



**GEF**

# REQUEST FOR CEO ENDORSEMENT/APPROVAL

**PROJECT TYPE: Full-sized Project**

**THE GEF TRUST FUND**

**Submission Date: Aug 3, 2010**

**Re-submission Date: Oct 5, 2010**

## PART I: PROJECT INFORMATION

**GEFSEC PROJECT ID:** 4116

**GEF AGENCY PROJECT ID:** P120654

**COUNTRY(IES):** Mexico

**PROJECT TITLE:** Efficient Lighting and Appliances Project

**GEF AGENCY(IES):** World Bank

**OTHER EXECUTING PARTNER(S):** SENER and NAFIN

**GEF FOCAL AREA(s):** Climate Change

**GEF-4 STRATEGIC PROGRAM(s):** CC-SP1-Building EE; CC- SP2 Industrial EE

**NAME OF PARENT PROGRAM/UMBRELLA PROJECT:** NA

Expected Calendar (mm/dd/yy)	
Milestones	Dates
Work Program (for FSPs only)	March 2010
Agency Approval date	Nov 2010
Implementation Start	Dec 2010
Mid-term Evaluation (if planned)	Jun 2012
Project Closing Date	Dec 2013

### **A. PROJECT FRAMEWORK** (Expand table as necessary)

<b>Project Objective:</b> To support efforts to mitigate climate change by expanding the use of energy-efficient equipment and services.									
Project Components	Inv, TA, or STA <sup>2</sup>	Expected Outcomes	Expected Outputs	GEF Financing <sup>1</sup>		Co-Financing <sup>1</sup>		Total (\$)	
				(\$ a)	%	(\$ b)	%	c=a+ b	
1. Replacement of Incandescent Bulbs (IBs) with Compact Fluorescent Lamps (CFLs) in the Low to Medium-Income Residential Sector	Inv	CFL program implemented reducing energy consumption by 6,400 Gwh and 3.29 million tons of CO <sub>2</sub> e reduced	45 million CFLs distributed to low-medium income population and in use	0	0	70.0	100	70.0	
2. Incentives to Encourage the Replacement of Old and Inefficient Refrigerators and Air Conditioners (ACs) in the Residential Sector	Inv	Large-scale appliances replacement program implemented reducing energy consumption by 2,900 Gwh and 1.85 million tons of CO <sub>2</sub> e are reduced	1.7 million inefficient refrigerators and ACs exchanged for more efficient ones	5.0	3	633.0	97	638.0	
3. Technical Assistance and Institutional Strengthening*	TA	Key institutions have improved capacity to adequately implement the project as well as other energy efficiency measures contemplated in the new Energy Efficiency Law  Energy Efficiency monitoring and evaluation programs are designed	CFL recycling centers and disposal schemes operational;  Regulations, norms and standards for phase-out of IBs are in place;  National energy efficiency program for industry is strategically analyzed and initiated  M&E programs for Project components are in place and provide input and feedback on the performance of Project components;  Key personnel are in place to effectively implement the program.	2.12	34	4.20	66	6.32	
<b>Total Project Costs</b>				<b>A7.12</b>		<b>B707.2</b>		<b>714.32</b>	

<sup>1</sup> List the \$ by project components. The percentage is the share of GEF and Co-financing respectively of the total amount for the component.

<sup>2</sup> TA = Technical Assistance; STA = Scientific & Technical Analysis.

**B. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT** (expand the table line items as necessary)

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Project</i>	<i>%*</i>
Government of Mexico	Nat'l Gov't	Budgetary resources	104.2	14.7
IBRD/CTF	Impl. Agency	Loan	300.0	42.4
Beneficiaries	Beneficiaries	Cash	176.0	24.9
NAFIN	Development Bank	Financial Intermediary	127.0	18.0
<b>Total Co-financing</b>			707.2	100%

\* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

**C. FINANCING PLAN SUMMARY FOR THE PROJECT (\$)**

	<i>Project Preparation a</i>	<i>Project b</i>	<i>Total c = a + b</i>	<i>Agency Fee</i>	<i>For comparison: GEF and Co-financing at PIF</i>
GEF financing		A7,118,600	7,118,600	711,860	7,118,600
Co-financing		B707,200,000	707,200,000		225,000,000
<b>Total</b>		714,318,600	714,318,600		232,118,600

**D. GEF RESOURCES REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES)<sup>1</sup>**

<i>GEF Agency</i>	<i>Focal Area</i>	<i>Country Name/ Global</i>	<i>(in \$)</i>		
			<i>Project (a)</i>	<i>Agency Fee ( b )<sup>2</sup></i>	<i>Total c=a+b</i>
World Bank	Climate Change	Mexico	7,118,600	711,860	7,830,460
<b>Total GEF Resources</b>			7,118,600	711,860	7,830,460

<sup>1</sup> No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

<sup>2</sup> Relates to the project and any previous project preparation funding that have been provided and for which no Agency fee has been requested from Trustee.

**E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:**

<i>Component</i>	<i>Estimated person weeks</i>	<i>GEF amount (\$)</i>	<i>Co-financing (\$)</i>	<i>Project total (\$)</i>
Local consultants*	4,730	1,250,000	1,800,000	3,050,000
International consultants*	1,100	570,000	500,000	1,070,000
<b>Total</b>	5,830	1,820,000	2,300,000	4,120,000

\* Details to be provided in Annex C.

**F. PROJECT MANAGEMENT BUDGET/COST**

<i>Cost Items</i>	<i>Total Estimated person weeks</i>	<i>GEF amount (\$)</i>	<i>Co-financing (\$)*</i>	<i>Project total (\$)</i>
Local consultants*	750	300,000	3,700,000	4,000,000
International consultants*				
Office facilities, equipment, vehicles and communications*			600,000	600,000
<b>Total</b>		300,000	4,300,000	4,600,000

\* Co-financing for local consultants is estimated as an approximation of the costs of SENER and NAFIN staff and support cost for operating the project for the project lifetime. These staff time is not included in the total estimated person weeks. These management costs are mainstreamed in each component of the project.

**G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT?** yes  no

Part of the GEF grant will be held in a guarantee facility. At the mid-term review of the project, an

assessment will be made on how to use any remaining GEF resources in the guarantee facility, if any, to contribute to the project objective.

**H. DESCRIBE THE BUDGETED M & E PLAN:**

M&E is an integral part of each component and, will allow, if necessary, for the modification of the implementation arrangements for each component in order to improve the effectiveness of Project implementation. A specific budget to undertake this function has been established under Component 3. In addition to dedicated resources for M&E under component 3, monitoring activities will be part of both component 1 and 2 to ensure energy savings are monitored and the proper handling of incandescent bulbs and old appliances. Furthermore, the project will have an impact evaluation to ensure that the project achieves its objective. An impact evaluation will estimate the program's total impact on outcomes of interest and guide program implementation by scientifically testing alternative incentive and communication strategies against the adoption of energy-efficient practices and technologies so that the program can scale up the operational alternatives that are found to be most cost-effective. The impact evaluation is designed *ex ante*, (i.e., before the intervention takes place), and the effects are measured after the intervention takes place at different exposure horizons. The average treatment effects will be measured as *ex post* mean differences in outcomes between a "treatment" group (targeted by the intervention) and a "control group" (a similar, randomly selected comparison group). Annex 3 of the Project Document provides additional information about the M&E plan.

**PART II: PROJECT JUSTIFICATION:**

**A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:** The project's global environment objective to promote an increased use of energy efficient equipment and services by supporting the development of a sustainable and growing market for energy efficiency equipment that will reduce GHG emissions caused by electricity generation based on fossil fuel consumption. For details, see project document sections i, ii and iii, and annex 4.

**B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL AND/OR REGIONAL PRIORITIES/PLANS:**

The proposed project is consistent with the GoM's Special Climate Change Program (*Programa Especial de Cambio Climático - PECC*) and its 2007-2012 PROSENER (energy program). The project also contributes to the GoM's commitment to reduce Mexico's GHG emissions and to the UNFCCC. (See Project Document Section I.D and Annex 15)

**C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH [GEF STRATEGIES](#) AND STRATEGIC PROGRAMS:**

The proposed Project is consistent with GEF's Climate Change Focal Area, in particular GEF Operational Program 5: Energy Efficiency, and with its climate change strategic programs under GEF-4: SP1 "Promoting Energy Efficiency in Residential and Commercial Buildings." (See Project Document Section I). One or two of the TA activities under component 3 will also contribute to CC-SP2, Industrial EE, and they will help identify future potential energy efficiency gains in this relatively complex sector.

**D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES.**

The proposed project uses an innovative mechanism to support the GoM's energy efficiency program by establishing a guarantee facility for the Mexico's development bank, NAFIN, to on-lend financial support to eligible households to safely replace their old appliances (refrigerators and air conditioners) for energy efficient appliances. (See Project Document Annex 4).

**E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:**

The proposed project complements the overall GEF support in Mexico for reducing the GHG emissions through energy efficiency measures. The *Secretaría de Energía* (SENER) is responsible for overall oversight and execution of the project which is also the agency responsible for all the Government's energy policy and programs. As such, the project is an integral part of Mexico's energy efficiency program. For example, the project coordination of the proposed will be carried out by the same unit that is executing the GEF financed Large Renewable Energy Project. (See Project Document Annex 6)

**F. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING :**

The GEF support will help to ensure the involvement of the country's development banks, which are essential to the mainstreaming of GoM climate change mitigation agenda. With incremental GEF support, and specifically by reducing the risks associated with consumer default, a major barrier will be removed in the residential end-use sector to allow the adoption of more energy-efficient appliances. (See Project Document Annex 15)

**G. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES:**

See Project Document Section III. E.

**H. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN:**

Detailed economic and financial analyses were undertaken for the Project. It demonstrates robust economic and financial rates of return. (See Project Document Annex 9.

