# GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

**PROJECT TYPE:** MEDIUM-SIZED PROJECT
**TYPE OF TRUST FUND:** GEF TRUST FUND

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## PART I: PROJECT INFORMATION

| Project Title: Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica | | | |
|---|---|---|---|
| Country(ies): | Costa Rica | GEF Project ID:[1] | 9283 |
| GEF Agency(ies): | UNEP | GEF Agency Project ID: | 01357 |
| Other Executing Partner(s): | Central American Bank of Economic Integration (CABEI) | Resubmission Date: | September 19, 2017 |
| GEF Focal Area (s): | Climate Change | Project Duration (Months) | 36 months |
| Integrated Approach Pilot | IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐ | Corporate Program: SGP ☐ | |
| Name of Parent Program | Leapfrogging markets to high efficiency products (appliances, including lighting and electrical equipment) | Agency Fee ($) | 180,000 |

### A. Focal Area Strategy Framework and Other Program Strategies[2]

| Focal Area Objectives/Programs | Focal Area Outcomes | Trust Fund | (in $) | |
|---|---|---|---|---|
| | | | GEF Project Financing | Co-financing |
| CCM-1 - Program 1 | Policy, planning and regulatory frameworks foster accelerated low GHG development and emissions mitigation | GEFTF | 2,000,000 | 4,972,452 |
| | **Total project costs** | | 2,000,000 | 4,972,452 |

### B. PROJECT DESCRIPTION SUMMARY

**Project Objective:** Accelerating improvements in energy efficiency under Costa Rica's public procurement programs and reducing Costa Rica's energy consumption and carbon dioxide emissions.

| Project Components/ Programs | Financing Type[3] | Project Outcomes | Project Outputs | Trust Fund | (in $) | |
|---|---|---|---|---|---|---|
| | | | | | GEF Project Financing | Confirmed Co-financing |
| 1. Energy diagnosis to identify and prioritize opportunities to replace conventional appliances with energy efficient appliances in highest energy consuming public institutions | TA | 1. Strategic sites from public institutions with the highest energy consumption showcase opportunities to replace of conventional appliances with energy efficient appliances | 1.1 Energy diagnosis implemented in strategic sites from highest energy consuming public institutions<br><br>1.2 Tracking instruments developed for efficient appliance procurement by public institutions | GEFTF | 193,700 | 376,800 |
| 2. Training and information program for market actors on the country's obligations to only procure energy efficient lighting and appliances and on | TA | 2. Suppliers provide the public sector with electric appliances that comply with required energy efficiency specifications (lighting, air conditioners and refrigerators) and | 2.1 Database of companies that can provide energy efficiency services to the public sector<br><br>2.2 Enabling framework provided to update current | GEFTF | 161,350 | 910,652 |

[1] Project ID number remains the same as the assigned PIF number.
[2] When completing Table A, refer to the excerpts on *GEF 6 Results Frameworks for GETF, LDCF and SCCF*.
[3] Financing type can be either investment or technical assistance.

| | | | | | | |
|---|---|---|---|---|---|---|
| mechanisms for product compliance. | | energy efficiency services. | catalog of energy efficient appliances available to the public sector through their purchase platforms<br><br>2.3 Training delivered to (A) procurement and environmental management officials from highest energy consuming public institutions; (B) efficient appliances and energy efficiency service providers; and (C) technical public officials<br><br>2.4 Online platform launched to centralize information resources relevant for procurement of efficient appliances and energy efficiency services | | | |
| 3. Establishment of a revolving fund (RLF) for the financing of large-scale replacement programs in the public sector. | TA | 3. A revolving fund is in place for the financing of procurement of efficient appliances, that ensures sustainability of large-scale replacement programs. | 3.1 RLF Steering Committee created<br><br>3.2 Legal, financial and operational aspects of the RLF assessed to ensure sustainability of large-scale replacement programs in the public sector<br><br>3.3 Accounting, auditing and control system deployed to ensure transparency from the RLF<br><br>3.4 Seed capital allocated to operationalize the RLF<br><br>3.5 Demonstration projects implemented to showcase energy efficiency in the public sector | GEFTF | 1,229,750 | 1,964,500 |
| 4. Development of capacities for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances. | TA | 4. Authorized waste handlers offer their services for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances. | 4.1 Diagnosis about current processing capacity to provide environmentally-sound end-of-life integrated management of disposed appliances<br><br>4.2 New equipment operating to recover disposed refrigerant gas and mercury (contained in disposed conventional appliances) to be later destroyed<br><br>4.3 Methodology developed to establish recovery targets for replaced conventional lighting, air conditioning and refrigeration appliances in accordance to Executive | GEFTF | 233,400 | 1,325,500 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Mandate 38272-S Articles 9 and 10<br><br>4.4 Enabling framework provided for environmentally sound end-of-life integrated management services (i.e. from lighting, air conditioning and refrigeration) available in purchase platforms used by the public sector<br><br>4.5 Training delivered to (D) waste compliance units, authorized waste handlers and suppliers; (E) procurement and environmental management officials from highest energy consuming public institutions; and (F) technical public officials<br><br>4.6 Information and dissemination actions carried out to promote environmentally sound end-of-life integrated management of special waste (from lighting, air conditioning and refrigeration appliances) | | | |
| Subtotal | | | | | 1,818,200 | 4,577,452 |
| Project Management Cost (PMC)[4] | | | | | 181,800 | 395,000 |
| **Total project costs** | | | | | 2,000,000 | 4,972,452 |

## C. CONFIRMED SOURCES OF Co-financing FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Amount ($) |
|---|---|---|---|
| Recipient government | Ministry of Energy and Environment (MINAE) | In-kind | 2,000,000 |
| Others | Central American Bank of Economic Integration (CABEI) | In-kind | 500,000 |
| International Agency | UN Environment (UNEP) | In-kind | 25,000 |
| Others | Costa Rican Institute of Electricity (ICE) | In-kind | 75,000 |
| Others | Rural Electricification Cooperative of San Carlos (COOPELESCA) | In-kind | 253,505 |
| Other | Rural Electricification Cooperative of Guanacaste (COOPEGUANACASTE RL) | In-kind | 63,795 |
| Others | Public Service Company of Heredia (ESPH) | In-kind | 1,452,300 |
| Others | National Company of Force and Light (CNFL) | In/kind | 2,852[5] |
| Others | National Lighting Test Center (NLTC) | In/kind | 200,000 |
| Private sector | Whirlpool | In/kind | 100,000 |

[4] For GEF Project Financing up to $2 million, PMC could be up to10% of the Subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

[5] Co-finance from CNFL is given in Costa Rican colones. Therefore, a currency exchange rate of 561.01 colones per US dollar was applied.

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Amount ($) |
|---|---|---|---|
| Private sector | Mabe | In/kind | 300,000 |
| **Total Co-financing** | | | **4,972,452** |

## D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

| GEF Agency | Trust Fund | Country Name/Global | Focal Area | Programming of Funds | (in $) | | |
|---|---|---|---|---|---|---|---|
| | | | | | GEF Project Financing (a) | Agency Fee[a)] (b)[2] | Total (c)=a+b |
| UNEP | GEFTF | Costa Rica | Climate Change | N/A | 2,000,000 | 180,000 | 2,180,000 |
| **Total Grant Resources** | | | | | **2,000,000** | **180,000** | **2,180,000** |

a) Refer to the Fee Policy for GEF Partner Agencies

## E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[6]

Provide the expected project targets as appropriate.

| Corporate Results | Replenishment Targets | Project Targets |
|---|---|---|
| 1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society | Improved management of landscapes and seascapes covering 300 million hectares | *hectares* |
| 2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes) | 120 million hectares under sustainable land management | *hectares* |
| 3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services | Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins; | *Number of freshwater basins* |
| | 20% of globally over-exploited fisheries (by volume) moved to more sustainable levels | *Percent of fisheries, by volume* |
| 4. Support to transformational shifts towards a low-emission and resilient development path | 750 million tons of $CO_{2e}$ mitigated (include both direct and indirect) | Direct: 330,328 tCO2eq[7] (by 2035)<br>Indirect: 98,537 tCO2eq (by 2035) |
| 5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern | Disposal of 80,000 tons of POPs (PCB, obsolete pesticides) | *metric tons* |
| | Reduction of 1000 tons of Mercury | *metric tons* |
| | Phase-out of 303.44 tons of ODP (HCFC) | *ODP tons* |
| 6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks | Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries | *Number of Countries:* |
| | Functional environmental information systems are established to support decision-making in at least 10 countries | *Number of Countries:* |

## F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund) in Annex D.

[6] Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

[7] This figure represents 50% of the Direct GHG emission reductions calculated for this project (refer to section A.1.5 and Annex J-2 of the CEO Endorsement Document). Indeed, as agreed with the GEF Secretariat, the Direct Project Target for each of the child projects under the "*Leapfrogging markets to high efficiency products (appliances, including lighting and electrical equipment)*" Programme shall represent 50% of the projects' estimated Direct GHG emission reductions..

## PART II: PROJECT JUSTIFICATION

*A.0. describe any changes in alignment with the project design with the original PIF*

The project design is in line with the original PIF. The main modification consists in the choice of the Executing Agency, which will be the Central American Bank (CABEI) instead of the Costa Rican Ministry of Energy and Environment (MINAE) as indicated in the PIF. MINAE nominated CABEI as the Executing Agency given its outstanding track record executing energy related projects in the Central American (see section A.3 and the Capacity Assessment Appendix for more details).

Additional changes have been introduced in terms of wording of project components and outcomes as shown and explained in Table 1 below. This was decided guided by new data and information collected during the project design (PPG) phase with inputs and suggestions provided by public authorities and stakeholders.

