

Amendment to the Mexico CTF Investment Plan and to the Mexico Private Sector Energy Efficiency Program

Submitted to the CTF Trust-Fund Committee
by the Inter-American Development Bank
and the Government of Mexico

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INTRODUCTION

1. The [Mexico Private Sector Energy Efficiency Program](#) (“Mexico CTF-IDB Group Energy Efficiency Program, Part I”), submitted by the Inter-American Development Bank (IDB) was approved by the Clean Technology Fund (CTF) Trust-Fund Committee (TFC) in May 2011.
2. The Program is a comprehensive initiative to help develop a market for private-sector financing of energy efficiency (EE) in Mexico funded by the CTF and other sources, such as IDB’s own resources, and local financial intermediaries. This objective will be accomplished by supporting local financial intermediaries, technical intermediaries, and end-users and addressing the main barriers (i.e., behavioral, financial, technical) to implementing EE projects for small and medium-sized enterprises (SMEs) on a programmatic basis. More specifically, the interrelated barriers for increasing EE investments and activities include: (i) the absence of activities specifically targeted towards supporting EE efforts, and in particular the lack of a services market to support companies interested in using energy more efficiently, such as energy service companies (ESCOs); (ii) lack of information on improved technologies; (iii) lack of awareness among private enterprises as to the economic benefits of EE/; and (iv) absence of financial intermediaries (FIs) that act as promoters of investments in EE.
3. The Program included USD 22 million of reimbursable resources for the envelope’s projects, USD 1.415 million in non-reimbursable resources for the knowledge management and technical cooperation components, and USD 0.985 million in non-reimbursable resources for other purposes (preparation of the Ecocasa program, and implementation and supervision costs for the Program.)
4. The [Revised CTF Investment Plan \(IP\) for Mexico](#), endorsed by the TFC in May 2013, provided an update on the status of the 3 projects included in the Program, namely (i) the Banorte Subnational Green Financing Partnership; (ii) the Green Bond Securitization project, and (iii) the Trust Funds for Rural Development (FIRA) Green Line.
5. During the preparation of these projects, the IDB has realized the need to make several qualitative and quantitative changes to both the terms of the Program and to the information provided on the Revised IP. This document explains the rationale of the requested amendments. A summary of changes is included at the end.

RATIONALE FOR THE REQUESTED AMENDMENTS

6. **Cancellation of the Banorte Subnational Green Financing Partnership.** The Banorte project has been cancelled, and the IDB is now identifying other potential projects to be included in the program.
7. **Changes to the Institutional and Technological Scope of the Program.** The Mexico Private Sector Energy Efficiency Program was designed to support commercial banks in Mexico to stimulate and help scale up their EE lending activity to local SMEs and corporate clients. However, the commitment with commercial banks has been challenging. Since the approval of the Program, experience has shown that targeting only commercial banks with financial and/or technical resources is not enough to overcome the main barriers to increasing EE investments and activities in the Mexican economy.¹ In order for the Program to have a broader impact and address the identified market demand and barriers, there is a need to focus on financial innovation not only through commercial banks but also through other non-bank

¹ The Mexican Green Securitization project, currently in preparation, is an example of the type of projects that can be executed if the scope of the Program is modified. This “Green Bond” project entails financing up to USD 100 million (or its equivalent in local currency) to promote SE investments in SMEs in Mexico. This includes resources from the CTF, the IDB, the International Finance Corporation (IFC), and other sources. The objective of the Green Bond is to increase access to finance and build capacity and awareness for related investments. The Green Bond will provide a direct long-term financing to portfolio of sub-projects investing in sustainable energy (SE) initiatives. CTF resources will be used, among other possibilities, to provide credit enhancement to such portfolio of projects, through the use of a Partial Credit Guarantee (PCG) in favor of (i) lenders to the warehousing facility, while the portfolio is being developed to reach the critical mass needed for bond issuance; and (ii) bond investors. The Green Bond is expected to be executed by 1 to 2 leasing companies in Mexico that will originate eligible projects for their subsequent securitization. In July 2013, IDB approved the eligibility of this project.

financial intermediaries such as Energy Service Companies (ESCOs), leasing companies, multiple purpose financial institutions (SOFOMES), investment funds and facilities, special purpose vehicles, or insurance companies, and to include as financeable technologies not only EE but also behind-the-meter small renewable energy projects using technologies such as PV or biomass residues. By expanding the program beneficiaries and eligible projects, it is possible to ensure that: (i) a portfolio of successful sustainable energy (SE) projects is developed, in most cases following an ESCO model financing scheme; (ii) the economic viability of SE projects in Mexico is demonstrated, and (iii) the attention of Mexican commercial banks is attracted by means of concrete examples of SE projects already financed. This expansion of eligible partners and projects will help develop and standardize the methodology for the identification and evaluation of SE projects, which is expected to have a demonstrational effect for commercial banks to then tap into this new market niche, while reducing the perceived performance, provider and technology risk.