Global environmental benefits will be in the form of reduced electricity requirements and reduced resulting GHG emissions from electricity generation. These results for the year in which they occur are included in the Results Matrix presented in an Annex to this Memorandum. However, this is included for the consistency with the PAD. These tonnage figures in the matrix represent those expected to occur in that year only of the project's lifetime. In order to convert these figures to comply with the GEF methodology focusing on the lifetime emission reductions from the investments made, an adjustment to account for the emissions avoided during the expected lifetime of the light bulbs, refrigerators, and air conditioner has to be made.

For Component 1 (for which GEF provides no direct funding), if the light bulb's lifetime is set at 7 years (which manufacturers claim), the cumulative quantity of CO<sub>2</sub> savings is estimated at 11 million tons. However, if the lifetime is reduced to a more conservative 3 years, the resulting estimate comes to 5 million tons. For refrigerators and A/C units, their useful lifetime is assumed to be 10 years. As a result, Component 2 of the project is expected to result in cumulative CO<sub>2</sub> emission reductions of 7 million tons. If the outputs from

Component 1 and 2 are combined to get a total direct measure of CO<sub>2</sub> emission avoidance, it will come to about 12 million tons of CO<sub>2</sub> avoided over the lifetime of the project. The final evaluation of avoided tonnage will net out any emission reductions sold to the carbon market from project activities in order to reduce probabilities of double-counting.

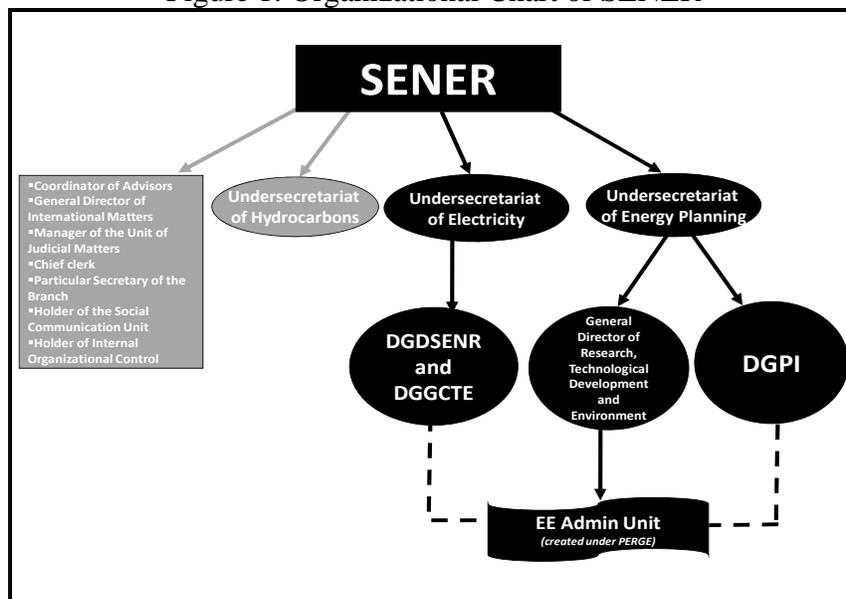
The indirect emission reductions may be much greater than this direct figure, but there is no credible way to estimate it, so the project team has chosen not to do so.

**PART III: INSTITUTIONAL COORDINATION AND SUPPORT**

The *Secretaría de Energía* (SENER) is responsible for overall oversight, and is the World Bank’s main counterpart for the Project. SENER is composed of several directorates, including: (i) the Directorate General for Promotion and Investments (DGPI), which has principal responsibility for Component 1, and (ii) the Directorate General for Distribution and Supply of Electricity and Nuclear Energy (DGSENR) and the Directorate General for Generation, Conduction and Transmission of Electricity (DGGCTE), which have principal responsibility for Component 2 (see Figure 1). Each Directorate is also involved in the studies and other capacity building activities to be carried out under Component 3.

To support these Directorates and to strengthen SENER’s ability to provide monitoring, financial management, reporting and other oversight functions, the Project will use the unit being established within SENER, under the Large-scale Renewable Energy Project (PERGE) to provide administrative support. This Energy Efficiency Administrative Unit (EEAU) will report to the three SENER Directorates involved in Project implementation (see Figure 1). The responsibilities of the EEAU will include providing financial management services for the overall Project and procurement services for the activities to be undertaken by SENER under Component 3.

Figure 1: Organizational Chart of SENER



As head of the energy sector, SENER is largely a regulatory and policy development agency with limited capabilities to implement projects. SENER faces operational and budgetary constraints, and needs other entities to participate in the implementation of the Project to provide support. In this context, the proposed implementation arrangements rely on several entities in addition to SENER, namely, FIDE, FIPATERM, CFE, CONUEE and NAFIN. These entities are involved in the various components as follows:

- SENER, the energy ministry which is involved in Components 1, 2 and 3;
- FIDE, the specialized energy efficiency entity involved in executing Components 1 and 2;
- FIPATERM, the specialized energy efficiency entity operating in selected Mexican states with FIDE in implementing Component 2;
- NAFIN, the national development bank involved in Component 2b;
- CFE, the vertically integrated national utility involved in Component 2. Although its basic function involves the generation, transmission and distribution of electricity, CFE is also involved in end-use energy efficiency activities, including through its participation as a shareholder in FIDE and FIPATERM; and
- CONUEE, the energy efficiency promotion agency involved in Component 3.

For details, see Project Document Annex 6.

#### **B. PROJECT IMPLEMENTATION ARRANGEMENT:**

See Project Document Annex 6

#### **PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:**

There have been no significant changes in the project's global environment objective, scope and outcomes from PIF stage, albeit some of the emission reduction targets have been increased due part to a net increase in co-financing and also the GEF requirement to include lifetime emission reductions from the activity. During project preparation, minor adjustments were made, specifically with respect to design of the components and expected outputs as described below:

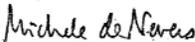
1. The Government of Mexico is fully financing component 1 – the Replacement of Incandescent Bulbs (IBs) with Compact Fluorescent Lamps (CFLs) in the Low to Medium-Income Residential Sector – through the IBRD loan. Therefore, the need for a guarantee facility envisaged under component 1 at the PIF stage for reducing financial risks for the national development bank was not necessary. However, the guarantee facility for the project will continue to be in place for reducing financial risks for the national development bank under component 2. Therefore, the overall design of the project with regards to the guarantee facility remains the same as that of the PIF stage.
2. The institutional analysis carried out during the project preparation indicated additional activities are needed to strengthen institutional capacities at various levels of the government for the successful implementation of the project. Therefore, the overall budget for Technical Assistance and Institutional Strengthening component has been increased. This component

will also support the M&E activities for the project as well as some of the project management costs for the execution of the project.

3. The Public Street Lighting and Other Municipality-Level Energy Efficiency Activities (Component 3 of the PIF) which were expected to be financed by IBRD and CTF loans at the PIF stage have been dropped during the project preparation. However, during project preparation, it was decided to separate this activity from the current Project as it presented additional complexities on top of an already complex project (including the need for an additional borrower to channel funding to the municipalities and an additional distinct set of implementation arrangements for street lighting). A separate Pilot Municipal Street Lighting program will be implemented by BANOBRAS with its own resources and could provide the basis for a follow-on larger scale activity supported with multilateral financing. The implication of it to the project is minimal because this component was: a) not co-financed by the GEF at the PIF stage; b) the overall co-financing for the project, in particular component 2, has increased significantly; and c) the total GHG emissions reduction has increased as a result of increased co-financing for component 2.

**PART V: AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.

Agency Coordinator, Agency name	Signature	Date	Project Contact Person	Telephone	Email Address
Michele De Nevers		Oct 5, 2010	Jocelyne Albert, Sr. Regional Coordinator	(202) 473-3458	Jalbert@worldbank.org

## ANNEX A: PROJECT RESULTS FRAMEWORK

### MEXICO: Efficient Lighting and Appliances Project Results Framework

PDO	Project Outcome Indicators	Use of Project Outcome Information
<p>The Project's Development Objectives are to promote Mexico's efficient use of energy and to mitigate climate change by increasing the use of energy-efficient technologies at the residential level.</p> <p>The Project's Global Environmental Objectives are to support efforts to mitigate climate change by expanding the use of energy-efficient equipment and services.</p>	<p>Amount of GWh saved.</p> <p>GHG emission reductions of approximately 12 in tons of CO<sub>2</sub> equivalent (in direct terms) over the life of the investments.</p>	<p>Lower-than-expected energy savings and emission reductions may signal deficiencies in insufficient incentives for residential consumers and deficiencies in the implementation of the dissemination and capacity strengthening program, which would require adjustments in Project design - in particular at the time of Project mid-term review.</p>
Intermediate Outcomes	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
<p><u>Component 1:</u> Increased market penetration of CFLs in low-medium income population nationwide.</p>	<p>45 million CFLs distributed to low-medium income population and in use; lower electricity consumption.</p>	<p>Lower-than-expected CFLs in use would require changes to the implementation scheme for this component and better information and dissemination campaigns.</p>
<p><u>Component 2:</u> Increased market penetration of efficient appliances in the low-medium-income segment of the population.</p>	<p>1.7 million inefficient refrigerators and ACs exchanged for more efficient ones; lower electricity consumption.</p>	<p>Lower-than-expected number of participants in the appliances replacement program will require changes in the component's design and more intense promotion of the program.</p>
<p><u>Component 3:</u> Studies to facilitate development of recycling centers and disposal schemes, studies to phase out IBs.</p> <p>Studies to (i) guide EE standardization with neighboring countries, (ii) guide the preparation of laws and regulations to ban imports of inefficient appliances, and (iii) guide the certification processes in industries, are completed.</p>	<p>CFL recycling centers and disposal schemes operational; regulations, norms and standards for phase-out of IBs are in place.</p> <p>EE standards with CA, USA and Canada are harmonized; laws and regulations to ban imports of inefficient appliances are in place; certification processes in industries are in place.</p>	<p>Non development of private sector recycling centers will require a review of incentives for private sector participation and greater Government involvement; non issuance of regulations, norms and standards will require the strengthening of political commitment to the Project.</p> <p>Delays in the development of standards with neighboring countries will require stronger political commitment by the Government; delays in banning imports of inefficient appliances may require stronger political commitment and/or increased capacity for border authorities; delays in certification</p>

EE monitoring and evaluation programs are designed	M&E programs for Project components are in place and provide input and feedback on the performance of Project components.	<p>processes for industries may require stronger commitment by CONUEE and increased capacity to put the certification program in place.</p> <p>Low implementation of M&amp;E programs will require stronger commitment by SENER and CONUEE to the Project.</p>
--	---	--

**Arrangements for Results Monitoring**

An impact evaluation will estimate the program’s total impact on outcomes of interest and guide program implementation by scientifically testing alternative incentive and communication strategies against the adoption of energy-efficient practices and technologies so that the program can scale up the operational alternatives that are found to be most cost-effective. The impact evaluation is designed prospectively, i.e., before the intervention takes place, and the effects are measured after the intervention takes place at different exposure horizons. The average treatment effects will be measured as ex post mean differences in outcomes between a “treatment” group (targeted by the intervention) and a “control group” (a similar, randomly selected comparison group).