Table 1. Summary of changes to main project components and their respective outcomes

| | **Approved PIF framework** | **Project framework** | ***Explanation of changes*** |
|---|---|---|---|
| Component 1 | Demonstration projects to replace conventional appliances with energy efficient appliances in highest energy consuming public institutions | Energy diagnosis to identify and prioritize opportunities to replace conventional appliances with energy efficient appliances in highest energy consuming public institutions | Demonstration projects from Project component 1 are moved to Project Component 3 and will be the first projects to be financed by the revolving fund |
| Outcome 1 | The public institutions with the highest energy consumption have permanent programs for procurement of energy efficient appliances including energy efficiency specifications for lighting, air conditioners and refrigerators. | Strategic sites from the highest energy consuming public institutions showcase opportunities to replace conventional appliances with energy efficient appliances | Outcome 1 was rephrased to be in accordance with change applied to Project Component 1 |
| Outcome 2 | Suppliers provide the public sector with electric appliances that comply with required energy efficiency specifications (lighting, air conditioners and refrigerators). | Suppliers provide the public sector with electric appliances that comply with required energy efficiency specifications (lighting, air conditioners and refrigerators) and energy efficiency services | Outcome 2 was updated given complementarity between efficient appliance procurement and energy efficiency services was identified |
| Component 4 | Development of capacities for environmentally sound disposal of appliances | Development of capacities for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances | Project component 4 was rephrased to be in accordance to Costa Rican legislation terminology in terms of waste handling (Act 8839 Article 4, 2010) |
| Outcome 4 | Specialized firms offer their services for the treatement of electronic waste and hazardous components of lighting, air conditioning and refrigerating appliances | Authorized waste handlers offer their services for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances | *"Specialized (waste) firms" was replaced by the locally-designated actors in accordance to Executive Mandate No 37567-S-MINAET-H*<br>*Outcome 4 was rephrased to be in accordance with change applied to Project Component 4* |

The co-financing to the project amounts to US$ 4,972,452. National co-finance increased from US$ 2,000,000 to US$ 3,847,452 showing the strong commitment from the country to this project.

Between the time the project concept was developed and the formulation of the CEO endorsement document, some important changes have happened.

- The Central American Bank of Economic Integration (CABEI) was nominated by the Government of Costa Rica to act as the Project Executing Agency, and CABEI has committed to US$ 500,000 in-kind co-finance. CABEI has also indicated that they would be providing further contributions in the form of loans for the Project Revolving Loan Fund (refer to letter of intent attached in Annex L). It is also noteworthy to mention CABEI has significant experience leveraging funding for and similar scale projects.

- United for Efficiency (U4E)[8] partners reviewed their co-financing contributions in light of their own market developments over the past 18 months (esp. manufacturing partners) as well as the co-financing amount contributions made to the Global United for Efficiency Technology Leapfrogging Project which in most cases has been very significant. Market developments include expansion and reorganization by some manufacturers which impedes their ability to co-finance during these regional and local market restructuring periods, particularly at the country level. Notably in the lighting market, major players and United for Efficiency manufacturing partners, Philips Lighting and OSRAM initiated steps to sell their respective lighting businesses with OSRAM's lighting manufacturing division recently (March 2017) purchased by LEDVANCE from China.

Table 2 below shows the differences from the indicative co-finance at PIF stage.

Table 2. Summary of changes to co-finance from PIF stage

| **Co-finance partner** | **Indicative co-finance at PIF stage (US$)** | **Secured co-finance at CEO endorsement (US$)** | ***Explanation of changes*** |
|---|---|---|---|
| Ministry of Energy and Environment (MINAE) | 2,000,000 | 2,000,000 | |
| Costa Rican Institute of Electricity (ICE) | 0 | 75,000 | *ICE confirmed support to the project through in-kind co-finance during preparation phase* |
| Rural Electrification Cooperative of San Carlos (COOPELESCA) | 0 | 253,505 | *COOPELESCA confirmed support to the project through in-kind co-finance during preparation phase* |
| Rural Electrification Cooperative of Guanacaste (COOPEGUANACASTE RL) | 0 | 63,795 | COOPEGUANACASTE RL *confirmed support to the project through in-kind co-finance during preparation phase* |
| Public Service Company of Heredia (ESPH) | 0 | 1,452,300 | *ESPH confirmed support to the project through in-kind co-finance during preparation phase* |
| National Company of Force and Light (CNFL) | 0 | 2,852 | *CNFL confirmed support to the project through in-kind co-finance during preparation phase* |
| National Lighting Test Centre (NLTC) | 500,000 | 200,000 | *As a U4E manufacturing partner, NLTC already contributes expertise (e.g. to provide expert reviews on project outputs) through the U4E Centre of Excellence. In this context, NLTC reviewed its in-kind co-finance amount for the project during project preparation* |
| Central American Bank of Economic Integration (CABEI) | 0 | 500,000 | *CABEI was nominated by the Government of Costa Rica to act as the Executing Agency for the project. In this context, CABEI confirmed US$500,000 in-kind co-finance support to the project.*<br>*In addition, CABEI has stated (refer to letter of intent in Annex L), that they "intend to continue making available intermediated credit for energy efficiency appliances (...) and energy efficiency financing, over the three year project notably through the revolving loan fund". A letter specifying the intended amount of "loan" of approximately USD 3,0 million of co-financing for the revolving loan fund is under preparation and needs to be approved during CABEI's next board meeting. The letter could therefore not be included in CEO endorsement package.* |

[8] U4E (http://united4efficiency.org/) is a global effort supporting developing countries and emerging economies to move their markets to energy-efficient appliances and equipment. Under the leadership of the United Nations Environment Programme (UN Environment) and in support to the UN's Sustainable Energy for All initiative, U4E brings together all key stakeholders active in the area of product efficiency. The initiative (i) informs policy makers of the potential environmental, financial and economic savings of a transition to high-efficiency products; (ii) identifies and promotes global best practices in transforming markets; and (iii) offers tailored assistance to governments to develop and implement national and regional strategies and projects to achieve a fast and sustainable market transformation. U4E builds on the success of the en.lighten initiative, which accelerates the transition to efficient lighting worldwide. It broadens the scope to other high-efficiency product categories, such as commercial, industrial and outdoor lighting, residential refrigerators, room air conditioners, electric motors and distribution transformers.

| Co-finance partner | Indicative co-finance at PIF stage (US$) | Secured co-finance at CEO endorsement (US$) | *Explanation of changes* |
|---|---|---|---|
| UNEP | 25,000 | 25,000 | |
| Whirlpool | 0 | 100,000 | *Whirlpool confirmed support to the project through in-kind co-finance during preparation phase* |
| MABE | 800,000 | 300,000 | *As a U4E manufacturing partner, MABE already contributes expertise (e.g. to provide expert reviews on project outputs) through the U4E Centre of Excellence. In this context, MABE reviewed its in-kind co-finance amount for the project during project preparation* |
| BSH | 800,000 | 0 | *With a review of this particular region in progress BSH are currently unable to make direct country co-financing commitment. In the interim, as a U4E manufacturing partner, BSH will contribute expertise through the U4E Centre of Excellence.* |
| Electrolux | 800,000 | 0 | *Following takeover of three local manufacturing plants and subsequent reorganization in the region Electrolux is currently unable to make direct country co-financing commitment. In the interim, as a U4E manufacturing partner, Electrolux will contribute expertise through the U4E Centre of Excellence* |
| Philips Lighting BV | 800,000 | 0 | *Reorganization of its Lighting Division as a separate entity is underway. As a U4E manufacturing partner, Philips Lighting will contribute expertise through the U4ECentre of Excellence* |
| OSRAM Licht AG | 800,000 | 0 | *In March 2017, OSRAM sold its lighting business (now LEDVANCE) to a Chinese Consortium. However as U4E manufacturing partners, both OSRAM and LEDVANCE will contribute expertise through the U4E Centre of Excellence* |
| International Copper Association (ICA) | 800,000 | 0 | *ICA is a U4E and contributes at the global level to the regional activities for the harmonization of standards in Central America.* |
| International Partnership for Energy Efficiency Cooperation (IPEEC) | 50,000 | 0 | *IPEEC is a U4E partner and contributes at the global and regional level. IPEECs focus is G20 countries and it is now constrained to provide support only at Global or Regional levels while awaiting G20 budget replenishment* |
| CLASP | 100,000 | 0 | *CLASP is a U4E partner and contributes at the global level to the regional activities for the harmonization of standards in Central America.* |
| bigEE (Wuppertal Institute, Germany) | 100,000 | 0 | *The Wuppertal Institute's bigEE programme ended in 2016 and they are awaiting replenishment support from the German Federal Ministry for the Environment. In this context, big EE could not confirm its co-financing to the project at this time* |
| Topten | 100,000 | 0 | *Topten is a U4E partner and will contribute expertise through the U4E Centre of Excellence.* |
| Copenhagen Centre on Energy Efficiency (C2E2) | 200,000 | 0 | *C2E2 is a U4E partner and contributes at the global level to the regional activities for the harmonization of standards in Central America* |
| Inter-American Development Bank (IADB) | 500,000 | 0 | *CABEI is the financial partner in-lieu of IADB* |
| **Total** | **8,375,000** | **4,972,452** | |

Furthermore, the allocation of GEF project financing for each component has been redistributed as shown in Table 3 below:

Table 3. Summary of changes to distribution of GEF project financing per component

| **Project component** | **GEF project financing at PIF stage (in $)** | **GEF project financing during preparation phase (in $)** | ***Explanation of changes*** |
|---|---|---|---|
| Component 1 | 500,000 | 193,700 | *Component 1 during PIF stage considered the deployment of demonstration projects. During project formulation stage, it was decided by relevant parties to focus Component 1 on conduction of energy diagnosis to identify and prioritize energy efficiency opportunities in strategic sites from the highest energy consuming public institutions. These opportunities would be among the first projects to be financed by the revolving fund from Component 3 once it becomes operational.* |
| Component 2 | 50,000 | 161,350 | *Component 2 during PIF stage only considered training. During project formulation stage, based on the outcome that was proposed during PIF stage, it was decided by relevant parties to strengthen Component 2 with additional activities to address current implementation gaps in public procurement.* |
| Component 3 | 1,200,00 | 1,229,750 | *Component 3 during PIF stage considered the establishment of the revolving fund. During project formulation stage, it was decided by relevant parties, in addition to the establishment, to showcase operation of the revolving fund through financing of the first demonstration projects, which incurred in a small increase of the budget for Component 3* |
| Component 4 | 100,000 | 233,400 | *Component 4 during PIF stage only considered training. During project formulation stage, based on the outcome that was proposed during PIF stage, it was decided by relevant parties to strengthen Component 4 with additional activities to address current implementation gaps and contribute to existing local initiatives related to integrated waste management of replaced appliances.* |
| Project Management (PMC) | 150,000 | 181,800 | *PMC were increased to cover for the costs of the Project Management Unit over the three years of implementation of the project and are below 10% of GEF project subtotal* |
| **TOTAL** | **2,000,000** | **2,000,000** | |

## *A.1. Project Description*

### 1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed

Costa Rica excels for its outstanding electricity access rate (>99%) as well as its high share of renewable energy sources for electricity production (ICE, 2014; 2015). The country has set ambitious targets in terms of climate change mitigation to decarbonize the energy sector and reduce its dependence from imported fossil fuels (MINAE, 2015).