8. Qualitative and Quantitative Change to the FIRA Green Line. The IDB has been working with the FIRA agricultural trust-funds for some months on the design of a financing line to promote EE and other low-carbon technologies in rural areas (see Annex 1). When structuring this project, the IDB, FIRA, and the Ministry of Finance (SHCP) concluded that lending IDB or CTF resources to FIRA required a sovereign guarantee.² Since the Mexico Private Sector Energy Efficiency Program is limited to non-sovereign guarantee operations, this project needs to be *moved out of this Program and become a stand-alone project* that will thus require a separate TFC approval (to be requested once the project goes through the IDB's quality and risk review). In order to optimize the effectiveness and the leverage in the use of CTF resources, the IDB is setting up a credit line for FIRA with sovereign guarantee for a nominal amount of USD 10 million of IDB resources (that will leverage an additional amount of USD 10 million of FIRA resources), and plans to request USD 2 million of CTF resources (instead of the USD 5 million previously considered) to cover the technical assistance, coordination, impact monitoring and evaluation, and promotion activities.

SUMMARY OF CHANGES

9. Summing up, the IDB and the Government of Mexico request the following changes to the CTF Investment Plan, and to the Mexico Private Sector Energy Efficiency Program:

- a) *To widen the scope of the approved Mexico Private Sector Energy Efficiency Program*, by expanding the beneficiaries to include other financial intermediaries, in addition to commercial banks, such as investment funds or facilities, financial trusts, leasing companies, asset managers, ESCOs and insurance companies, and to include behind-the-meter small-scale renewable energy as an additional eligible technology. The technical assistance activities being implemented by IDB will retain their original financial request but will be modified to cover the broader scope of financial intermediaries, and eligible technologies as described above.
- b) To move an amount of USD 2 million out of the Mexico Private Sector Energy Efficiency Program and into a new stand-alone project. Therefore the Mexico CTF Investment Plan would now have a new *FIRA Green Line project, with USD 2 million of CTF resources*. This public sector project is scheduled to be submitted to the CTF TFC in November 2013.
- c) Therefore, the total amount of the Mexico Private Sector Energy Efficiency Program would be *reduced from USD 24.4 million to USD 22.4 million*. The reimbursable component of the Program would be reduced from USD 22 million to USD 20 million. The non-reimbursable components would remain as planned. The reimbursable resources (USD 20 million) would be used in the Mexican Green Securitization project, and in another project(s) to be defined. The

² Originally, a non-sovereign guarantee operation was envisaged. However, the legal status of FIRA and the fact that its net assets are not eligible as collateral, prevented the Bank from funding FIRA's operations without the sovereign guarantee. These are of course legal/formal restrictions that say nothing about the solvency or the effectiveness of FIRA as a Development Bank — they are rather related to the legal safeguards in IDB's internal regulations.

Green Securitization project is planned to use USD 10 million of CTF resources (instead of the amount of USD 8 million that was included on the Revised IP). (See summary table below)

Summary of qualitative changes

	Program approval (May 2011)	Information included on the Revised Investment Plan (May 2013)	Current Amendment (August 2013)
Mexico Private Sector Energy Efficiency Program	Reimbursable resources for an envelope of projects (USD 22M)	Green Bond Securitization (in preparation) (USD 8M)	Green Bond Securitization (in preparation) (USD 10M) ^a
		Banorte Subnational Green Financing Partnership (in preparation) (USD 9M) ^b	Other project TBD (USD 10M) ^a
		FIRA Green Line (in preparation) (USD 5M)	
	Non-reimbursable resources (USD 2.4M)	Non-reimbursable resources (USD 2.4M)	Non-reimbursable resources (USD 2.4M)
			FIRA Green Line (separate stand-alone project to be approved by the CTF TFC) (USD 2M)

Notes:

^a Total amount of CTF reimbursable resources for the Mexico Private Sector Energy Efficiency Program would now be USD 20 M. The amounts of the projects in preparation are indicative and may be adjusted.