Component 1:

The impact evaluation will measure and determine:

- (i) The rate of adoption and change in energy consumption among eligible populations that received CFLs in exchange for incandescent light bulbs (relative to similar residential households that did not receive the intervention);
- (ii) The rate of adoption of CFLs among medium- and high-income populations that were targeted by the house-to-house communication strategy and the change in their energy consumption (relative to similar residential households that did not receive the intervention);
- (iii) The most effective communication strategy in securing high CFL adoption among medium- and high-income populations that are targeted by alternative communication strategies.

*Design.* Issue (i) data from CFE on household energy consumption will be used to evaluate the impact of the intervention as the mean difference in energy consumption between treatment and control groups. The difference between laboratory-calculated energy use and actual energy use will estimate the amount of behavioral change induced by energy savings.

Issues (ii) and (iii) will be addressed by randomly assigning households to different treatments (letters) or to no treatment. The study will use the Public Survey on Households Income and Expenditures, *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH), to establish a sample framework for the pilot intervention and stratify households along household characteristics that are thought to matter for household response to the

intervention, such as income and education. Data from CFE on energy consumption will be used to estimate potential savings for households in each stratum. A letter will be distributed along with the electric bill and will vary along several dimensions (household savings versus environmental concern, psychological factors, price and look, with and without discount, offered deadline).

The impact of the intervention will be measured as the *ex post* intervention mean take-up and energy consumption in treated households relative to untreated households using sale data and energy consumption data from CFE.

This will provide information on the best strategies to maximize take-up and minimize *ex post* mean energy consumption in various household types. The best treatment in each stratum will be scaled up to the rest of the households in the country.

### Component 2:

.The impact evaluation will measure:

- (i) The rate of replacement of refrigerators and ACs and the change in energy consumption among targeted households relative to similar residential households that did not receive the intervention.
- (ii) The most effective communication strategy in securing high replacement rates.

*Design.* Issues (i) and (ii) will be addressed by randomly assigning households to different treatments (letters) or to no treatment. The study will use the ENIGH to establish a sample framework for the pilot intervention and stratify households along household characteristics that are thought to matter for household response to the intervention, such as income and education. In each stratum households will be randomly assigned to control or one of various treatments. Data from CFE on energy consumption will be used to estimate potential savings for households in each stratum. Treatment consists of a letter that will be distributed along with the electric bill and that will vary along several dimensions.

The impact of the intervention will be measured as the *ex post* mean replacement rate and energy consumption in treated households relative to untreated households using sale data and energy consumption data from CFE. These will provide a precise estimate of energy savings by type of household and equipment capacity against a valid counterfactual.

The best treatment in each stratum will be selected as the treatment with the highest *ex post* mean replacement rate and lowest *ex post* mean energy consumption. The best treatment in each stratum will be scaled up to the rest of the households in the country.

The *monitoring and evaluation* will also include a sampling of households to determine whether the Project lowered their electricity consumption (to be confirmed by negotiations).

## Arrangements for Results Monitoring<sup>1</sup>

Project Outcome Indicators	Baseline	Target Values					Cumulative GWh or CO <sub>2</sub> over lifetime of substituted item	Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5		Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Accumulated amount of GWh saved	0	200	1,200	3,800	7,800	9,800	<b>23,400</b>	Annual	Annual and quarterly progress reports, CF verification reports	SENER, FIDE, FIPATERM and CFE
Accumulated associated CO <sub>2</sub> emission reductions (thousand tons of CO <sub>2</sub> )	0	103	617	1,950	4,009	5,037	<b>12,028</b>	Annual		
<b>Intermediate Outcome Indicators</b>										
<u>Component 1:</u> Number of IBs replaced by CFLs	0		15 m	20m	10m		<u>3 year lifetime for CFLs</u>	Quarterly	Annual and quarterly progress Reports, CF verification reports	SENER, FIDE, FIPATERM
GWh saved*	0		400	1,700	2,800	1,300	<b>9,000</b>	Annual		
CO <sub>2</sub> emission reductions* (thousand tons of CO <sub>2</sub> )	0		205	874	1,439	668	<b>4,626</b>	Annual		
<u>Component 2:</u> Number of appliances replaced	0	450,000	450,000	400,000	400,000		<u>10 year lifetime for appliances</u>	Quarterly	Annual and quarterly progress Reports, CF verification reports	NAFIN and FIDE
GWh saved	0	200	600	900	1,200	700	<b>14,400</b>	Annual		
CO <sub>2</sub> emission reductions (thousand tons of CO <sub>2</sub> )	0	103	308	463	617	360	<b>7,402</b>	Annual		
<u>Component 3:</u> Studies completed (#)	None	1	3	4		8 studies completed			Annual reports, supervision missions	SENER and CONUEE
Information and dissemination (I&D) activities conducted	None	I&D, activities initiated	I&D ongoing	I&D ongoing	I&D ongoing	Completed				
Monitoring and evaluation (M&E) systems in place	None	M&E initiated	M&E ongoing	M&E ongoing	M&E ongoing	Completed		Annual		
Number of staff trained	None	20	-	-	-	20				

\*Procurement of the first CFLs is expected to take at least 6-8 months and distribution 3-4 months therefore it is assumed that no GWh are saved nor CO<sub>2</sub> emissions are reduced during year 1.

<sup>1</sup> The Arrangements for Results Monitoring presented here is different from the Arrangements for Results Monitoring presented in the PAD because (1) this analysis assumes a 3-year lifetime of CFLs while the PAD assumes a 7-year lifetime; and (2) the PAD presents GWh saved over project period (through June 2014) while this table presents GWh saved over the lifetime of CFLs and appliances.

**ANNEX B: RESPONSES TO PROJECT REVIEWS** (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF)

**1. Comments from the GEF Secretariat at the PIF Stage**

(i) Please provide an estimation of the GHG emissions that are not claimed as CER/carbon credits.

**Response from the World Bank:**

During the project implementation period (through June 30, 2014), an additional 2.2 MtCO<sub>2</sub>e would be reduced by the program once the global warming potential (GWP) of the avoided CFC-12 venting is factored.<sup>2</sup> This program will monitor and verify that the refrigerants from old appliances (mostly CFC-12) are properly collected, stored and disposed of at qualified servicing/scraping centers. Most old appliances (over 10 years old) suffer from refrigerant leakage, thus requiring regular servicing and recharges. Because only 5,500 technicians out of approximately 60,000 in Mexico have been trained to date in good refrigeration practices, the annual vented volume of refrigerants is potentially significant. New appliances typically neither leak nor require servicing during the first four to five years. Even if they do, the GWP of the most common refrigerant currently used for appliances in Mexico is about 1,430 (HFC-134a) whereas the GWP of CFC-12 is as high as 10,890 (a differential of 9,460). Though these emissions reductions (ERs) cannot be accounted for under the Clean Development Mechanism (CDM) due to the rules of the Kyoto Protocol concerning substances controlled by the Montreal Protocol, under the program they are avoided emissions that provide additional environmental benefits.

(ii) Please provide:

- financial simulations (for the 5 years of the project) for components 1 and 2, including all the cofinancing sources, especially carbon credits
- a justification of the cost of distribution in component 1
- a justification for the default rates you assume in component 2
- With regards to component 2, the moral hazards would be better mitigated if GEF grant did not guarantee the first losses but was used as a counter-guarantee of the government's guarantee.

**Response from the World Bank:**

A detailed economic and financial analysis was carried out during the project preparation and explained in Annex 9 of the Project Document. The financial analysis first assumes that 80% of the 1.7 million appliances to be replaced (i.e. 1.36 million) will be financed through the credit line (See Table 9.7 in the Project Document). The financial analysis further assumes that loans will be issued evenly throughout a given year. Given the credit amounts available for each level of consumer (see Annex 4 of the Project Document), the calculation assumes an average loan of US\$206 will be issued per appliance. To finance these loans for the above schedule of deployment of appliances, NAFIN would issue just over US\$280 million in loans (See Table 9.8 of the Project Document).

As described in Annex 4, loans issued by NAFIN will have a 4-year maturity and will carry a 12 percent per annum interest rate. NAFIN will therefore receive US\$370 million in consumer debt service over 8 years. As loans are issued throughout a calendar year, consumer debt service occurs over 5 calendar years (See Table 9.9 of the Project Document).

To issue loans in Year 1, NAFIN will require US\$74.39 million in cash as shown in Table 9.8. From the second year onwards however, NAFIN will have the benefit of reflows from consumer debt service from the

---

<sup>2</sup> Refrigerators and air conditioners older than 10 years in Mexico commonly contain CFC-12 as a refrigerant in the compressor and coils.

previous year to be re-ploughed into the program. Therefore, to issue US\$74.39 million in Year 2, NAFIN will have the benefit of approximately US\$14 million in consumer debt service from Year 1. To issue US\$66.12 million in YEAR 3, NAFIN will have the benefit of approximately US\$62 million in consumer debt service from YEAR 2. As a result of these consumer reflows, NAFIN will require a credit line of just US\$173 million to issue a total of US\$280 million in loans over 4 years.