Central America emits less than 0.5% of the global greenhouse gas emissions (GHG), but it is considered as one of the most vulnerable areas to the effects of climate change (IPCC, 2014). On one hand, Costa Rica has a strong dependence on its natural resources for electricity production – especially from hydropower. On the other hand, albeit providing clean electricity to its citizens, the country relies on imported fossil fuels to supply almost three quarters of its energy needs – mostly for transport (DSE-MINAE, 2016). Variations in the availability of natural resources for electricity production as well as the occurrence of natural disasters (because of climate change) are just examples of the challenges the energy sector in Costa Rica is facing. In the last years, the country has reaffirmed the importance of fostering energy efficiency across its value chain – both from supply and demand-side of energy (MINAE, 2015). Actions related to energy efficiency have the potential not only to reduce GHG emissions but also to improve the resiliency of the energy sector.

Despite the importance of energy efficiency, certain barriers and gaps hinder its deployment in Costa Rica. The current energy efficiency policy framework dates from more than 20 years ago (i.e. Legislative Act 7447, 1994). The Seventh National Energy Plan of Costa Rica 2015-2018 (VII PNE) recognizes that the current energy efficiency policy framework has not been effective enough. Moreover, replacement of conventional and obsolete appliances by efficient appliances are many times stalled due to a higher capital cost as well as lack of awareness from incumbents. Despite incentives are provided to reduce the capital cost of certain efficient appliances (Legislative Act 8820, 2010), this has not provided enough motivation to replace conventional appliances. Because of limited resources to ensure enforcement by the Costa Rican Ministry of Energy and Environment (MINAE), implementation gaps (e.g. loopholes in regulations allowing supply of inefficient appliances, lack of technical capacities from procurement and environmental officers, etc.) as well as the lack for appropriate monitoring mechanisms to track progress and assess benefits (MINAE, 2015).

As it will further be explained in section A.1.2, recently enacted mandatory energy efficiency regulations have been targeted to the public sector – hence becoming the only sector with compulsory energy efficiency guidelines in the country. Nevertheless, there are still implementation gaps that hinder compliance from public institutions to these mandates. For example, there is a lack of enabling mechanisms (i.e. framework agreements) to ensure procurement of efficient appliances and a duly end-of-life integrated management of replaced conventional appliances in accordance to (Executive Act 0110-MINAE, 2014).

Complementary, capacities from relevant actors need to be developed and strengthened. Procurement officers from public institutions need to know the proper set of decision-making tools to duly acquire efficient appliances and require an environmentally sound end-of-life management of replaced conventional appliances. Technology providers (i.e. importers, retailers and local manufacturers) also need to know about procedures of conformity assessment, certification and labeling for products verification and compliance with minimum energy efficiency performance standards (MEPS), just to mention some examples. Technical capacities related to end-of-life management of replaced appliances also need to be strengthen, especially in terms of proper disposal of hazardous and polluting chemicals present in replaced obsolete lighting products and appliances (i.e. mercury in fluorescent lighting or refrigerant gas). For example, to date, disposed refrigerant gas from refrigerators and air conditioning units are stored because there are no current alternatives for its destruction or recycling. Therefore, there is a need to improve the current practices to avoid fugitive emissions. Similarly, mercury from disposed fluorescent lights (if recovered) is stored, because no current disposal technique is available locally.

Costa Rica has an urgent need to invigorate its efforts in terms of energy efficiency. It is a means to counteract the effects from climate change but also an opportunity to improve the country's overall competitiveness. The public sector has gradually started to set a path that other sectors (namely the private sector) can follow. But there are several challenges ahead that need to be addressed to effectively clear the energy efficiency path. The current project aims to contribute to solving some of the most relevant challenges and set a precedent for Costa Rica in terms of energy efficiency.

## 2) The baseline scenario and any associated baseline projects

Energy consumption in Costa Rica is based on two commercial sources of energy: imported hydrocarbons, mainly diesel and gasoline for the transport sector, and electricity.

Figure 1 shows Costa Rica's energy balance for 2015, providing a comprehensive view of how energy flows in the country. On the left-hand side, primary energy supply is composed by geothermal resources (43.0%), biomass and waste (40.8%) and hydro (27.9%). The remainder is made up of wind, coal and solar. While biomass and waste are mainly used directly by industrial and residential energy consumers, geothermal and hydro are converted into electricity before serving end energy consumers. (DSE, 2016)

Imported, refined oil products make up about 70.9% of the final (secondary) energy consumption, with electricity at 18.0%. In total, fossil fuels (oil products and coal) make up about 46.9% of total energy consumption. In 2012, the energy sector generated 39% of Costa Rica's GHG emissions (7,214 Gg $CO_2$eq), 69% and 8% came from the transport and electricity sector, respectively (IMN-MINAE, 2015).

The figure's right-hand side shows demand, with transportation at half (50.3%) of total Costa Rican energy consumption, followed by industrial (24.1%), residential (13.1%), commercial and service energy consumers (7.0%) and the public sector (2.8%). Furthermore, transportation is fueled almost entirely by oil products, making it the largest GHG emitter in the country. (DSE, 2016)

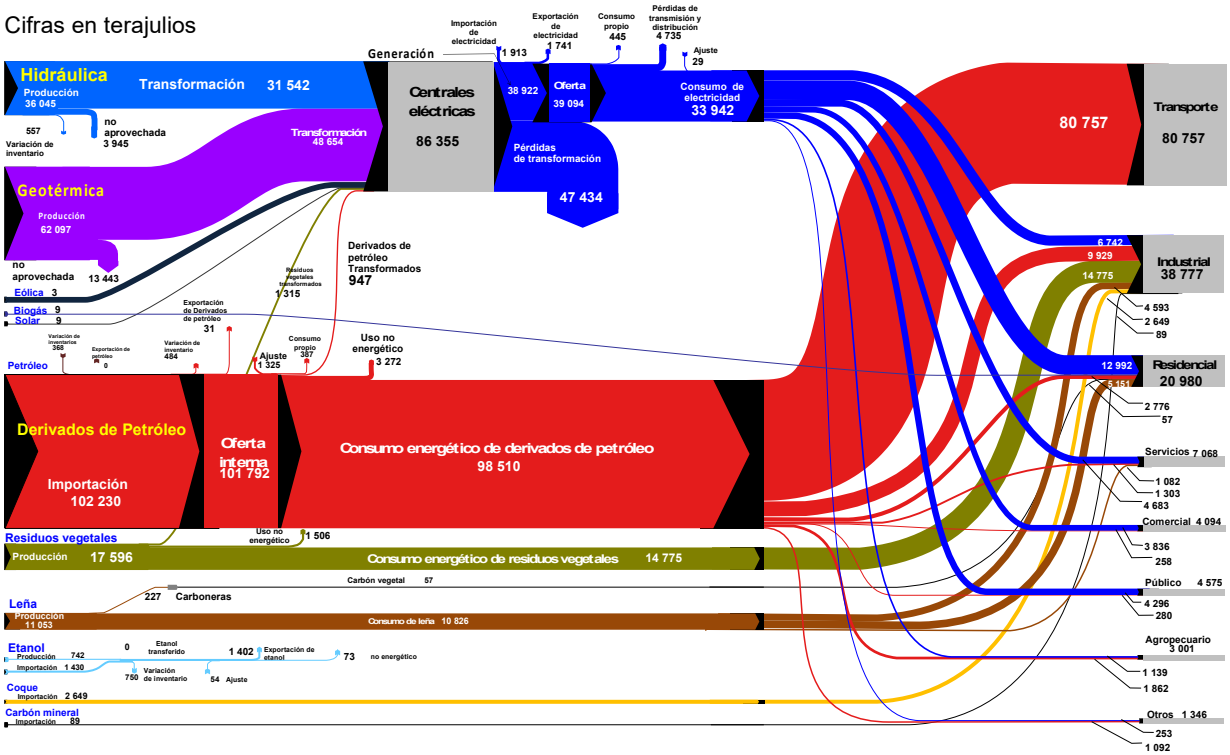



Figure 1. Costa Rican Energy Balance 2015 (DSE, 2016)

The electricity system in Costa Rica is characterized by a high share of renewable energy sources and an outstanding grid access rate of 99.3% (ICE, 2015). Figure 2 shows the country's electricity demand and installed capacity in 2015. It shows that – from both an energy and power perspective – hydroelectricity is dominant. Fossil-fueled thermal power plants are mostly used for grid backup, which means that their capacity factor is usually low and that their output can vary significantly from year to year depending on variations in rainfall and other climatic factors. In the recent years, fossil annual output for electricity production has varied significantly between 11.74% in 2013 to 1.01% in 2015 (CENCE-ICE, 2013,2015).