^b In the Revised Investment Plan, the amount of this project erroneously appears as USD 10M.

10. Given the higher leverage of additional resources, the changes above would increase the emission reductions of the Private Sector Energy Efficiency Program, vis-à-vis the original proposal.

FINANCING PLAN AND APPROVALS' SCHEDULE

11. The following table summarizes the financing plan of the Mexico CTF Investment Plan after this amendment.

Mexico Revised CTF Financing Plan (2013) (USD million)

MDB/Program	Total CTF funding	Cofinancing	Govt.	Private	IBRD	IDB	IFC	Others
IBRD/ Urban Transport Transformation Program	200.00	1,975	1,093	732	150	-	-	-
IBRD/ Efficient Lighting and Appliance Project	50.00	664	230	176	251	-	-	7
IDB/ Renewable Energy Part I (Private Sector)	53.38	600	-	484	-	45	71	-
IDB/ Renewable Energy Part III (NAFIN RE Finance Facility)	70.61	2430	70	1,540	-	70	-	750
IDB/ Energy Efficiency Part I (Commercial Banking Component)	22.40	120	-	20	-	50	50	-
IDB/ FIRA Green Line	2.00	20	10			10		
IDB/ Energy Efficiency Part II, Ecocasa Program	51.61	249	-	86	-	50	-	113
IFC/ Private Sector Wind Development	15.60	173.9	-	64.3	-	22	22	65.6
IDB/ Geothermal Exploration Risk Reduction Project	34.4	115.6	12			34.4		69.2
Total	500	6,347.5	1,415	3,102.3	401	281.4	143	1,004.8

12. The following table presents the expected calendar for the FIRA Green Line project

FIRA Green Line Project Preparation Timetable

Milestone	Date
Eligibility/Quality Review	November 2013
Approval by CTF	December 2013
Approval by IDB Board	January 2014

Annex 1

FIRA GREEN LINE

BRIEF DESCRIPTION OF THE PROJECT AND ITS OBJECTIVE

1. The IDB has been working with the FIRA agricultural trust funds for some months on the **design of a financing line to promote energy efficiency (EE) and other low-carbon technologies in rural areas**. The targeted technologies include (i) EE, (ii) biodigesters for organic material decomposition, and (iii) behind-the-meter small renewable energy (RE) projects.
2. FIRA and the IDB worked on the identification of priority sectors. The fruit and vegetable processing and packaging sector was selected for a pilot project. A market study was developed and its results recently released. They show a high potential in the sector for EE notably in the following areas:
 - a. High efficiency motors
 - b. Replacement of electric by hydraulic motors in conveyors
 - c. Efficient boilers
 - d. Solar water heaters
 - e. Compressed air distribution
 - f. Efficient Air Compressors
 - g. Cooling and freezing
 - h. Compressors cooling / freezing
 - i. Cogeneration
3. The study concludes that these areas in this particular sub-sector would represent an investment potential of USD 88 million, for a target of approximately 350 SMEs. But even more interestingly, the study shows a high replication potential for those EE applications in other rural activity sectors. A very rough estimation of this replication potential identifies a target of 4,900 borrowers, and a total investment potential of USD 1,100 million, with an average recovery of four years and estimated savings of USD 430 million per year.
4. Given (i) these results on the pilot and (ii) this estimated replication potential, both parties agreed to move forward in the preparation of the project.
5. The global financing program will be dedicated to the investment into ‘Energy Efficiency and Sustainable Use of Water’ related projects. The IDB credit line will be of USD 50 million, with a sovereign guarantee.³ USD 10 million from those 50 million will be dedicated to energy efficiency projects per se, with additional USD 10 million of FIRA’s own resources. It is for this part of the program that USD 2 million non-reimbursable funds will be requested from the CTF, in order to help overcome the major investment barriers for the EE projects.
6. Many barriers have impeded the scaling up of investment in EE projects. Among the most important barrier is **a weakly structured demand**. Those projects involve the deployment of new technologies, which entails new risks and additional costs for unprepared and weakly structured market players. Strong capacity building efforts are necessary to:
 - Disseminate the rationale for investments directed not at the expansion of production, but at savings and productivity improvement (promotion strategies)
 - Support the demand and improve the number of bankable projects (set-up of project incubators and technical assessment units at the most efficient levels)

³ Originally, a non-sovereign guarantee operation was envisaged. However, the legal status of FIRA and the fact that its net assets are not eligible as collateral, prevented the Bank from funding FIRA’s operations without the sovereign guarantee. These are of course legal/formal restrictions that say nothing about the solvency or the effectiveness of FIRA as a Development Bank — they are rather related to the legal safeguards in IDB’s internal regulations.