While it is appropriate to assume that a certain percentage of the consumer credits will be in default, NAFIN is protected by a US\$35 million guarantee facility that will shield the financial institution from up to 7 percent of consumer defaults, which is higher than expected actual defaults. Accordingly, no reduction in revenues to NAFIN as a result of credit defaults has been included in the analysis.

CTF concessional financing is required to facilitate the adoption of energy-efficient appliances in the residential sector by providing an affordable financing mechanism that allows NAFIN to leverage CTF and other resources in order to scale up the appliance replacement pilot program on a national scale. Scaling up from the pilot program (500,000 appliances) to 1.7 million appliances in four years poses significant challenges to both the finance and the implementing agencies.

In addition, the net cash flow analysis for NAFIN nets out two cost elements: (i) a 25 basis point (0.25 percent) spread of interest to cover NAFIN's loan administration costs, and (ii) a 2 percent spread of interest payments to be transferred to FIDE for that institution's operating costs.

The US\$173 million in new cash that NAFIN would inject will be funded as follows: (a) US\$50 million from CTF, (b) US\$123 million of internal capital (composed of €25 million (US\$32.5 million at an exchange rate of 1.3 US\$/€) from KfW, and US\$90.5 million of NAFIN's own funds).

The default rate assumption under component 2 is based on: a) existing experience in Mexico and the conservative estimation by the government; b) a considerably large scope of the project; and c) relatively new market for the national development banks in Mexico.

A potential moral hazard for the GEF grant has been addressed by the design of a two tier system within the Guarantee Facility and the Government's decision to use GEF grant monies as the last resort. As explained in the Project Document, the Guarantee Facility will have two tiers – a Junior Facility and a Senior Facility. Operationally, a consumer has to pay his/her electricity bill bimonthly in Mexico. If a participating consumer fails to pay his/her bill by the first billing cycle, the Junior Facility gets triggered and payment will be made. If the consumer is over 180 days behind in payment, the Senior Facility will be triggered and legal proceeding will be undertaken to recuperate the loan and suspension of electricity to the consumer. To avoid a potential moral hazard, the GEF resources are used only in the case when the Senior Facility gets triggered. Furthermore, the repayment to NAFIN will be consistent with the proportionality of the GEF's and the Government of Mexico's contribution to the overall Guarantee Facility.

(iii) Please justify the cost-effectiveness of the project based on detailed data.

#### **Response from the World Bank:**

The cost effectiveness of the overall project is ensured through the Bank's procurement methods that will be applied in procuring efficient and least cost goods and services. The economic and financial analysis carried out for the project indicates a robust return to the investment (see details in Annex 9 of the Project Document). On the cost effectiveness of the GEF resources, over 70% of the GEF resources are applied to the Guarantee Facility which has safeguards for a potential moral hazard (see above). The remaining resources will provide incremental support to: a) strengthen the institutional capacity for successful implementation of

the project; b) to ensure project M&E system is functioning to measure the success of the project; and c) to provide incremental support to the project coordination unit.

(iv) Could you please precise your exit strategies for components 1 and 2?

### **Response from the World Bank:**

The Government estimates that 10 million inefficient appliances are currently in use and could potentially be eligible under the program. The proposed Project seeks to replace 1.7 million of these over a four-year period, targeting 17 percent of the market which is the critical mass necessary to generate interest from additional consumers and financiers. The 1.7 million efficient appliances send a strong signal for an increase in supply of more efficient models. The scale of the operation is likely to demonstrate the energy savings that can accrue in more efficient residential products. As a greater number of consumers become aware of the cost savings that can be realized through the investment, a push for more efficient product choices from retailers will continue driving the market transformation. The transformational path of this intervention can be summarized as follows:

- i. Demonstration effect from scale, creating a high level of awareness in consumers and financiers;
- ii. Altered trajectory of the efficient appliance market in Mexico by increased private sector participation (retailers, carbon funds); and
- iii. Attainment of benefits such as increased affordability of efficient appliances; these benefits extend beyond climate change to core development benefits (improved standard of living).

Market mechanisms that promote EE products are more effective and sustainable when they rely on market actors to make decisions based on the commercial merits of products. One of the key requirements to support the decision-making process of consumers is to provide sufficient and accurate information about the energy consumption and related financial information of the products; in this way, consumers can be aware of the savings and make their own judgments about reasonable financial paybacks. The Project's Technical Assistance Component will finance an information and awareness campaign directed at consumers on these aspects.

## **2. Comments from the GEF Council**

### ***Comments from the Council Member from Germany:***

It is the common understanding of Germany and the World Bank as the Implementing Agency of the above mentioned projects that the project formulation, which would start upon PIF approval, will determine the most appropriate technologies and cooling agents/refrigerants to be employed in the projects on the basis of technical viability, environmental-soundness, cost-effectiveness, energy efficiency, etc., in the view of the country context. HFC-134a has been used in the PIFs to calculate a most conservative estimate of net CO<sub>2</sub> emission reductions from the projects. Germany views HFC-134a due to its high global warming potential of 1,300 not as the optimal refrigerant. Germany suggests to employ hydro-carbons (R-600a) as refrigerant for the new refrigerators. R-600a has a GWP of 1 and refrigerators with hydro-carbons are generally more energy efficient. Refrigerators with hydro-carbons are currently being introduced in the market in both developed and developing countries. The World Bank has confirmed that the choice of refrigerant technology for the entire sector has not been made for this project and has committed to fully explore the use of natural refrigerants in the project.

### **Response from the World Bank:**

#### ***Climate Benefits***

- Baseline refrigerators utilize CFC-12 as a refrigerant which has a GWP of 10,890 in comparison to HFC-134a which has a GWP of 1,430. Thus, the overall GWP of the refrigerant alone would be reduced by 87% with the project – assuming that all new refrigerators are HFC-134a based. In reality the GWP impact would be much less because currently at baseline, CFC leakage is as high as 30%, whereas new technologies ensure virtually no leakage in the product’s early life (first five years).
- However, the choice of refrigerant technology for the entire sector has not been made and hydrocarbons have not been ruled out. Assumptions using HFC-134a as the refrigerant for all new refrigerators present the most conservative estimate of net CO2 emission reductions that can be expected for this project component.
- Even if leakage was as high as 5% a year, the improved energy performance of new refrigerators more than offset the GWP of any possible leaked HFC-134a (if it was the predominant refrigerant used in the sector).

#### *State of Technology*

- According to the UNEP technology and Economic Assessment Panel Report (May 2006) – both HFC-134a and HC-600a (hydrocarbon) are dominant refrigerant options for application in domestic refrigeration. The report notes that the introduction of hydrocarbon technology is increasing worldwide, except in the case of North America where increased hydrocarbon usage in the market has not occurred.
- Component 2 of the Mexico Lighting and Appliances Efficiency Project does not rule out hydrocarbon refrigerant technology; HFC-134a refrigerant happens to be currently the most commonly available in the sector in Mexico, as indicated in the PIF and in line with findings of the TEAP.

The project uses the existing technologies available in the market in Mexico that qualify with the EE standards set in the project; i.e. appliances using R-600 are not ruled out and are considered eligible as long as they meet with the EE standards.

We also note that four GEF projects (WB and Other agency) are already approved with HFC-134a technology.

### **3. Comments from the STAP**

(vi) Sustained market growth for CFLs: Distribution of CFLs (5 million) free of cost to a small percent of population, may not guarantee market development. Free distribution doesn’t seem to be part of a robust plan to enable market development. There must have been many such attempts at free distribution of CFLs in Mexico (and surely in other countries). What are the lessons from such attempts; to what extent has it transformed the market? STAP recommends developing a clear strategy to promote EE lighting in a sustained manner and through a market approach considering existing alternatives beyond free distribution schemes.

#### **Response from the World Bank:**

This component was expanded in scope to the current 45 million to meet the goals established by PECC, namely the replacement of 47.2 million IBs with CFLs (1.4 million replacements have already been implemented). The change in scale is explained by the targeting mechanism used by the Government to select eligible low to medium income households connected to the grid (the 45 million replacements cover all consumers within the four lowest deciles of electricity consumption based on CFE statistics). No GEF resources will be used to support this component.

Consideration was given to distributing the CFLs through the *Servicio Postal Mexicano* (SEPOMEX) given its contact with households. Reliance on existing retail stores was preferred as the involvement of retail stores

was determined to support better the long-term sustainability of the program since these stores play, and will continue to play, a natural role in the provision of bulbs and other household items to consumers.

Market mechanisms that promote EE products are more effective and sustainable when they rely on market actors to make decisions based on the commercial merits of products. One of the key requirements to support the decision-making process of consumers is to provide sufficient and accurate information about the energy consumption and related financial information of the products; in this way, consumers can be aware of the savings and make their own judgments about reasonable financial paybacks. The Project's Technical Assistance Component will finance an information and awareness campaign directed at consumers on these aspects.

(vii) Baseline scenario development: What is the rate of spread of CFLs and EE refrigerators and ACs under the baseline scenario, since EE programs have been implemented in the past? What is the projected GHG emission from these activities, in the absence of GEF investment?

**Response from the World Bank:**

An incremental cost analysis was carried out for the project. In the four years of the Project, the baseline energy savings are expected to be only 9,376 GWh, with emission reductions of 4.8 M tCO<sub>2</sub>e. Furthermore, under the baseline scenario, technical capacities of the key institutions would not be further augmented to fully achieve the objectives of the overall Project. (See Project Document Annex 15)

(viii) Barrier analysis: Since EE programs have already been implemented in Mexico and neighboring countries, it may be desirable to conduct a systematic barrier analysis so that the barriers are identified, ranked and prioritized to develop targeted investment. Such an analysis may or may not suggest free distribution of CFLs or subsidies for ACs and refrigerators.