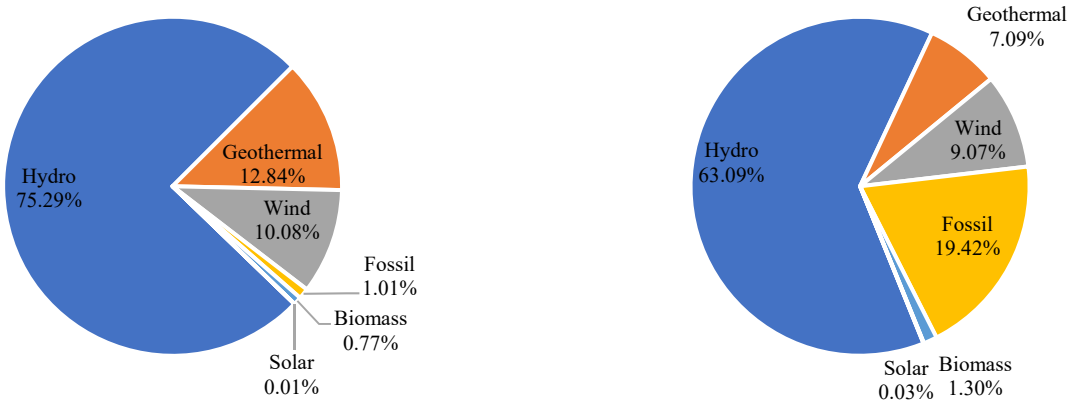



Figure 2. Electric energy produced (left) versus installed capacity (right) per source in Costa Rica in 2015 (CENCE-ICE, 2016)

In terms of growth, the electricity system in Costa Rica experienced a contraction that coincided with the economic crisis that began in 2007. The annual electricity growth rate switched from 5.17% (2001-2007 average) to 1.77% (2008-2014 average). In the last years, the country has experience a gradual increase, achieving 2.75% annual electricity growth in 2015 (CENCE-ICE, 2011:2015).

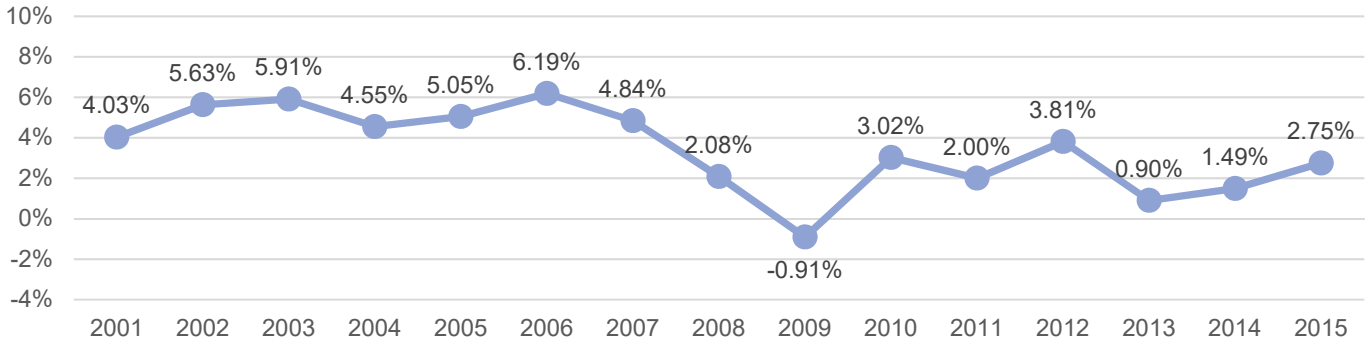



Figure 3. Evolution of annual electricity demand growth (CENCE-ICE, 2011:2015)

Costa Rica finds itself in a conundrum. On one hand, the country aims to diminish its dependence on fossil-fueled power plants (MINAE, 2015). On the other hand, the energy system mainly relies on intermittent and climate dependent renewable sources. In addition, an overall threefold increase in electricity prices over the last decade (Hess, 2014) defies the current national electricity system and adds pressure from productive sectors who ask for lower electricity prices for the sake of their competitiveness.

Albeit Costa Rica has gradually reduced its total energy intensity over the last two decades, the country has not been able to successfully deploy systematic nor permanent energy efficiency mechanisms. Therefore, the current government has set as one of its main priorities to accelerate improvements in terms of energy efficiency to reduce energy consumption and GHG emissions (MINAE, 2015).

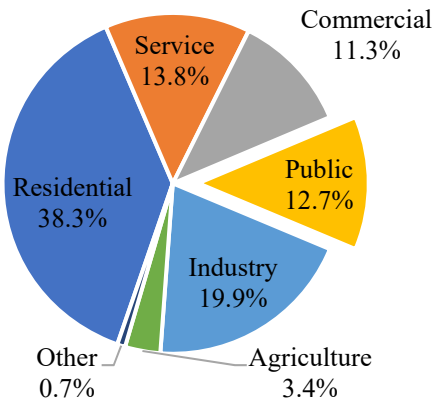



Figure 4. Share of electricity consumption per sector in 2015 (DSE, 2016)

Figure 4 shows the share of electricity consumption per sector. The residential sector consumes the largest share of electricity, followed by the industrial sector and service sector. Relevant to the current project, as it will be discussed later in this document, the public sector consumes 12.7% of the electricity production in Costa Rica and employs 15.2% of the labor force (ILO, 2013). The current project focuses on the Costa Rican public sector and aims to empower the highest electricity consuming public institutions to comply with energy efficiency legislation to lead and mandate by preaching with example.

Table 4. Absolute and relative consumption per energy use for the Costa Rican public sector (DSE-MINAE, 2016)

| **Use** | **Electricity (GJ/year)** | | |
|---|---|---|---|
| | **(GJ/year)** | **(MWh/year)** | **(%)** |
| Electricity production | - | - | - |
| Building Lighting | 541,068.08 | 164,841.02 | 13.5% |
| Vapor | 847.59 | 235.44 | 0.0% |
| Water | 18,771.54 | 5,214.32 | 0.4% |
| Heat | 49,259.77 | 13,683.27 | 1.1% |
| Refrigeration | 310,471.15 | 86,241.99 | 7.1% |
| Integrated cooling units | 23,685.83 | 6,579.40 | 0.5% |
| Fans | 66,073.55 | 18,353.76 | 1.5% |
| Air conditioning | 1,275,770.13 | 354,380.59 | 29.0% |
| Water pumps | 1,065,134.13 | 295,870.59 | 24.2% |
| Elevators | 3,523.52 | 978.76 | 0.1% |
| Air compressors | 89,368.15 | 24,824.49 | 2.0% |
| Stationary engines | - | - | 0.0% |
| Lift trucks | 256.40 | 71.22 | 0.0% |
| Cafeteria | 782,263.40 | 217,295.39 | 17.8% |
| Other | 166,953.36 | 46,375.93 | 3.8% |
| **Total** | **4,393,446.60** | **1,220,401.83** | **100%** |

Table 4 presents the share of electricity consumed per energy used by the public sector. This data is based on a recent survey contracted by the Energy Sector Directorate (DSE) of the MINAE to analyze energy use for all relevant sectors (residential, industrial, commercial/services, public sector and transport). The current project focuses on building lighting (i.e. indoor lighting), air conditioning and refrigeration appliances which accounted for almost half the electricity consumption in the public sector in 2015. (DSE-MINAE, 2016)

Table 5 below, presents data from the aforementioned energy survey to the public sector specific to lighting devices. Although efficient technologies are procured, the public sector still uses a significant share of inefficient lighting devices

which consequently represent a high share of their electricity consumption (e.g. incandescent lighting, mercury-vapor lamps, T12 tubular lamps, etc).

Table 5. Characterization of lighting devices in the public sector (DSE-MINAE, 2016)

| Type of lighting device | Quantity | | Average | |
|---|---|---|---|---|
| | Number | % | Power (W) | MWh per year |
| **Total** | **1,545,385** | **100.0%** | **-** | **164,841** |
| Incandescent bulb | 46,049 | 3.0% | 75 | 8,445.27 |
| Fluorescent bulb | 140,664 | 9.1% | 24 | 7,996 |
| Halogen reflector | 12,910 | 0.8% | 50 | 1,539 |
| LED bulb | 7,732 | 0.5% | 15 | 340 |
| T5-T8 small | 77,175 | 5.0% | 20 | 4,058 |
| T5-T8 medium | 850,350 | 55.0% | 32 | 67,330 |
| T5-T8 large | 33,190 | 2.1% | 73 | 5,291 |
| **Total T4-T8** | **960,715** | **62.2%** | **-** | **76,680** |
| T12 small | 30,483 | 2.0% | 26 | 2,243 |
| T2 medium | 236,107 | 15.3% | 41 | 23,100 |
| T12 large | 31,602 | 2.0% | 94 | 5,998 |
| **Total T12** | **298,192** | **19.3%** | **-** | **31,341** |
| Fluorescent LED small | 3,615 | 0.2% | 9 | 50 |
| Fluorescent LED small | 23,067 | 1.5% | 20 | 1,080 |
| Fluorescent LED small | 454 | 0.0% | 35 | 77 |
| **Total LED tubes** | **27,136** | **1.8%** | **-** | **1,207** |
| Mercury-vapor lamp | 38,496 | 2.5% | 230 | 33,379 |
| Sodium-vapor lamp | 3,110 | 0.2% | 150 | 1,376 |
| Metalarc lamp | 5,251 | 0.3% | 500 | 923 |
| Halogen lamp | 3,344 | 0.2% | 125 | 1,262 |
| Mixed light lamp | 218 | 0.0% | 110 | 106 |
| LED lamp | 1,568 | 0.1% | 50 | 245 |

Regarding air conditioning and refrigeration appliances, data available from the public sector is not as extensive as for lighting. However, when asked, 79.1% and 83.2% of the public institutions confirmed to have air conditioning and refrigeration appliances, respectively (DSE-MINAE, 2016). At a national level, around 50% of the refrigeration units are less than five years old and 80% are less than ten years old. Moreover, 80% of the refrigerators have a capacity equal or lower to fourteen cubic meters (ICE, 2013).