- Structure the program with (i) the most efficient blending of different funding and risk-mitigation mechanisms to ensure the participation of the private banking sector and the adequation of the financing offer to the demand (ii) the involvement of quality stakeholders such as reliable technology providers and strong sector associations and (iii) the provision of standardized contractual relationship between all parties

7. The CTF non-reimbursable funds would be an indispensable element to the program as they would allow the technical assistance necessary to design those crucial bricks described above and provide the necessary resources for appropriate coordination, and impact monitoring and evaluation. Non-refundable terms to finance potential project requirements such as the ones describe above are all the more necessary in a context of abundant liquidity and historically low interest rates in Mexico, especially if we are seeking private sector involvement.

8. Over a period of time and after the project has produced its demonstration effect; the scaling up of the strategy should become sustainable, with both public and private financial institutions adjusting their risk assessment of those projects and the demand being structured enough.

Potential for GHG Emissions Savings

9. As stated on the Revised Investment Plan, “according to Mexico’s national strategy of climate change (ENACC, 2007), agriculture accounts for 7% of total GHG emissions in the country and forests and land-use change account for 14%, for a total of 21% of the country’s emissions. Moreover, agriculture is highly exposed to climate change, as farming activities directly depend on climatic conditions”. EE and the optimization of the use of natural resources in rural areas are in line with both the Government of Mexico three priorities for the CTF in the country and FIRA’s strategic development priorities.

10. The market study on the pilot sector of fruit and vegetables packaging businesses has shown a potential of GHG emission savings of 133,269 tons of carbon dioxide equivalent (tCO₂e) per year for a total market size of USD 88 million. Extrapolating the application of USD 22 million from the IDB program, the potential for GHG emission savings of the project would represent around 35,000 tCO₂e per year.

Cost-effectiveness

11. If the Project is expected to generate emissions reductions of 35,000 tCO₂e per year, then the effectiveness of the CTF resources (USD 2 M) is \$5.71/tCO₂e over 10 years, or \$2.86/tCO₂e over a project life of 20 years. Considering the total IDB/FIRA commitment of \$22 million would equate to a cost/tCO₂e of \$148.57 over 10 years, or \$74.29 over 20 years.

Demonstration Potential at Scale

12. As described earlier in this document, the market study showed that the replication potential of those EE projects on various other sub-sectors is high and could lead to an investment size of USD 1,100 million. Those figures are preliminary and would need to be refined and validated but the potential for EE on the rural sector is important: different studies on different technologies converge on this conclusion:

- On the biodigesters (which are used to digest of organic matter, capturing and possibly using the created biogas), a study shows that the potential for energy production, could amount to 649MW in the short term⁴.
- On the area of pumping systems, two studies show that there are 82,600 sites in Mexico that would be eligible, for an estimated energy saving of 30 to 50%.⁵

⁴ Romero et al., 2011.

⁵ Comité Técnico del Fondo para la Transición Energética y el Aprovechamiento Sustentable de la Energía – Novena Sesión Ordinaria – March 2011. See also: <http://bit.ly/bombeoagric>

- In the dairy sector, there are 2000 production units with a production 500l/day where Shiller type refrigeration equipment could be installed.⁴

Development Impact

13. The rural sector is both responsible for, and a victim of, natural resource depletion. This is because rural consumption of resources is high and inefficient, and because natural resource depletion and degradation reduces rural productivity. As a result, the adoption of measures for EE, RE and the rational use of water is essential to ensure the sustainability of the country’s natural resources, agricultural sector growth and the welfare of the population in the medium and long term.