**Response from the World Bank:**

The barriers to the adoption of energy efficiency technologies include:(a) the high initial investment cost of new and more efficient equipment; (b) the lack of incentives and knowledge of the benefits of a shift to more efficient equipment; (c) unfamiliar credit profiles of potential residential clients; (d) risk-averse lending practices by commercial banks and their apprehension about developing new or unproven business and product lines; and (e) the lack of relevant expertise and capacity of financial institutions to analyze and appropriately structure energy efficiency deals, typically resulting in high transaction costs and high interest rates that discourage potential borrowers. Concessional financing is key to overcoming these barriers.

This Project mobilizes this needed concessional financing from various available sources, including CTF, the World Bank and GEF, as well as carbon finance. The CTF financing component within this package provides incentives for scaling up a critical energy efficiency program for Mexico that would not otherwise be possible under a business-as-usual scenario.

The barrier of the high initial investment cost of the new equipment, particularly relevant for low-income consumers, will be addressed by providing the CFLs for free to low-income households and by providing instant discount vouchers to low-income consumers to help finance a portion of the upfront cost of acquiring new efficient appliances to replace old and inefficient ones.

(ix) Refrigerators and ACs: Providing financial incentives alone for 800,000 families (relatively affluent), may not directly lead to a large scale market development. What are the lessons from similar attempts in the past, since GOM has been promoting EE programs since the 1990s and how these lessons were captured in the project design?

### Response from the World Bank:

Vouchers will be provided as instant discounts to low-income consumers to improve their ability to pay for the replacement of inefficient appliances with more energy-efficient appliances. The target populations for this program are low- and medium-income electricity consumers who currently have a refrigerator or an air conditioning unit that is at least 10 years old. Four different levels of consumption are specified as set out in the table below with different norms applying to refrigerators and air conditioners.

Eligibility Criteria for Refrigerator and AC Replacement

Level of Consumption	Refrigerators Average Non-Summer Monthly Consumption (kWh)	Air Conditioners Average Summer Monthly Consumption (KWh)
Level 1	76–175	251–500
Level 2	176–200	501–750
Level 3	201–250	751–1,000
Level 4	Over 250	Over 1,000

Different levels of benefits are provided to different levels of consumers, with lower-level consumers receiving larger discount vouchers (see Table below). Households in levels 1 and 2 are eligible for the discount vouchers that cover a portion of the cost of acquiring the refrigerator and disposing of the old refrigerator. Households in Level 3 receive a discount voucher that covers only the cost of disposal of the old appliance. Households in Level 4 do not qualify for the discount vouchers (only for credits as described further below). The voucher amount combined with the maximum allocated line of credit amount is equal amongst the first three levels. However, for level 4, the program is targeting a higher income consumer group that is likely to purchase more expensive, larger appliances. Thus, the increased line of credit allocation under level 4 seeks to capture this market segment.

Number of Vouchers

Level of Consumption	Amount of Voucher re acquisition of appliance (MX\$)	Delivery of New Appliance + Removal of Old Appliance(MX\$)	Total Voucher (MX\$)
Level 1	1,800	400	2,200
Level 2	1,000	400	1,400
Level 3	0	400	400
Level 4	0	0	0

The eligibility level for households set out in the table above is also used for determining access to the credit line. The maximum credit line available to consumer by level is set out in the table below. The line of credit is provided at an interest rate of 12 percent per annum, and is repayable over a four-year period. The effectiveness of the rate and repayment term in promoting the replacement program will be evaluated during Project implementation, and may be adjusted accordingly. Households in Levels 1 through 3 are eligible to be

benefit from both the voucher and credit line, or can access each separately; households in Level 4 are only eligible for the credit line.

Number of Credits	
Level of Consumption	Max. Amount of Credit (MX\$)
Level 1	\$3,400
Level 2	\$4,200
Level 3	\$5,200
Level 4	\$8,700

(x) Public lighting and water pumping: Will a strategy emerge for a large-scale spread and market development in this project? What activities are proposed to assure market shift?

**Response from the World Bank:**

The Government of Mexico is pursuing these activities with alternative sources of financing through BANOBRAS.

(xi) Financial analysis on investment in EE: STAP recommends conducting a detailed financial assessment of costs and benefits of the investment from the perspective of households and municipalities. The project should clearly demonstrate the financial viability of the investment in EE systems.

**Response from the World Bank:**

Such as analysis has been carried out and presented in Annex 9 of the Project Document.

(xii) Technical assistance and institutional strengthening: The activities listed seem to be general and not based on the critical analysis of the ongoing and previous programs, lessons learnt, barrier analysis and financial analysis. Justification for the selection of activities under this component should be provided before the final project submission.

**Response from the World Bank:**

During the project preparation, the Government of Mexico reviewed all these activities against its priorities. The details of these activities are provided under Component 3 of the Project. (See Project Document Annex 4).

**COMMENTS FROM THE GEF SECRETARIAT AT CEO ENDORSEMENT STAGE (16 AUGUST, 2010)**

**Comment 8, August 16, 2010.** The replacement of 1.7 million appliances will yield 1.85 Million tonnes of CO<sub>2</sub>eq due to electricity savings during implementation. Another 2.2 Mt CO<sub>2</sub>eq would be reduced if the avoided CFC venting is factored. However, there are inconsistent figures regarding the electricity savings in different parts of the documentation (eg CTF Annex refers to 3600 GWh while the project framework refers to 2900 GWh). Also, it is not clear how the 450,000 appliances replaced in year 2 save twice the electricity that was saved by the same # of appliances in year 1. Please clarify

**Response from World Bank:**

The numbers in the PAD are consistent. The GWh saved is 3,600 and in the project Results Framework the cumulative from each year comes to 3,600 (200+600+900+1200+700). The analyses undertaken for the appliance energy and GHG savings assume that the appliances (and CFLs) distributed in year 1 are distributed equally throughout the year. Therefore, the savings in the first year of an appliance's (or CFL's) utilization, it provides ½ of the total savings attributable to that number of appliances or CFL's.

**Comment 8, August 16, 2010 (continued)** The CFL program (non-GEF-funded) is expected to reduce 3.29 MT CO<sub>2</sub>eq during project implementation period. Please clarify whether these estimates are lifetime savings. Also, could you provide estimates for the indirect benefits, if any.

**Response from World Bank:**

The savings for the CFL's and appliances as presented in the results matrix in the PAD only correspond to the savings from that specified year of the project whereas the GEF methodology specifies direct emission reductions over the lifetime of the equipment utilized. As noted above, using the GEF methodology of lifetime emissions for equipment, if the CFL lifetime were assumed to be 7 years, the CFL component would result in a lifetime emissions reduction of 11 m tons of CO<sub>2</sub>eq. A more conservative 3 year lifespan of CFL's would yield 5 m tons CO<sub>2</sub>eq, which is what is included in the Arrangements for Results Monitoring that is presented earlier in this document. For the appliances (refrigerators and A/Cs), the effective lifespan is considered to be 10 years. This results in the direct project effects from Component 2 of 7 m tons CO<sub>2</sub>eq. In total, the direct effects of Component 1 and 2 come to 12 m tons of CO<sub>2</sub>eq.

There is no doubt that there are considerable indirect effects from this project, but we have no credible way of estimating them, so we would prefer not to claim any in order to be conservative.

**Comment 9, August 16, 2010.** "This component is not funded by the GEF, however, it is included in the project framework. Please clarify why the CFLs should be provided at no cost and how this is linked with the lessons learned by other CFL projects of the WB (such as the ILUMEX project). Also, provide data about the current CFL sales in the country and how these might affect them (rebound effect?); according to the post implementation impact assessment of the ILUMEX project, annual CFL sales in 2010 would reach 13 million units. Furthermore, CERs are going to be claimed by this project; could you described the linkages of this CDM activity with other ongoing activities on the same field in Mexico, such as CUIDEMOS project."

**Response from World Bank:**

The reviewer rightly points out that Component 1 of the project is not funded by the GEF. Since this is a project co-financed by different sources of financing including with substantial resources from the government, the presentation in the project document is for the entire project. It would not be cost effective to have separate project document only for the GEF co-financed activities. Therefore, any questions related to CFLs, the team will be happy to talk to the reviewer off line and outside the GEF review for CEO Endorsement to avoid delays in project processing.

**Comment 9, August 16, 2010 (continued).** "Please describe the different scenarios for triggering the two guarantee facilities of \$20m each. For example, if the consumer fails to pay the first bill, but he is able to pay the second one, is the junior facility replenished?"

**Response from World Bank:**

The reviewer is referred to page 52 of the PAD which describes the current operation of this fund. The first guarantee is a way to allow a grace period to household consumers for up to six months. After those six months, the consumer is considered in arrears, and the defaulted costs are reimbursed from the senior fund. To date, the overall default has come to about 1% and the mechanism appears to be working soundly.

**Comment 9, August 16, 2010 (continued again).** “Component 3: The GEF contribution to the TA component has increase from \$119k to \$2.12 million. \$100k will be used from the promotion of CFL recycling centers. Please clarify this activity: how this activity will lead [*sic.*] to operational CFL recycling centers and disposal schemes through the 8 competed studies that are mentioned in the Arrangements for Results Monitoring. \$50k will be used to evaluate the size and impact of imports of inefficient appliances. \$570k for the certification of energy-efficient processes in industries [*sic.*]. However, industrial energy efficiency is not identified as one of the objectives of the project. \$100k will be used for a DSM study. \$100k will be used for an evaluation of the need to reinforce the T&D network. It is not justified how this activity is incremental and how it pursued the project objective. \$100k will be used to a study to evaluate how to reduce system losses. This is irrelevant to the objective of the project. \$500k for awareness activities and \$150k for training of the Implementing Agencies [*sic.*]. All the above activities (with GEF funding of 1.67m) are not cofinanced by the GOM or other co-financier. Pleas clarify why the government will not cofinance these activities while it will cofinance the components 1 and 2 that are linked with some of these activities.”