## Summary of policies and strategies related to energy efficiency

Costa Rica has conducted efforts related to energy efficiency over the last decades. In 1994, the National Commission for Energy Conservation (CONACE) was created through Executive Mandate No. 23335-MIRENEM to establish and coordinate the National Program for Energy Conservation (PRONACE). Although CONACE was not able to effectively accomplish its duties and was later ceased in 2007, it was reactivated in 2015 by MINAE with the aim to coordinate inter-institutional actions on energy efficiency and energy conservation (MINAE, 2015). Currently, CONACE is integrated by MINAE together with the National Authority for Public Service Regulation (ARESEP) and the eight electric utilities: (1) Costa Rican Institute of Electricity (ICE), (2) National Company of Force and Light (CNFL), (3) Public Service Company of Heredia (ESPH), (4) Administrative Board of Electrical Services of Cartago (JASEC), (5) Rural Electrification Cooperative of Alfaro Ruiz (COOPEALFARO), (6) Rural Electrification Cooperative of Guanacaste (COOPEGUANACASTE), (7) Rural Electrification Cooperative of San Carlos (COOPELESCA) and (8) Rural Electrification Cooperative of Los Santos (COOPESANTOS). CONACE hosts periodical meetings and specialized technical committees to coordinate inter institutional action.

The policy framework related to energy efficiency is supported by Legislative Act 7447 also created in 1994 to regulate energy consumption and gradually accomplish higher levels in terms of energy efficiency at a country level (Asamblea Legislativa, 1994). Legislative Act 7447 established a regulatory framework for large-energy consumers, control on appliances as well as incentives to energy efficient substitutes and established an energy efficiency labelling system. (MINAE, 2015). Legislative Act 7447 established incentives for energy efficient lighting and appliances through tax exemptions for a list of equipment and materials (Asamblea Legislativa, 1994) and was later updated by subsequent Legislative Act 8820 in 2010 which also allow for this list to be modified through official decrees by MINAE and the Treasury Ministry (Ministerio de Hacienda in Spanish) (Asamblea Legislativa, 2010).

Although this list is currently being updated, most of the public procurement programs allow for conventional and inefficient appliances to be procured by public institutions. This situation is caused by two main issues. First, Costa Rica has overlapping public procurement platform. Since 2015, after a recommendation by the National Comptroller to unify the multiple procurement platforms, the Treasury Ministry has been working on the consolidation of public purchases through the Integrated Purchase System for Public Institutions (SICOP). To date, 75% of public procurement takes place through SICOP. However, the target is to reach 100% in the near future (nacion.com, 2017). Secondly, there are loopholes in the public procurement platforms which allow for unexpired contracts of conventional and inefficient appliances to remain in the databases. Moreover, these contracts are determined by framework agreements which are set by the Treasury Ministry and allow for the incorporation of specific products or services into the public procurement platforms. New energy efficient technologies or services could be made available through the publication of new framework agreements and replace the existing ones. Nevertheless, it is required to issue the new framework agreements using the unified purchase system (SICOP) to contribute to solve this situation.

Furthermore, there are technical regulations for appliances based on Legislative Act 7447 such as Executive Decrees No. 25584 MINAE-H-P in 2006 for certain appliances (i.e. Minimum Efficiency Standards or MEPS for air conditioners, refrigerators, freezers, electric motors, fluorescent lighting and cooking appliances). Executive Decree No. 29751-MINAE-H-MEIC in 2001 for refrigerators and freezers; and No 29820-MINAE-H-MEIC in 2000 for lighting technologies. Aside from Legislative Act 7447, Costa Rica has enacted Legislative Act 7447 to set a policy framework for a National Quality Management System and has allowed to create underlying technical regulations related to efficient appliances (MINAE, 2015). Table 6 shows a catalog of the energy efficiency standards and technical regulations developed, adapted or homologated [9] by the Institute of Technical Standards of Costa Rica (INTECO) together with relevant local stakeholders (e.g. DSE, electric utilities, academia and local technology providers).

Table 6. Energy efficiency standard catalog in Costa Rica (INTECO, 2017)

| Standard | Category | Description |
|---|---|---|
| INTE 19-04-01:1994 | Energy diagnosis | Energy audits in energy consuming establishments – Development and content of energy diagnosis. |
| INTE-ISO 50001:2011 | Energy diagnosis | Energy systems management. Requisites. |
| INTE-ISO 5151:2009 | Air conditioning | Air conditioning units per type (i.e. window, split, packed). Test methods. |
| INTE 28-01-13:2015 | Air conditioning | Air conditioning units per type (i.e. window, split, packed). Requisites. |
| INTE 28-01-14:2015 | Air conditioning | Air conditioning units per type (i.e. window, split, packed). Labeling. |
| INTE 28-01-26:2016 | Lighting | High intensity discharge (HID) lamps for general lighting. Requisites. |
| INTE 28-01-27:2016 | Lighting | High intensity discharge (HID) lamps for general lighting. Labeling. |
| INTE 28-01-28:2016 | Lighting | High intensity discharge (HID) lamps for general lighting. Test methods. |
| INTE 28-01-38:2016 | Lighting | Light emitting diode (LED) lamps for general lighting. Labeling. |
| INTE 28-01-18: 2016 | Lighting | Light emitting diode (LED) lamps for general lighting. Test methods. |
| INTE 28-01-40:2016 | Lighting | Linear fluorescent lamp (LFL). Requisites. |
| INTE 28-01-41:2016 | Lighting | Linear fluorescent lamp (LFL). Labeling. |

[9] Homologation consists the granting of approval of an existing of an existing technical standard by an official authority. That is the case for ISO 50001 standard which was homologated into INTE-ISO 50001:2011 by INTECO in 2011.

| Standard | Category | Description |
|---|---|---|
| INTE 28-01-24: 2016 | Lighting | Light emitting diode (LED) lamps for pubic lighting. Requisites. |
| INTE 28-01-25: 2016 | Lighting | Light emitting diode (LED) lamps for pubic lighting. Labeling. |
| INTE 28-01-17:2015 | Lighting | Light emitting diode (LED) lamps for general lighting. Labeling. |
| INTE 28-01-16:2015 | Lighting | Light emitting diode (LED) lamps for general lighting. Requisites. |
| INTE 28-01-09:2015 | Lighting | Linear fluorescent lamp (LFL). Test methods. |
| INTE 28-01-08:2015 | Lighting | Compact fluorescent lamp (CFL). Labeling. |
| INTE 28-01-07:2015 | Lighting | Compact fluorescent lamp (CFL). Requisites. |
| INTE 28-01-15-2011 | Lighting | Incandescent lamps for domestic use. Labeling. |
| INTE 20-06-03-2008 | Lighting | Electrical ballasts for fluorescent lamps. Test methods. |
| INTE 28-01-03:2014 | Refrigerators | Self-contained commercial refrigeration equipment. Test methods. |
| INTE 28-01-01:2015 | Refrigerators | Self-contained commercial refrigeration equipment. Requisites. |
| INTE 28-01-02:2015 | Refrigerators | Self-contained commercial refrigeration equipment. Labeling. |
| INTE 28-01-05:2015 | Refrigerators | Refrigerators and freezers for domestic use. Labeling. |
| INTE 28-01-04:2015 | Refrigerators | Refrigerators and freezers for domestic use. Efficiency limits. Efficiency limits. |
| INTE 28-01-06:2015 | Refrigerators | Refrigerators and freezers for domestic use. Test methods. |
| INTE 28-01-36: 2016 | Other appliances | Laundry machines. Requisites. |
| INTE 28-01-34:2016 | Other appliances | Laundry machines. Test methods. |
| INTE 28-01-35:2016 | Other appliances | Electric laundry machines. Energy factor and water consumption factor. |
| INTE 19-02-01-1991 | Other appliances | Stoves and electric ovens for residential use.. Test methods. |
| INTE 28-01-19:2015 | Other appliances | Stoves, small stoves, induction stoves and electric ovens for residential use. Requisites. |
| INTE 21-01-26-1998 | Other appliances | Components of automatic fire alarm systems. Energy supply. |
| INTE IEC 60904:2014 | Other appliances | Photovoltaic devices. Requisites. |
| INTE/IEC 60891:2014 | Other appliances | Photovoltaic devices. Other. Other. |
| INTE 28-01-11-2008 | Other appliances | Alternate current electric motors (i.e. three-phase induction motor, squirrel cage). Labeling. |
| INTE 28-01-12-2008 | Other appliances | Alternate current electric motors (i.e. three-phase induction motor, squirrel cage). Test methods. |
| INTE 28-01-10-2008 | Other appliances | Alternate current electric motors (i.e. three-phase induction motor, squirrel cage). Efficiency limits. Efficiency limits. |
| INTE 28-01-20:2015 | Other appliances | Stoves, small stoves, induction stoves and electric ovens for residential use. Labeling. |
| INTE 28-01-21:2015 | Other appliances | Stoves, small stoves, induction stoves and electric ovens for residential use. Test methods. |
| INTE 28-01-23-:2016 | Other appliances | Induction stoves for domestic use. Labeling. |
| INTE/ISO 9806:2015 | Other appliances | Solar thermal collectors. Test methods. |
| INTE 28-01-22:2015 | Other appliances | Induction stoves for domestic use. Test methods. |
| INTE 28-03-03:2013 | Other appliances | Solar thermal systems and components. Test methods. |

Executive Mandate 36499-S-MINAE was created in 2011 and it established the guidelines for all public institutions to formulate, update and implement Institutional Environmental Management Programs (known as PGAI). A PGAI is a planning tool based on the methodological principles of an Environmental Management System. A PGAI has three strategic axes (energy, environmental quality and GHG emissions) and three lines of action (metrics, capacity building and procurement) – refer to Figure 5 below. It starts with an environmental assessment that is the basis for public institutions to prioritize, establish and implement prevention, mitigation, compensation or restoration of environmental impacts in the short, medium and long-term. (MINAE, 2011; Solera, 2016) In other words, a PGAI, sets a systematic tool

for public institutions in Costa Rica to assess and monitor their environmental performance. However, to date, around 50% of the public institutions in Costa Rica comply with Executive Act 36499-S-MINAE (DSE, 2016). In 2015, a subsequent Executive Mandate No 031-MINAE was enacted to improve implementation performance of PGAI by providing a set of complementary tools, such as a contingency plan (MINAE, 2015).

