debt. With regard to the third-party PPA model, the grant funding requested may be used to pay for the contractual and legal documentation necessary for the establishment of this business model and its acceptance by local financial intermediaries. Once this business model is established, it is expected that legal and due diligence costs will decrease for future projects.

## **H. Effective Utilization of Concessional Finance**

The proposed Program is considered an effective utilization of concessional finance, since it will (i) demonstrate the financial viability of a series of EE and self-supply RE technology applications across the region; (ii) utilize targeted TC resources for investment-grade feasibility studies; (iii) tackle informational and risk barriers currently preventing financially viable investments from scaling up; and (iv) leverage additional co-financing and investment.

As explained in previous sections, investment in energy efficiency and self-supply renewable energy is limited by the lack of access to appropriate and sufficient debt by private companies. Even in the simplest financial structure, for example, a corporate loan to an owner of an industrial or commercial building to install a rooftop solar system, the costs of the project generally exceed the companies’ ability to pay with equity or working capital. Long-term debt reduces the initial equity costs and allows the energy savings to

cover the debt payments so the project can pay for itself over time. However, when companies seek debt for these projects, banks are often reluctant or unable to accept the savings as future cash flows or the renewable energy technologies as collateral, and in any case after installation the resale value of the equipment is greatly reduced. In many cases, the industrial and agricultural companies do not have strong enough credit or other assets available to pledge to allow them to invest in these projects, and the projects compete with core-business investments that are higher priority and/or have higher expected returns. Additionally there are technology and operations risks due to the lack of experience with these projects and higher return expectations.

An alternative is a project finance or third party structure, such as the solar leasing, chauffeage or PPA model, where an independent company finances, owns and operates a small-scale renewable energy plant located on the industrial client's property. In these structures the independent company is specialized and can better manage the technical risks, but there are additional contractual risks, and often they are financed with 100% equity. Even if this amount of equity can be raised, it is very expensive. By replacing the high-cost equity with low cost debt, the overall cost of capital is reduced, enabling the projects to produce energy for a levelized price that is competitive with fossil fuels.

In both these scenarios, the technical cooperation and first-loss guarantees or subordinated debt provided by the CTF under the proposed Program will help overcome the risk and cost barriers faced by developers, companies and financial institutions. The proposed first-loss guarantee Program would allow the IDB and local FI's to provide the financing these projects need.

#### **I. Mitigation of Market Distortions**

The market will not be distorted since most CIF countries in LAC currently do not have a well-developed market for EE and self-supply RE that could be (negatively) distorted, and therefore debt financing for RE technologies is limited. The private sector local Fis will be crowded in, rather than out, as the projects we assist are implemented and the market develops. The program is expected to have a demonstration effect to companies with potential to implement similar projects as well as financial institutions with potential to gain experience with the risk/return profiles of these investments and develop into new business areas. In addition, and to support this objective, the principle of minimum concessionality will be observed in all cases.

#### **J. Risks**

The primary risk is that the loans are not repaid. As a general rule, CTF Guarantees or co-financing shall be processed in tandem with the respective IDB Loan and will be subject to the project cycle and approvals applicable to IDB Loans. Loan repayment risks will be mitigated by the IDBs credit analysis and at the technical level by ensuring that the projects financed produce sufficient energy savings to service the incremental debt. This will be addressed by ensuring that the company has sufficient cash flows to cover the loan even if the project costs are higher and energy savings lower than expected.

There is also a risk of low demand for the Program's guarantees and direct lending. This will be addressed by promoting and introducing the Program to companies receiving technical cooperation for feasibility studies and capacity-building within the nascent industry of EE and RE project developers.

Another potential risk is the level of co-financing required, given that the IDB can only finance up to 50 percent of project costs. This risk is mitigated by the IDB's proven ability to bring in B lenders or co-

financiers (over USD 10B for climate projects in recent years), and the potential to use the CTF or other donor funds as direct co-financing when needed to complete the package. The presence of IDB financing and the financial, integrity, corporate governance, environmental and legal due diligence it entails, as well as the Program’s investment-grade feasibility studies, will lower the risk profile of the projects and are expected to enhance access to co-financing from FIs.