### **Response from the World Bank:**

The budgetary allocations devoted to each activity need to be viewed in the context of funders trying to allocate monetary resources to a program in which funds may be co-mingled, but procedures are not always identical. Therefore, it is more efficient to use only a single funder’s resources for a single activity. Not only are there some activities consistent with the project objectives being funded solely by the GEF, but there are also some GEF-eligible activities which are solely funded by the Government of Mexico. From our experience, this may be the most practical way of dividing up funding for incremental tasks designed to continue to advance energy efficiency in Mexico beyond the activities circumscribed in Components 1 and 2 of this project.

With respect to the strategic priority not including industrial energy efficiency, SP-CC2 has been added to the front page of the CEO Endorsement memo.

Regarding a study for assessing the need for T&D reinforcement, this study is needed to assess the effect of harmonics in the grid due to the large deployment of CFLs under the project. This assessment is common practice in any CFL replacement program of certain magnitude.

With respect to training the implementing agencies (not capitalized), these are the counterpart agencies implementing the project, NOT GEF Implementing Agencies. For the success of the project, some these agencies require training and awareness raising activities.

**Comment 17, August 16, 2010.** “According to the PIF, the remaining non-used [*sic.*] GEF resources from the guarantee facility will be reallocated to other energy efficiency activities to be defined by the GoM at mid-term review in consultation with GEF; while according to the CEO Endorsement Request, in the third year an evaluation will assess the reallocation of the unused funds to other activities to further complement the project’s overall objectives and at the end of the project remaining funds will be reallocated to other EE activities as agreed by SENER and the WB. Please clarify and prioritize the activities that could use the unused resources to further complement the project’s overall objectives. Also, is there a standing agreement between the WB and SENER about the other EE activities that could use the unused GEF resources? Further, could you explain why the consultation with GEF for the reallocation of unused funds is not mentioned in the CEO Endorsement request documentation?”

### **Response from the World Bank:**

There is no agreed upon list of priorities for EE shared between the World Bank and SENER. This sort of agreement is typically reached by recommendations made at mid-term review and finalized by the termination of the project. As the project is a grant to the Government of Mexico, the WB is proposing to ensure that any further activities funded with the GEF grant are consistent with their original intent consistent with the GEF Strategic Priorities. If any of these activities are considered not consistent with the original intent of the project, we will seek the GEFSEC concurrence prior to agreeing to them. However, on the other hand, any activities proposed will fall within the purview of the existing project framework, the team will follow normal Bank procedure of amendment and notify the GEFSEC through the annual portfolio review/reporting process.

**Comment 19, August 16, 2010.** “GEF funding of PM activities is equal to \$300k, that covers the cost of local consultants [sic.]. This is equal to the local consultants cost that will be covered by cofinancing, while the total consultants costs is equal to the non-consulting costs. Please explain why the non-consulting PM costs are equal to the 50% of the total PM costs and why the GEF-funded consulting costs should be equal to those that are co-financed.”

**Response from the World Bank:**

The project management costs are only incremental costs as the project is mainstreamed to the existing government programs and carried out by the government. The incremental costs of the management of the project including some of the M&E costs are financed by the GEF resources.

**Comment 20, August 16, 2010.** Local consultant person-week cost is close to that of the international consultant. Please explain.

**Response from the World Bank:**

The cost structure for skilled labor in Mexico (an OECD member) closely approximate those of other OECD member states, and these costs are consistent with the local market.

**COMMENTS FROM THE GEF SECRETARIAT AT CEO ENDORSEMENT STAGE (10 SEPTEMBER, 2010)**

**New Review Sheet: Q.7** The question on the allocation of carbon reductions from component 2 between the GEF and carbon finance (CDM and VCM) is addressed neither by the answer nor by Annex 4 of the PAD.

**World Bank Response:** Given the uncertainty in the current state of the carbon market, there are no concrete plans for the sale of CER's from this project and it is not possible to provide a reasonable estimate of the tonnage to be sold *ex ante*. However, if the concern is to clarify that any emission reduction credits sold by project participants are netted out from the final evaluation of the tonnes avoided through the project, a sentence has been added to the CEO memo to that effect.

**Question 8:** The response (about the nature of the CFL market) implies that clarifying question about Component 1 should be handled outside the CEO endorsement process because the GEF is not providing co-financing to Component 1. Yet the GEF is being asked to provide significant co-financing for Component 3 including TA to support CFL recycling centers, a public awareness campaign for CFL's, and capacity building to provide procurement training to support Component 1. The involvement and association of GEF with this important high-visibility CFL distribution activity certainly justifies a clear answer on the philosophy of the project design. In addition, it appears that the exact same question has been asked by STAP and has not been addressed.

**World Bank Response:** Underlying the questions is perhaps a suggestion that the approach of disseminating CFL's to low-income consumers for free is not the cheapest way to transform the lighting market in Mexico. The proposed project approach is based on lessons learned from an earlier experiment in lighting market transformation. Illumex, after all, was a GEF-supported project in the early 1990's. However, at the time of the Illumex project, CFL's could cost up to \$25 apiece on the retail market, and there was little confidence in them. During the Mexican Government's assessment of its low-carbon development options, the free distribution of CFL's to low-income households came out as a very attractive option in terms of both GHG impact, timeliness and development impact (ie., providing economic benefits to low-income households). The Government has decided to use its own resources and to take out loans to avail themselves and their population of the benefits following that assessment. The projected power savings from the overall load reduction will likely exceed the cost of the subsidy, although the Government has to intervene because of the expropriation bias involved (ie., beneficiaries are not the investors). While this may not be the cheapest way to grow the market for CFL's, it will meet the Mexican government's objective of quickly transforming the market with long-term economic benefits and near-term GHG reductions. According to current arrangements, the distribution will take place through selected retail channels. In addition, there is a technical assistance component of the project to deal with the phasing out of incandescent bulbs being supported by the Government's own resources. By demonstrating the willingness to use its own resources for both the CFL and appliance replacement, the Government of Mexico is demonstrating its strong commitment to reduce GHG emissions in the near future.

**Question 8 (continued):** The response does not provide an explanation for the significant increase in GEF funding to the TA component. Many of the TA activities appear justified and reasonable based upon the PAD. However: Regarding the inclusion of the US\$570k energy-efficient processes in industries, even if this activity was mentioned in the PIF, its links with the rest of the project are not evident. The industrial efficiency item should be removed or at least reduced with a strong description and justification of its relation with the project. The response on training of implementing agencies is problematic. US\$150k million [sic.] is requested from GEF to support training for activities in support of Component 1. The other co-financiers, especially the World Bank, should be providing co-financing if not full funding for this training. US\$500k is requested for awareness activities. The response indicates the awareness is for the implementing agencies but the PAD clearly shows this awareness activities is aimed at the Mexican population. There is no clear justification for the effectiveness of the proposed awareness campaign in the response or in the PAD. In fact, the PAD says in Paragraph 52 that Component 1 will increase awareness. With the strong role for private sector retail stores in the CFL distribution activities, it would be logical for the private sector implement awareness efforts in the baseline project. We are also surprised there is no other co-financing for this proposed awareness campaign. The awareness campaign should be removed or co-financed in proportion to the co-financing for Component 1 and 2.

**World Bank Response:** This project needs to be viewed as a national program built around the national energy efficiency law. The GEF's TA budget allocation increased since the PIF to simplify, streamline and make more efficient the implementation of an extremely complex \$700m program. . These budgetary allocations have been made in good faith between the project team and Bank staff in the same way that donors and funders frequently share out budgetary allocations for such a program of activities. While a few activities are cost-shared because each entity has its own requirements (ie., M&E), the goal has been to fund entirely each TA activity from either one funding source or the other. This will simplify procurement requirements and procedures, and make the project more readily implementable. This is a common practice between co-financiers with slightly different requirements. As the technical assistance program is viewed as being supportive of SENER's energy efficiency program and the energy efficiency law, we consider all of these activities to constitute bona fide barrier-removal activities. Overall, GoM resources are contributing \$3.2m to these activities to which the GEF is contributing \$2.12m, so the overall cost-sharing of the activity is 1 – 1.5.

We would prefer to view this TA component in that light, and in good faith, this is how the estimates have been made. To cost-share these individual activities would increase the transaction costs of splitting the procurement process by co-financiers and thus could hinder project implementation and achieving project objectives. As this is an extremely complex and important project, we would request that co-financing for the individual TA activities be viewed in its entirety. Clients like Mexico where all GEF projects are blended with IBRD and Government monies have always appreciated such budgetary flexibility from the GEF.

Apart from the matter of how these resources are allocated, there seem to be three substantive issues raised in this paragraph. The first is the allocation of \$570k to the activity to develop the certification of energy-efficient processes in industries. The GEFSEC seems to feel that this does not fit closely with the remainder of ELAP. From the Mexican Government's point of view, this is an integral part of implementing their Energy Efficiency Law, which is really their goal. The CFL's and Appliance programs are easy to visualize, design, and implement. Therefore, they attract the bulk of the funding for this project. But the program is built around the law, and there is a need for further analytical assistance to better define how to achieve the energy efficiency goals for industry and the country as a whole. The co-financing for this activity will be drawn from other sources, including those of the SENER's technical agency CONUEE, but as the project is already extremely complex, we chose not to list this as co-financing for the activity. For all of these reasons, we have not eliminated this activity but rather have strengthened the rationale for this activity in the CEO memo.