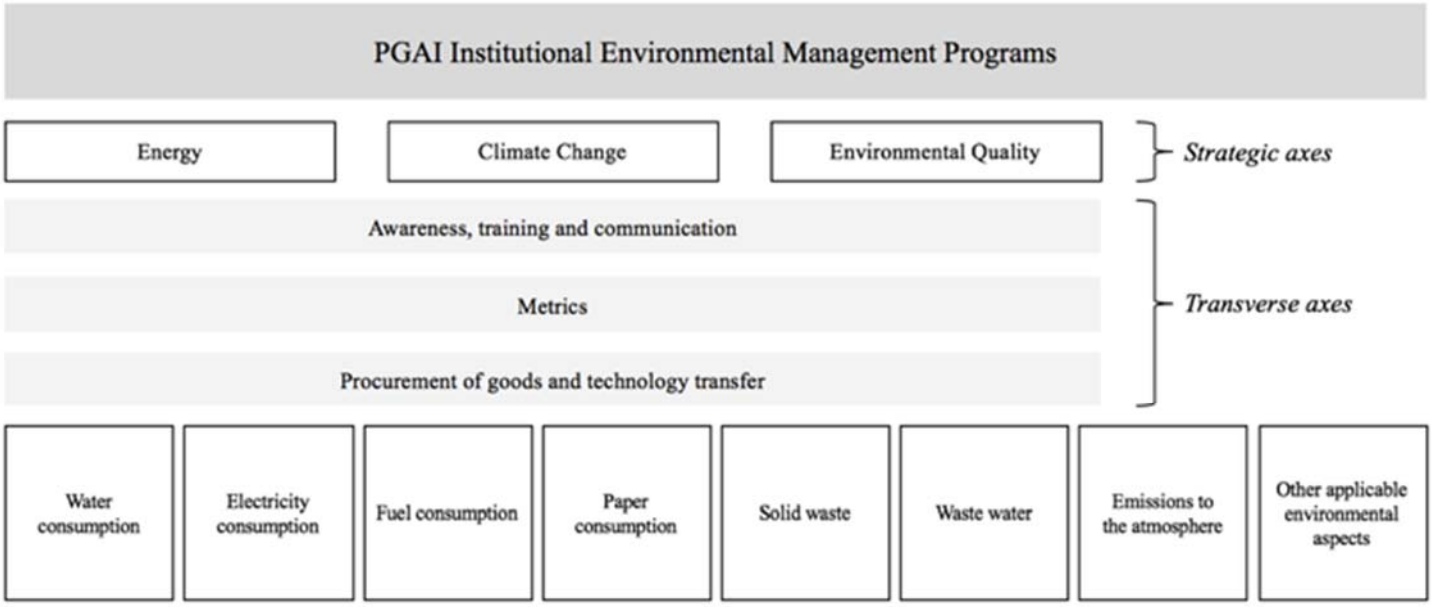



Figure 5. Main components of PGAI (MINAE, 2016)

Complementary to PGAI, Executive Mandate No 3910-MH-MINAE-MEIC-MTSS was enacted in 2015 to establish a national policy for sustainable public procurement. It is based on the premise that the Costa Rican State is the main buyer in the country. Public procurement represents close to 30% of the public budget and 15-20% of the GDP (Treasury Ministry, n.d.; pyme.go.cr, 2016). Its main objective is to stimulate the production of socially and environmentally-responsible goods and services. Furthermore, the initiative has been supported by UNEP in the light of their global project Sustainable Public Procurement and Ecolabelling (SPPEL). In Costa Rica, sustainable public procurement is led by the Treasury Ministry. Since the enactment of Executive Mandate No 3910, guidelines, manuals and trainings have been produced to strengthen capacities of the public sector to ensure enforcement of sustainable public procurement
– including procurement of efficient appliances and services.

Subsequently, in August 2014, Executive Mandate No 011-MINAE was enacted and set compulsory mandates for the public sector in Costa Rica – hence becoming the only sector with mandatory obligations in terms of energy efficiency in the country. Furthermore, Executive Mandate No 011-MINAE also considered ongoing initiatives that needed to be strengthened such as PGAI's and proper final disposal of replace appliances. Executive Mandate No 011-MINAE dictated the following (MINAE, 2014):

- Obliges each public institution to elaborate and execute (PGAI) which include, among other things, regulations in the procurement of energy efficient lighting and appliances and appoints the Environmental Quality Management Directorate (DIGECA) as the institution in charge
- Forbids the procurement of low efficiency appliances to public institutions
- Orders heads of institutions to modify their procurement databases to include in their requirements technical specifications for efficient appliances
- Orders institutional procurement departments to request for product certificates emitted by an organization approved by the Costa Rican Accreditation Body (ECA) to demonstrate that they meet the respective energy efficiency requirements (i.e. MEPS). This mandate only applies for lighting, household refrigeration appliances, commercial refrigeration appliances and air conditioning appliances

Orders for replaced appliances not be reused nor donated, instead orders for an appropriate final disposal following the enactment of Executive Mandate No 011-MINAE, an identification of the highest energy-consuming public institutions was carried by

the Energy Sector Directorate (DSE) based on electricity consumption data which allowed to identify the 20 public institutions with the highest energy consumption from a total of 328 public institutions.

Since 2015, periodical training sessions addressing energy efficiency have been taught by the Environmental Quality Management Directorate (DIGECA) and DSE from MINAE to relevant actors to strengthen capacities. These efforts have been pursued in the light of PGAI. Between 2015 and 2016, 758 representatives from 177 public institutions have been trained in the light of Executive Mandate 011-MINAE (Alfaro, 2016). Moreover, between 2011 and 2016, 309 capacity building sessions have been carried in the light of PGAI, training 5,922 officers from 231 public institutions (Protti, 2016).

Table 7 presents the top 20 highest energy consuming public institutions with their respective share of electricity consumption from the total public sector consumption. In addition, DSE assessed the level of compliance of each one of the 20 highest energy consuming public institutions with respect to Executive Mandate No 011-MINAE as well as the conduction of energy diagnosis (DSE, 2016). The latter, only considers if each public institution has or has not conducted an energy diagnosis without assessing into depth the type or thoroughness of the energy diagnosis.

Executive Decrees No. 25584 MINAE-H-P defines an energy diagnosis as a progressive analysis that reveals where and how energy is used and billed by an energy consuming establishment and recommends actions to improve consumption efficiency. INTE-ISO 50001:2001 (technical standard homologated by INTECO in Costa Rica focused on energy management systems) defines an energy audit or energy diagnosis as a detailed and systematic review of the energy performance of an organization that allows to identify and prioritize energy performance improvement opportunities.

Albeit the relevance of energy diagnosis in energy efficiency, Table 7 shows that none of the 20 highest energy consuming public institutions have conducted an energy diagnosis, except from Compañía Nacional de Fuerza y Luz (CNFL) – Costa Rica's largest electricity distribution and retail company.

Large-scale energy efficiency programs have been sporadic and many times based on incentives or donations, hence depleting resources available and not achieving long-term sustainability (e.g. Electrocrédito by National Company of Light and Force CNFL). In contrast, a revolving fund named MIPYMES Verdes Initiative was executed by the Central American Bank for Economic Integration (CABEI) to assist environmentally-sound energy efficiency and small-scale renewable energy investments. The initiative assisted micro, small and medium enterprises (MSME) from Central America i.e. Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica. Project screening started with an energy diagnosis of up to US$ 7,000 donated by CABEI and conducted by energy service companies authorized by CABEI. If eligible, soft loans were offered to finance the required energy efficiency or renewable energy investments. MIPYMES Verdes Initiative had a first implementation phase between 2010 and 2016 with a total budget of € 36 million i.e. € 3 million in non-reimbursable resources through the energy diagnosis and technical studies and € 33 million as reimbursable financing to provide the soft loans. It is expected for a second implementation phase to start between 2017 and 2020 with a total budget of € 40 million. (CABEI, 2017)

Between 2007 and 2016, CABEI also executed ARECA Project. ARECA, stands for Accelerating Renewable Energy Investment in Central America and Panama Project. It was supported by GEF (ID 975) with US$ 6.92 million and was co-financed with US$ 82.18 million by international partners (UNDP, 2016). In total, the project had a budget of US$113 million. The project aims to remove financial barriers that impede the large-scale development of renewable energy (RE) projects in Central America. The project is expected to start with a third phase of implementation between 2017 and 2019. (UNDP, 2016; CABEI, 2017)