Supply chain challenges and risk derived from the availability of engineering services, which under current conditions could translate into project delays, cost overruns, and completion/performance risk, will be addressed by employing bid evaluation methodologies and assisting companies with independent engineers and procurement as part of the engineering studies supported by the Program’s grant funding.

**K. Performance Indicators**

<b>Key Performance Indicators<sup>10</sup></b>		<b>Target</b>
Avoided GHG emissions	Annual (tCO <sub>2</sub> e/year)	80,000
	Lifetime (cumulative, million tCO <sub>2</sub> e)	1.6
Increased supply of renewable energy	Installed capacity (MW) as a result of CTF interventions	35
	Additional generation from RE (GWh/year)	100
Increased energy efficiency	Energy savings as a result of CTF interventions (GWh/year)	43
Increased finance for low carbon development mobilized	Volume of direct finance leveraged through CTF funding	USD 100 million
	Cost to CTF (USD/tCO <sub>2</sub> )	12.5
	CTF financial leverage	1:5
Number of technologies/applications demonstrated		6

CTF resources are expected to be invested over a three-year period following IDB’s approval; above-indicated annual results are therefore expected to be achieved in a similar timeframe.

Each loan or guarantee beneficiary will be contractually bound to report on the abovementioned indicators, as applicable, on an annual basis throughout the life of each transaction. This is part of IDB’s Annual Review of Operations. During the structuring phase of each transaction IDB will either ensure that the beneficiaries generate internal capacity to identify, collect and report the appropriate indicators, or allocate the necessary resources to provide the support of technical experts that can fulfill this requirement.

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<sup>10</sup> Depending on the mix of investments and RE technologies across countries.

## VI. ANNEX I – PIPELINE OF FEASIBILITY STUDIES CONDUCTED IN CIF COUNTRIES

Country	Industry	Project Type	Estimated Project Cost (USD M)
Bolivia	Agribusiness-biofuels	EE, biomass cogeneration	\$1.5
Brazil	Health	EE Retrofit Water System	\$0.5
Brazil	Chemicals	EE Retrofit Water System	\$0.5
Brazil	Consumer Products	Solar PV warehouse rooftop	\$2.0
Brazil	Education	EE HVAC, Lighting	\$0.5
Brazil	Food	EE Lighting	\$0.3
Brazil	Construction	EE- Lighting, PV	\$2.0
Brazil	Telecom	EE- Lighting	\$1.5
Brazil	Animal Waste Treatment	EE-Steam	\$5.0
Brazil	Water Treatment	EE-Electric Substation	\$13.0
Chile	Mining	Solar PV	\$10.0
Chile	Waste Water Treatment	Biogas	\$5.0
Chile	Commercial Building	EE-Motors and Lighting	\$2.0
Chile	Manufacturing – paper	Biomass	\$15.0
Chile	Seafood Producer	Biogas	\$1.0
Chile	Hospital	EE-Cogeneration	\$2.0
Colombia	Airport	Energy efficiency (EE)- lighting, HVAC <sup>[1]</sup>	\$1.0
Colombia	Manufacturer	EE-Cogeneration	\$2.5
Haiti	Manufacturing-textiles	EE-lighting, HVAC, solar PV	\$1.0
Haiti	Hotel	EE-lighting, HVAC, solar hot water	\$0.5
Honduras	Bank	Energy efficiency – lighting, HVAC	\$0.5
Honduras	Brewery	Solar, EE-HVAC, biogas co-generation	\$1.5
Honduras	Agricultural processing-fruit	Cooling, biogas capture and cogeneration	\$0.8
Honduras	Recycling center	EE-solar hot water, motors, solar PV	\$1.0
Honduras	Hospital	EE-HVAC	\$0.5
Jamaica	University	Solar	\$3.0
Jamaica	Chicken processor	Biogas	\$3.0
<b>Total</b>			<b>\$77.0</b>

<sup>[1]</sup> HVAC: Heating, Ventilation, Air Conditioning. Includes motors, boilers, chillers, building envelope improvements.

**VII. ANNEX II - ESTIMATED MDB PROJECT IMPLEMENTATION AND SUPERVISION FEES**

<b>Summary for up to 15 years (USD)</b>	
Technical Cooperation and Knowledge Management	150,000
Implementation	400,000
Supervision	450,000
<b>Total</b>	<b>1,000,000</b>