The second substantive issue has to do with GEF support to public awareness raising. This element of Component 3, financed by \$500k of GEF, will pay for both the design of public awareness ads and air time for information about the operation of the program in support of both the CFL and Appliance programs. It is largely project-focused, seeking to convey information about how the target group of low-income consumers can benefit from both the CFL and Appliance efficiency programs. As it will be implemented by SENER, not NAFIN, it falls logically into Component 3 of the project. In a market such as Mexico, this amount of funding can only be considered as a bare minimum to reach out to the public. But as the public awareness focuses on the program and not the products being promoted, it cannot be equated to nor substituted by individual company advertisement by private sector entities, as suggested by the reviews. Such advertisement will take place, but it is outside the control or needs of the project. On the question about whether Component 1 will raise awareness or not, we should be clear that it is the implementation of the project that will raise awareness nationwide; without resources to support the program, components 1 and 2 will not be successful in meeting their goals. The TA under Component 3 is designed to ensure that Components 1 and 2 get the attention and uptake that they deserve. Hence, the term "awareness raising" is used differently in these two contexts.

The third issue raised above has to do with the Training and Capacity building for participating agencies. As this is an essential part of the capacity building for FIDE, SENER and other agencies, we do not feel that it can be eliminated from the project. During the allocation of activities to donors, the task team along with Mexican colleagues felt that such capacity building was consistent with the GEF's mandate and its role as a funder in this project.

**Question 16:** The response does not answer the question and provides no additional justification for the management cost. Unless otherwise justified, the management costs ought to be allocated in proportion to the co-financing for the components. It's a fair assumption that Component 1 will have significant management costs—these costs should be provided by one or more of the co-financiers, especially the World Bank.

**Response from World Bank:** Thank you for clarifying the comment . Yes, you are correct, SENER and NAFIN are both allocating their own resources to manage the project beyond what is listed in the table.

Because the Bank's operations in Mexico follow the Paris accords in that national institutions manage projects, there are no PIU costs listed in the PAD or elsewhere. Our estimate is that on SENER's side, there will be almost 7 full-time staff devoted largely to the oversight of the energy efficiency program. We estimate these costs to be approximately US\$540k per year (for 4 years). Likewise, NAFIN is expected to support 3 staff virtually full-time to the projects for approximately \$350k per year (for 4 years). The total management costs for labor from these other sources will be approximately \$3.7m. As noted in Annex C, GEF funds are being used to pay for one incremental staff costs for the lifetime of the project, estimated at \$300,000. We have modified the memo to reflect this clarification.

**Question 21:** The Co-financing table in the Memo differs from Table 1 of the Project Description in the PAD. Please clarify and revise accordingly. Please provide the co-financing letters of the GoM and NAFIN. DER Sept 10, 2010: Comment Not Addressed.

**Response from World Bank:** Thank you for pointing out the inconsistencies in the tables; we have now made them harmonious by changing the Table B in the CEO memo to agree with those in the PAD. We offer our apologies for not doing so earlier. FYI, the co-financing will be confirmed by a copy of the minutes of negotiation, as is the usual procedure with Bank-GEF projects.

**Question 23:** As noted on August 15, the STAP comments are not well-addressed.

There was a common understanding between Germany and the WB on this issue when the project was approved by Council. Now that the project is submitted to CEO endorsement, please consult with Germany to see if they would agree with your current proposal, and provide evidence of this agreement.

**Response from World Bank:** On the STAP comments, we have responded to the issue raised by STAP—namely that the free-distribution of CFL's may not guarantee market development please see response to Question 8, . . . As part of the comprehensive barrier removal strategy, the cost was identified as a barrier to adoption of CFL's by low-income consumers. Continuing to charge the low-income consumers does not seem to be appropriate strategy, when i) GoM wants to see quick up-take of the technology to reduce GHG's and electrical load and ii) the avoided costs from not having to meet that load will help meet the costs of the subsidy, providing that the GoM intervenes to deal with the expropriation bias (beneficiaries are not the investors). Second, the CFL's themselves will be distributed through approved retail outlets, not post-offices nor the electric utility branches. These were considered to be less sustainable and less efficient. On balance, the GoM considered that the benefits from the quick, subsidized program that makes use of private retail outlets exceeded the benefits of the alternative design reliant wholly on private market activities. In addition, it was considered to be more readily implementable in Mexico.

With respect to the understanding between Germany and the WB on the issue of hydro-carbons and natural refrigerants that the Council member from Germany raised for two of the Bank's projects, we have dealt with the issue separately. Both the CEO memo and the PAD reflect the fact that all refrigerators to be eligible for the phase-out program will be compliant with MP requirements (no CFCs) and will utilize the refrigeration technology that is available in the Mexican market as we explained in our response to the Council member at Work Program entry. It will be technology neutral in that regard. This understanding has not changed and we will forward separately more recent communications.

#### **COMMENTS FROM THE GEF SECRETARIAT AT CEO ENDORSEMENT STAGE (1 OCTOBER 2010)**

**New Review Sheet: Q.9** The response on industrial energy efficiency analysis is not helpful. This element is clearly unrelated to the project and should be dropped. We welcome the Government of Mexico's interest in

industrial energy efficiency and suggest that with this strong interest, a separate proposal for an industrial efficiency project that is linked with tangible investments, deliverables and outcomes would be a wise approach. There are many other elements of technical assistance related to the project that could potentially benefit from the additional resources that would have been dedicated to this industrial analysis. Please drop the industrial efficiency segment and propose a re-allocation to other technical assistance linked with this project.

The awareness campaign raises numerous concerns - either it is not needed and therefore too large; or it is needed, and thus the lack of co-financing makes the solitary GEF contribution seem inadequate. Perhaps this awareness campaign could benefit from the resources that will not be used for industrial analysis. Furthermore, the project document and CEO endorsement request need to be revised to reflect that any advertisements and air-time will acknowledge GEF support in a prominent manner. Please re-submit the project document with an adjusted description of the awareness campaign indicating that GEF support will be clearly acknowledged.

**Response from World Bank:** Regarding industrial energy efficiency, the GoM has decided to remove the activity from this project and re-allocate the resources to other activities as suggested by the GEFSEC.

Regarding awareness campaign, as suggested by the GEFSEC, the government is contributing US\$1 million in the development and implementation of their communication strategy which is vital for the success of the project. Information barriers constitute big hurdles to the implementation of energy efficiency activities. As part of the government's communications strategy, SENER will undertake an awareness raising campaign that includes the use of public radio and other government media. As it is done in other GEF financed activities in numerous other projects, advertisements and air-time that will be co-financed by the GEF resources will acknowledge the support by the GEF.

**Question 19:** The extra detail provided for co-financing is helpful in explaining the strong investments from SENER and NAFIN. It would be helpful to have an estimate of PIU costs. Please include an estimate or exemplary benchmark in the next submission.

**Response from World Bank:** The project management is mainstreamed and as such there is no separate PIU for the execution of the project. The GoM's core staff involved in this project includes:

- **SENER**: 3 Director Generals (average annual salary each USD90,000) +4 professional staff (average annual salary each USD35,000). Total for SENER is USD410,000 per year. Assuming 50% of their time is allocated to this project, the annual total contribution of SENER in staff is USD205,000 per year.
- **NAFIN**: 1 DG (average annual salary USD95,000) + 1 professional staff (USD55,000 per year)+ 1 project coordinator (average annual salary USD50,000). Total for NAFIN is USD200,000 per year. Assuming 50% of their time is allocated to this project, the annual total contribution of NAFIN in staff is USD100,000 per year
- **CFE + FIDE + Hacienda**: These institutions also provide support which is not being included in the costs calculation.

Therefore, the average GoM funding allocated to staff under the project is at least USD305,000 per year which is about USD1,220,000 during the life of the project. The GEF contribution for staffing (for a total USD300,000) is relatively small and it will finance additional costs for reporting project implementation according to the fiduciary requirements of all World Bank/GEF financed projects.

**Question 24:** The response submitted on Sep. 22, 2010 does not provide evidence of any consultation or agreement subsequent to the March emails which confirm that additional analysis of hydrocarbon based

refrigerants would be conducted during project preparation. The World Bank email to Germany on March 18, 2010, says "As a rule, the choice of technology is determined during project formulation based on cost-benefit assessments, sector analysis, technical analysis and in agreement with client countries, in view of the country context." Perhaps the reviewer is not looking in the correct place in the project document, but no such sector or technical analysis that "fully explores the use of natural refrigerant" could be found. The CEO endorsement request implies that a technology neutral approach is being adopted, but there is no supporting analysis. One would expect such analysis would compare a neutral approach to one in which incentives were provided for appliances that use refrigerants with very low GWP. Prior to endorsement, an adequate analysis that satisfies the common understanding must be included.

**Response from World Bank:** In response to the comments from the German Council member, the Bank staff incorporated into their dialogue with the Mexican proponents a fuller exploration of the use of natural refrigerants under this project. As currently designed, the project is entirely consistent with Mexico's commitments under the Montreal Protocol. It will encourage the substitution of new, more efficient, MP-compliant refrigerators for older, relatively inefficient mostly CFC-based refrigerators. The existing refrigerant-technology mix that dominates the Mexican market is a function of the response by the private sector to prevailing market forces. Neither the World Bank nor the GoM exercise direct control over technology choice in this market. Therefore, the Bank and the GoM are not "choosing a technology" for this project. Rather, they are providing incentives to accelerate the uptake of more efficient appliances, provided that they meet energy efficiency standards and comply with the MP commitments of the GoM. As the outcome to this discussion, the Government of Mexico and the World Bank have agreed that support to efficient refrigerators under this project will be technology-neutral. That is to say, the value of vouchers and subsidies provided will be equivalent in value for all refrigerators of a given size category that meet the efficiency standard, regardless of the refrigerant used.

The Government of Mexico has neither the interest nor ability to change this market-based technology choice over the immediate term. However, in the discussion of the natural refrigerant options, the following points—which are consistent with the GoM's HCFC Phase Out Management Plan (HPMP) which is under preparation—were raised.