14. From a climate change mitigation point of view, the unleashing of the EE potential is a major challenge that Mexico has to face in the short term to protect and strengthen their energy balance. However, the implementation of such projects requires investments for which funding is scarce. The funding shortage is accentuated in rural areas, which keep productivity low, limit the ability to accumulate resources, and increase the perceived risks when trying to access investment financing. It is expected that this program’s direct impacts will include reductions in water and energy consumption, thanks to increased access to financing.

15. In addition to these direct impacts, it is expected that the program will contribute to: i) an increase in productivity for participants ii) reductions in CO₂ emissions; iii) reductions in water and energy subsidies, and iv) enhanced climate change adaptation capacity by those units which invest in rational-use-of-water programs.

16. *Impact on productivity.* The energy savings will have a direct impact on the productivity of borrowers, which is a major issue in the rural sector in Mexico. A recent study from the Ministry of Agriculture (SAGARPA) illustrates a very direct causal chain between natural resource degradation and low productivity for 80% of the agricultural production units. The program targets sectors where productivity levels are lower, as the table shows below.

Base 2008 =100	Global labor productivity index based on employment - 2012
Global economy	98.9
Primary sector	96.4
Sector 31-33: Manufacturing	110.3
Sub-sector 311: Food manufacturing	105.3
Sub-sector 3114: Fruit & Vegetables conservation ^a	99.8

Source: INEGI – Índices de productividad laboral y del costo unitario de la mano de obra 2012

^a Closest sector to our pilot: fruit and vegetables packaging and processing

Co-benefits

17. The EE projects in rural areas have other socio-economic co-benefits that were well described by FIRA for one of their pilot program of engine substitution in the fishing sector:

- Increased food supply at more competitive prices
- Increased annual revenue of producers, which means social improvement
- Better working conditions in the area and higher income levels, which contributes to reduce the migration problems
- Job creation
- Technology transfer
- Strengthening of local professional associations and globally of the business environment
- Development of the foundations for sustainable business and production practices

Implementation Potential

18. FIRA is a group of Trust Funds established, managed and historically funded by the Bank of Mexico, Mexico's central Bank. Being a second tier Public Development Bank with a sound presence in the rural areas, FIRA is strategically placed to channel dedicated funds and to play a catalytic role in supporting involvement of local financial institutions in the financing of EE projects.

19. FIRA has the largest portfolio in the rural sector. It channeled nearly 100 billion pesos over the last three years benefiting more than 1.65 million farmers per year. 95% of those final beneficiaries are small farmers.

20. FIRA is already active in the markets targeted by the program. In 2012, total authorized funding for these environmental projects approached USD 150 million. FIRA is also involved in two guarantee schemes to promote sustainable practices in the rural sector: FONAGA Green and FONAGUA.

21. With this extensive experience, FIRA now needs resources and support to leverage these programs and develop them further. The program is important to FIRA because it will provide for the first time the opportunity for long-term funding and optimized conditions with the sovereign guarantee to venture more actively in these new markets.

Additional Costs and Risk Premium

22. The USD 2 million of CTF non-reimbursable resources that will be requested would cover the technical assistance needed for both the offer and demand structuring (see above) and the necessary resources for appropriate coordination, impact monitoring and evaluation. Non-refundable terms to finance potential project requirements such as the ones describe above are all the more necessary in a context of abundant liquidity and historically low interest rates in Mexico, especially if we are seeking private sector involvement.

Gender Issues

23. Although EE appears to make a substantial contribution to private benefits, the benefits attributed to EE are multiple and range from sectorial benefits, such as productivity and survival rates; to economy-wide benefits such national competitiveness, greenhouse gas emissions mitigation, poverty alleviation and gender-inclusiveness. The multiplicity of public benefits attributed to the EE programs supports the argument that it will have important development impacts for Mexico.

24. Although about a quarter of all Mexicans live in rural areas, 60 percent of Mexico's extreme poor are rural. This means that more than half of rural Mexicans live in poverty and 25 percent live in extreme poverty.⁶

25. Women represent half of the rural population and 29% of them work outside of home. Of those, 28.6% work in agriculture and 25.6% in industrial production with no data of better granularity. The program will therefore directly impact between 28.6% and 54.2% of rural women. And 94% have the double charge of work and housework.⁷ Improvements in productivity will impact their daily life, freeing time and labor for other tasks, such as child care, chance of further education or higher-value work both inside and outside of the home.

⁶ BreadfortheWorld Institute – Briefing paper – January 2011

⁷ Las Mujeres en el México Rural – INEGI - 2002