Table 7. Top 20 highest electricity consuming public institutions in Costa Rica (DSE, 2016)

| Ranking | Public Institution | % of total public sector electricity consumption | 011-MINAE | Energy Diagnosis |
|---|---|---|---|---|
| 1 | INSTITUTO COSTARRICENSE DE ELECTRICIDAD | 35.54% | | |
| 2 | INST. COST. ACUEDUCTOS Y ALCANTARILLADOS | 20.73% | | |
| 3 | CAJA COSTARRICENSE DE SEGURO SOCIAL | 11.60% | | |
| 4 | MINISTERIO DE EDUCACION PUBLICA | 4.81% | | |
| 5 | MINISTERIO DE JUSTICIA Y PAZ | 2.14% | | |
| 6 | BANCO DE COSTA RICA | 2.13% | | |
| 7 | CORTE SUPREMA DE JUSTICIA PODER JUDICIAL | 1.71% | | |
| 8 | BANCO NACIONAL DE COSTA RICA | 1.68% | | |
| 9 | MINISTERIO OBRAS PUBLICAS Y TRANSPORTES | 1.54% | | |
| 10 | MINISTERIO DE HACIENDA | 1.28% | | |
| 11 | JAPDEVA | 1.08% | | |
| 12 | UNIVERSIDAD DE COSTA RICA | 0.84% | | |
| 13 | COMPANIA NACIONAL DE FUERZA Y LUZ | 0.78% | | |
| 14 | INSTITUTO NACIONAL DE APRENDIZAJE | 0.71% | | |
| 15 | MINISTERIO DE SEGURIDAD PUBLICA | 0.67% | | |
| 16 | INSTITUTO NACIONAL DE SEGUROS | 0.57% | | |
| 17 | UNIVERSIDAD TECNICA NACIONAL | 0.56% | | |
| 18 | MUNIC.CANTON CENTRAL | 0.55% | | |
| 19 | BANCO POPULAR Y DE DESARROLLO COMUNAL | 0.53% | | |
| 20 | TRIBUNAL SUPREMO DE ELECCIONES | 0.50% | | |
| 21 | MINISTERIO DE AGRICULTURA Y GANADERIA | 0.41% | | |
| 35 | MINISTERIO DEL AMBIENTE Y ENERGIA | 0.19% | | |

| Symbols | 011-MINAE | Energy diagnosis |
|---|---|---|
| | Procurement of <u>all</u> appliances comply with D-011's energy efficiency criteria | Yes |
| | Procurement of <u>some</u> appliances comply with D-011's energy efficiency criteria | ---- |
| | Procurement of appliances comply with general environmental criteria but not D-011 | ---- |
| | Has presented PGAI but fulfillment of environmental criteria is poor | ---- |
| | Has not presented PGAI so fulfillment of environmental criteria nor D-011 cannot be assessed | No |

**Summary of policies and strategies promoting environmentally sound waste management**

One of main components for the current project focuses on the environmentally sound waste management of substituted conventional and inefficient lighting products and appliances which, in some cases, contain hazardous materials that require a specialized treatment. For example, mercury extracted from disposed fluorescent lights is currently stored but no specialized treatment is locally available to ensure an environmentally-sound end-of-life treatment. Similarly, refrigerant gas recovered from disposed air conditioning units and refrigerators is only stored.

Costa Rica has undergone efforts in terms of integrated waste management. Legislative Act 8839 designates the Ministry of Health as the lead body, meanwhile MINAE through the Environmental Quality Management Directorate (DIGECA) assists in implementation (Asamblea Legislativa, 2010). Article 4 of Act 8839 defines actions related to appropriate waste management using the following ranking:

- Avoid waste generation at source to prevent the proliferation of vectors related to infectious diseases and environmental pollution
- Minimize waste generation at source
- Reuse waste generated either in the same production chain or in other processes
- Valorize waste through recycling, co-processing, reassembling or other technical procedure to allow material recovery and energy use
- Treat waste before sending it to final disposal
- Dispose the least amount of waste in a sanitary manner, as well as in an environmentally sound way

Furthermore, Executive Mandate No 38272-S in its Annex 1 defines fluorescent lights as well as air conditioners and refrigerators as special handling waste [10] which means that waste derived from these lighting products and appliances should be separated from the conventional waste flow and should be handled taking special considerations. Based on the principle of Extended Producer Responsibility (EPR), Executive Mandate No 38272-S also designates the creation of "Waste Compliance Units" [11] who have the responsibility to register at the Ministry of Health, present an annual waste management plan and comply with current guidelines in terms of special waste handling as well as special handling waste recovery targets. Article 9 and 10 from Executive Mandate No 38272-S , these recovery targets are set based on negotiations between the Ministry of Health and the local private sector. Thereby, there is a lack of a proper methodology to define recovery targets of special handling waste. According to the Ministry of Health, strict or overly ambitious recovery target definitions were avoided when the waste compliance units were established to promote their engagement (Androvetto, 2016). To date, 95 waste compliance units are registered in Costa Rica (Ministry of Health, 2014, 2016).

Articles 9 and 10 from Executive Mandate No 38272-S, define criteria for the establishment of recovery targets of special handling waste – including replaced lighting products and appliances. Although recovery targets are set by the Ministry of Health, they are determined based on negotiations with appliance providers and producers and lack a specialized methodology for their calculation.

Executive Mandate No 37567-S-MINAET-H defines a complementary figure: authorized waste handlers [12]. They are also required to register at the Ministry of Health, to have a sanitary permit and a municipal operation patent and to pay a registration fee (Ministry of Health, 2013). Authorized waste handlers are designated as the lawful entities to conduct environmentally sound end-of-life integrated management of special handling waste – including lighting, refrigeration and air conditioning appliances. Therefore, if waste compliance units (or consumers) need to dispose replaced appliances, it is only authorized waste handlers who are entitled by law to provide this service. To date, 214 authorized waste handlers are registered in Costa Rica (Ministry of Health, 2016). Nevertheless, it is unknown whether this is sufficient processing capacity to satisfy the needs of the country.

[10] **Special handling waste** – given its composition, transportation needs, conditions of storage, generation volume, forms of use or recovery value – involve a significant health risks or may benefits by reducing environmental impacts through its recovery, which is why they are required to be separated from the conventional waste flow.

[11] **Waste Compliance Unit** is a legal figure composed by one or more producers or importers who have the responsibility to establish the mechanisms and actions to ensure an integrated management and sustainability of their waste. The Compliance Unit is an operational structure that allows to comply with the principle of Extended Producer Responsibility (EPR) and in accordance with national technical, health and environmental guidelines.

[12] **Authorized waste handler** is a natural or legal, public, private or mixed economy figure who works in total or partial management of waste (i.e. collection, transport, storage, recovery, disassembly, export, treatment and disposal).

**3) The proposed alternative scenario, GEF focal area[13] strategies, with an objective, description of expected outcomes and outputs, and activities of the project**

**Project objective:** Accelerating improvements in energy efficiency under Costa Rica's public procurement programs and reducing Costa Rica's energy consumption and carbon dioxide emissions.

The current project aims to addresses the main challenges that stall energy efficiency in Costa Rica. Furthermore, efforts are focused on the public sector to lead the way so other sectors can follow. The project is divided into four components, each addressing a specific challenge or opportunity but also complementing between each other to provide an integral contribution to the country.

The outcomes proposed have been designed in close collaboration from leading public institutions as well as the private and financial sector. MINAE through the Energy Sector Directorate (DSE) as well as the Environmental Quality Management Directorate (DIGECA) have assisted to in the construction of outputs aiming to create a symbiosis with the national priorities and ongoing initiatives. The Ministry of Health and the Treasury Ministry (appointed as leading body in terms of waste management and public procurement, respectively) have also contributed and approved the outputs and activities proposed in this project. Additional stakeholders from the private and financial sector have provided feedback in the formulation of the project and expressed their interest to actively contribute during the implementation stage. Below, a description of the four components:

**Component 1 - Energy diagnosis to identify and prioritize opportunities to replace conventional appliances with energy efficient appliances in highest energy consuming public institutions**

It is priority to Costa Rica to raise awareness of the benefits of running large-scale replacement programs of conventional and obsolete appliances with energy-efficient appliances. Therefore, it is proposed to conduct energy diagnosis in public institutions to identify and showcase opportunities to replace conventional and obsolete appliances. In addition to Table 7, electric utilities have provided to the National Commission for Energy Conservation (CONACE) a list of 45 strategic sites belonging to the top 20 highest energy consuming public institutions. The sites have been designated as candidates by electric utilities to conduct the energy diagnosis. Furthermore, most sites consist on educational centers or health centers, many of which are located in rural areas of the country.

Table 8. Candidate sites from top 20 high energy consuming public institutions to conduct energy diagnosis (CONACE, 2017)

| # | Electric Utility | Category | Public Institution | Location |
|---|---|---|---|---|
| 1 | CNFL | Educational center | Escuela Nacional de Artesanía | Barreal, Heredia |
| 2 | CNFL | Educational center | Colegio Cotepecos | Mata Redonda, San José |
| 3 | CNFL | Educational center | Escuela Centeno Güell | Guadalupe, Goicoechea, San José |
| 4 | CNFL | Educational center | Colegio Nuevo Purral Abajo | Guadalupe, Goicoechea, San José |
| 5 | CNFL | Educational center | Escuela México | El Carmen, San José |
| 6 | CNFL | Educational center | Escuela Ricardo Jiménez | Central, San José |
| 7 | CNFL | Educational center | Escuela Buenaventura Corrales | Central, San José |
| 8 | CNFL | Ministry | Ministry of Education (antigua Embajada EEUU) | Central, San José |
| 9 | CNFL | Educational center | Instituto Uladislao Gámez | San Francisco, Goicoechea, San José |
| 10 | CNFL | Ministry | Ministry of Education (antigua Escuela Porfirio Brenes) | Central, San José |
| 11 | CNFL | Health center | Hospital San Juan de Dios | Central, San José |
| 12 | CNFL | Health center | Hospital Psiquiátrico | Pavas, San José |
| 13 | CNFL | Health center | Hospital México | Uruca, San José |
| 14 | CNFL | Health center | Hospital Raúl Blanco Cervantes | Central, San José |
| 15 | CNFL | Health center | Hospital Calderon Guardia | Central, San José |
| 16 | CNFL | Health center | Clínica Dr. Carlos Durán | Central, San José |

[13] For biodiversity projects, in addition to explaining the project's consistency with the biodiversity focal area strategy, objectives and programs, please also describe which Aichi Target(s) the project will directly contribute to achieving..