An assessment of the current market for refrigerators being undertaken by the GoM's National Ozone Unit (NOU) within the Ministry of Environment (SEMARNAT) as part of the GoM's HPMP shows that approximately 3.9 million new refrigerators were produced in Mexico in 2009.<sup>3</sup> In addition, approximately 50,000 units were imported (mostly from the US but also some from China, Korea, and others) and nearly 1 million units were exported. Hence, the domestic market in Mexico accounted for sales of approximately 2.9 million units in 2009. The assessment estimates that 98% of the refrigerators produced and sold make use of HFC-134a as a refrigerant and the remaining 2% make use of hydrocarbons (such as R600a). Hydrocarbon-based refrigerators are produced and sold by two companies operating in Mexico.

The dominance of HFCs in the Mexican refrigerator market can be linked to the industry's close relationship to the North American industry: commercial relationships to hydrocarbon suppliers are nowhere near as well-developed as those to HFC industries. At the time that Mexican industry was moving away from the use of CFC's to comply with the MP (in the 1990's) many Mexican firms felt that the conversion from CFC technology directly to hydrocarbon technology would be more expensive, and retrofitting manufacturing facilities would be more difficult. In many instances, land or space considerations played a role in these cost calculations. In summary, cost considerations combined with commercial considerations to make HFCs the predominant refrigerant in the Mexican market.

---

<sup>3</sup> Government of Mexico, National Ozone Unit. HCFC Phase-Out Management Plan (HPMP). Forthcoming, December 2010.

Despite the current dominance of the Mexican market by HFCs, the GoM and the World Bank acknowledge that when assessed in isolation from other factors, hydrocarbons are environmentally superior to HFCs. The GWP of hydrocarbons is equivalent to that assumed for CO<sub>2</sub> with a GWP of one (1) while the GWP of HFC-134a equals 1300. But market forces would dictate that an instantaneous switch to hydrocarbons is not practically possible and efforts to provide selective subsidy support only to hydrocarbon refrigerators will lead to enormous implementation delays and additional administrative complexities. Such delays will result in an exacerbation of the global environmental problems caused by the release of CFCs from an aged refrigerator fleet and the emissions associated from the continued use of these inefficient, older appliances. Hence, a heavy-handed approach to supporting hydrocarbons in this case will result in a worsening of global environmental conditions: the best becomes the enemy of the good.

To illustrate the issue of timeliness and urgency in responding to these global environmental challenges, the Bank undertook some scenario analyses in consultation with SEMARNAT to estimate the climate benefits of replacing appliances with the different alternative refrigerant technologies, taking into account their availability on the Mexican market over time. Since the project involves replacement of domestic refrigerators and air-conditioning units, the analysis compares benefits of converting from CFC-12 to HFC-134a and hydrocarbons in case of domestic refrigerators, and from HCFC-22 to R-410A and hydrocarbons in case of air-conditioning equipment (See Table X below).

Based on the current design of the project, we expect that the current market share of 2% of hydrocarbon units and 98% of HFC units would remain unchanged. The replacement schedule of about 420,000 units per year could be easily supported by the current availability of HFC units in the Mexican market. Under the project scenario, using the assumption that energy efficiency of both hydrocarbon and HFC units are comparable, the expected climate benefits during the project implementation period of 4 years represent about 4 million tonnes CO<sub>2</sub>e cumulative savings.

In contrast, under a scenario where vouchers are given only to hydrocarbon-based appliances, the number of units to be replaced would be significantly constrained due to the limited supply of the products in the market. Because the current market share of hydrocarbons is 2%, any increases in market share would have to come from imports until the industry could be re-aligned to produce hydrocarbon-based appliances. Moreover, the successful deployment of this technology would also be constrained by the capacity of the service network to maintain the hydrocarbon-based equipment. Taking the above in the account, this scenario assumes that the most optimistic increase in market availability for hydrocarbons would be at most 5% a year. Thus, assuming an initial starting market share of 5% in year 1 (vs. the actual market share of 2%), the scenario assumes that the hydrocarbon share might rise to 25% market share in year 5. Under these assumptions, a total of nearly 1 million tonnes CO<sub>2</sub>e cumulative savings would be demonstrated by the fifth year of the project. Thus, the first scenario representing the project case would result in a net global environmental benefit of about 3 million tons of CO<sub>2</sub>e when compared to this scenario accelerating the uptake of hydrocarbon units.

**Table X: Global Environment Benefits Under Different Scenarios**

Scenario 1					Project Impact
Number of Appliances Replaced	450,000	450,000	400,000	400,000	1,700,000
GWh saved	200	600	900	1,200	2,900
CO2 emission reduction (tCO2)	103,000	308,000	463,000	617,000	1,491,000
Refrigerator Climate benefits (CFC-12 vs HFC-134a)	114,453	228,906	330,642	432,378	1,106,379
A/C Climate benefits (HCFC-22 vs R410A)	148,500	297,000	429,000	561,000	1,435,500
				<b>Total</b>	<b>4,032,879</b>
Scenario 2					Project Impact
Number of Appliances Replaced	22,500	45,000	60,000	80,000	207,500
GWh saved	10	60	135	240	445
CO2 emission reduction (tCO2)	19,400	116,400	261,900	465,600	863,300
Refrigerator Climate benefits (CFC-12 vs HC)	5,957	17,871	33,755	54,935	112,518
A/C Climate benefits (HCFC-22 vs HC)	1,212	3,635	6,866	11,174	22,886
				<b>Total</b>	<b>998,704</b>

From this analyses, it is clear that the approach proposed in this document—to provide technology-neutral support to energy efficient refrigerators regardless of refrigerant category—is consistent with the GoM’s goals of making immediate gains in energy efficiency and in reducing its overall GHG emissions rapidly.

Finally, the view of Mexico’s industrial stakeholders was sought with respect to the idea of providing a more generous subsidy to hydrocarbon refrigerators than to HFC-based refrigerators to compensate for the extra global environmental benefits associated with the natural refrigerant. Not surprisingly, this suggestion was strongly opposed by the bulk of industry. They find the suggestion that an additional subsidy be provided to the refrigerators making use of hydrocarbons to be unacceptable. However, industrial stakeholders endorsed the technology neutral option in which all refrigerators meeting the energy efficiency requirement should be eligible for the voucher and subsidy. Their view is that they have taken their decisions on what technology to adopt in phasing out HFCs and that any such incentive favoring the hydrocarbon manufacturers alone is tantamount to changing the rules of the game. While this attitude may change in future if the market share of hydrocarbons increases and the costs of its adoption falls, at present the implementation of such a suggestion is simply unacceptable to the vast majority of industrial stakeholders.

In assessing the above issues, the Government of Mexico has decided that being technology-neutral by providing the voucher subsidy to all refrigerators meeting the energy efficiency requirements of the program is the best way to achieve rapid results in this initiative. Following the discussions that have taken place to explore these options, the World Bank supports the GoM in its position.

**ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF RESOURCES**

<i>Position Titles</i>	<i>\$/ person week*</i>	<i>Estimated person weeks**</i>	<i>Tasks to be performed</i>
<b>For Project Management</b>			
Local			
Technical Coordinator	1,150	130	Provide technical support for the coordination of project implementation
Sr. Energy Specialist	950	90	Provide technical support for the implementation of component 1 and 2
Procurement Specialist	780	12.5	Provide procurement support
Financial Management Specialist	780	12.5	Provide financial management support
Executive Assistant	350	130	Overall project management assistance
Justification for Travel, if any:			
<b>For Technical Assistance</b>			
Local			
Technical Specialist – Recycling	530	188.7	Provide technical support and carry out studies in developing CFL recycling centers and disposal schemes
Technical Specialist – Appliances	625	80	To carry out study to evaluate the size and impact of imports of inefficient appliances and to assess the need to ban the imports of inefficient appliances
Demand Side Management Specialist	625	160	To carry out study to assess the benefits for Mexico and modalities of demand-targeted interventions among electricity consumers and power suppliers.
Technical Specialist - Transmission and Distribution	625	160	To carry out study to evaluate the need to reinforce the transmission and distribution subsectors to complement the investments in energy efficiency in the residential sector
Technical Specialist - Loss Reduction	830	121	To carry out study to evaluate options on how to reduce system losses in the generation, transmission and distribution sub-sectors
Monitoring and Evaluation Specialist	530	283	Provide technical support and carry out M&E activities to assess project impacts
Communication Specialist	625	800	To carry out information and awareness campaign to promote awareness among the Mexican population regarding the benefits of energy efficiency measures and disseminate project outcomes and results
Technical Specialist – Capacity Building	530	283	To provide technical support/training to FIDE and SENER and potentially to other agencies in order to effective implementation of project activities
International			
Energy Efficiency Specialist	950	600	Provide technical support and carry out study for the development t of the certification of energy-efficient processes in industries.
Justification for Travel, if any:			

\* Provide dollar rate per person week. \*\* Total person weeks needed to carry out the tasks.

**ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS**

N/A

- A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES UNDERTAKEN.**  
NA
- B. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:** NA
- C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:** NA

**ANNEX E: CALENDAR OF EXPECTED REFLAWS**

Provide a calendar of expected reflows to the GEF Trust Fund or to your Agency (and/or revolving fund that will be set up)

As part of the project design, a Guarantee Facility will be established to protect NAFIN against repayment default risk by consumers through a debt service repayment arrangement in which repayments are integrated into the usual CFE electricity bill (see Project Document in Annex 6). The Facility is designed to provide financial comfort to NAFIN in providing credit lines to consumers by protecting it against default risks (further implementation modalities are set out in Project Document in Annex 6).

As described below in Annex 6 of the Project Document, the Facility will be funded on an as-needed basis, based on actual credit defaults. Accordingly, a portion of the GEF grant allocated to the Facility may remain undisbursed or could remain unused by NAFIN. In the third year of Project implementation, an evaluation will be carried out to assess the prospects to reallocate those GEF resources used to fund the Guarantee Facility that have not been used or are not expected to be used to other activities to further complement the Project's overall objectives. At the end of the Project, any remaining unused GEF resources from the Guarantee Facility would be reallocated to other energy efficiency activities, as agreed by SENER and the World Bank.