| # | Electric Utility | Category | Public Institution | Location |
|---|---|---|---|---|
| 17 | CNFL | Health center | Clínica Marcial Fallas | Dasamparados, San José |
| 18 | CNFL | Health center | Ministero de Seguridad Pública | Central, San José |
| 19 | CNFL | Health center | Universidad de Costa Rica | Montes de Oca, San José |
| 20 | COOPEALFARO | Educational center | Escuela Distrito De Zapote | Zapote, Alfaro Ruiz, Alajuela |
| 21 | COOPEALFARO | Educational center | Escuela Distrito De Tapesco | Tapezco, Alfaro Ruiz, Alajuela |
| 22 | COOPEALFARO | Educational center | Escuela Del Distrito Palmira | Palmira, Alfaro Ruiz, Alajuela |
| 23 | ESPH | Educational center | Escuela Montecito | Angeles, San Rafael, Heredia |
| 24 | ESPH | Educational center | Escuela Guararí | Central, Heredia |
| 25 | ESPH | Educational center | Escuela de San Pablo de Heredia | San Pablo, Barva, Heredia |
| 26 | ESPH | Educational center | Liceo de Heredia | Central, Heredia |
| 27 | ESPH | Educational center | Vocacional de Heredia | Central, Heredia |
| 28 | ESPH | Educational center | Escuela Braulio Morales | Central, Heredia |
| 29 | ESPH | Educational center | Escuela Cleto González Víquez | Central, Heredia |
| 30 | ESPH | Educational center | Escuela de Concepción de San Rafael | Concepción, San Rafael, Heredia |
| 31 | ESPH | Educational center | Colegio Samuel Sáenz Flores | Central, Heredia |
| 32 | ESPH | Educational center | Escuela de Cubujuquí. | Central, Heredia |
| 33 | JASEC | Health center | Caja Costarricense de Seguro Social | Central, Cartago |
| 34 | JASEC | Youth center | Ciudad De Los Niños | Agua Caliente, Cartago |
| 35 | JASEC | Health center | Caja Costarricense de Seguro Social | San Rafael, La Unión, Cartago |
| 36 | JASEC | Educational center | COVAO Colegio Vocacional De Artes y Oficios | San Rafael, La Unión, Cartago |
| 37 | JASEC | Health center | Caja Costarricense de Seguro Social | Guadalupe, Cartago |
| 38 | JASEC | Educational center | Escuela de Enseñanza Especial Carlos L. Valle | San Rafael, La Unión, Cartago |
| 39 | JASEC | Health center | Caja Costarricense de Seguro Social | Central, Cartago |
| 40 | JASEC | Educational center | Colegio Técnico Profesional Dulce Nombre | Dulce Nombre, Cartago |
| 41 | JASEC | Health center | Caja Costarricense de Seguro Social | Central, Cartago |
| 42 | JASEC | Health center | Caja Costarricense de Seguro Social | Central, Cartago |
| 43 | JASEC | Educational center | Colegio Técnico Profesional Oreamuno | San Rafael, La Unión, Cartago |
| 44 | JASEC | Educational center | Instituto Nacional de Aprendizaje | Paraiso, Cartago |
| 45 | JASEC | Educational center | Universidad de Costa Rica | Paraiso, Cartago |

Component 1 will start with the consolidation of the aforementioned list of strategic sites from public institutions by members of the CONACE and propose a list of 20 strategic sites to conduct the energy diagnosis. An energy service company will be hired to implement the 20 energy diagnosis in the selected sites. During project formulation, it was verified that there are local energy service companies capable carrying out this task. The energy diagnosis will allow to identify and prioritize energy efficiency opportunities to replace conventional and inefficient appliances in the selected sites. These opportunities will be considered as the first candidate projects to be financed by the revolving fund under Component 3.

Currently, benefits obtained from efficient appliances or services are not quantified due to the lack of an appropriate tracking instrument. Hence, sometimes public procurement is unable to justify the relevance of acquiring efficient instead of conventional appliances. Previous efforts conducted under the sustainable public procurement initiative have developed practical guides related to energy efficiency. However, they are outdated and none of them have developed a tracking tool.

Therefore, the project will build upon previous experiences and develop a tracking instrument to quantify benefits obtained from public procurement of energy efficient appliances or services (e.g. energy savings, avoided GHG emissions, recovered refrigerant gas or mercury from disposed appliances). This tracking instrument will be made available to procurement and environmental management officials from public institutions and will also serve as basis for the tracking system to be used by the revolving fund in Component 3 for the projects it will finance. Component 1 also considers the elaboration of a practical guide for the implementation of the tracking instrument aiming to promote its adoption. The tracking guide will be targeted to procurement and environmental management officials from public institutions.

Expected Outcome 1: Strategic sites from highest energy consuming public institutions showcase opportunities to replace conventional appliances with energy efficient appliances

Table 9. Outputs and activities for Component 1

| Outputs | Activities |
|---|---|
| 1.1 Energy diagnosis implemented in strategic sites from highest energy consuming public institutions | 1.1.1 Consolidate the list of sites from highest energy consuming institutions where the energy diagnosis will be conducted |
| | 1.1.2 Implement the energy diagnosis in the selected sites |
| | 1.1.3 Identify and prioritize opportunities to replace conventional appliances with energy efficient appliances based on the energy diagnosis |
| 1.2 Tracking instruments developed for efficient appliance procurement by public institutions | 1.2.1 Develop a tracking instrument for the quantification of benefits from public procurement of energy efficient appliances or services (e.g. energy savings, avoided GHG emissions, refrigerant or mercury recovered) |
| | 1.2.2 Elaborate a practical guide for the implementation of tracking instrument from Activity 1.2.1 |

**Component 2 - Training and information program for market actors on the country's obligations to only procure energy efficient lighting and appliances and on mechanisms for product compliance**

The Costa Rican government, through the Treasury Ministry, is consolidating a procurement platform for the public sector named Integrated Purchase System for Public Institutions (SICOP). The transition from previously used procurement platforms (e.g. MER-LINK and Compr@Red) is still on its way. This situation presents unsolved challenges that could be targeted by the project. For example, current public procurement databases do not include a complete listing of efficient appliances that are available in the market and often include inefficient appliances.

Furthermore, energy service companies (also known as ESCO's) have gradually emerged in the local market to provide energy efficiency services, including energy audits or diagnosis. According to Table 6, the Institute of Technical Standards of Costa Rica (INTECO) has already homologated ISO 50001:2011 certification standard for energy management systems and is working in the homologation of ISO 500002:2014 to set guidelines for energy audits. The proposed project will contribute to the adaptation of a certification standard to define requirements for bodies providing audit and certification of energy management systems (e.g. ISO 500003:2014). It is important to mention that INTECO has worked before with MINAE in the elaboration of MEPS, as well as the adoption or homologation of other international technical standards. This adaptation is relevant because it will contribute to homogenize existing local supply of energy efficiency services through internationally-recognized technical standards.

Component 2 will hire a consultant to identify local supply and to develop a database of (1) energy efficiency service companies and (2) efficient appliances complying with Executive Mandate 011-MINAE (i.e. lighting, air conditioning and refrigeration). This firm will define the selection criteria for energy efficiency companies and will also update existing lists of efficient appliances available in the public procurement platforms (i.e. SICOP and MER-LINK). Once the databases of (1) energy efficiency service companies and (2) efficient appliances complying with Executive Mandate 011-MINAE are created, the project will proceed in cooperation with MINAE and the Treasury Ministry to create an enabling framework to make sure the identified energy efficiency products and services are available for public procurement. As mentioned earlier, products and services are made available to the public sector through framework agreements in which the procurement platform sets a specific selection criterion (e.g. energy efficient lighting and appliances) and suppliers can bid to include their products or services in the procurement database. Although this mechanism is often used for a diverse set of products, it has not been used for energy efficient appliances or energy efficiency services component 2 aims to contribute to the issuance of a framework agreement for efficient lighting, air conditioning and refrigerating appliances complying with Executive Mandate 011-MINAE to be adopted by SICOP.

Component 2 will also build upon a training initiative carried by MINAE under the Program for the Strengthening of Institutional Environmental Management Plans (PGAI in Spanish) to provide technical training to public institutions,

including energy efficiency and integrated waste management. Furthermore, trainings will be focused on three different audiences:

1. Procurement and environmental management officials from high energy consuming public institutions will be trained by MINAE to enhance public procurement of efficient lighting, appliances and energy efficiency services. Training sessions will build upon the lessons learnt from Component 1 and strengthen capacities in terms (1) economic and environmental benefits from energy efficiency (2) procurement of efficient lighting, appliances and energy efficiency services and (3) procedures of conformity assessment, certification and labeling for products verification and compliance with the specification of product for energy efficiency.
2. Efficient lighting and appliances providers (i.e. importers, distributors, retailers) as well as energy efficiency service providers identified in Output 2.1 will be trained by MINAE on (1) economic and environmental benefits from energy efficiency (2) procurement of efficient lighting, appliances and energy efficiency services and (3) procedures of conformity assessment, certification and labeling for products verification and compliance with the specification of product for energy efficiency.
3. Public sector technical officials that provide trainings to the abovementioned audiences will be trained by U4E Centre of Excellence to strengthen their capacities based on international best practices and state-of-the-art knowledge related to energy efficiency. Capacity building of public sector technical officials will be conducted following train-the-trainer model to reinvigorate ongoing local capacity buildings efforts.

Finally, Output 2.4 focuses on the creation and launch of an online platform in the form of a content management system to centralize relevant information resources for public procurement of energy efficiency products and services. Currently, information sources about energy efficiency procurement are often dispersed or outdated. Together with MINAE and the Treasury Ministry, the project will contribute with a centralized online platform to make available several of the outputs that will be created by the project. This includes information resources such as: database of companies that provide energy efficiency services to the public sector (Output 2.1), updated efficient appliance catalog (Output 2.2), the framework agreement on efficient appliances (lighting, air conditioning and refrigeration) to be developed under Activity 2.2.3, as well as relevant policies and guidelines – such as the one developed by Activity 1.2.2. This online platform could benefit public sector procurement but also the local private sector which often uses this type of information resources to design their own procurement procedures (Solis, 2016). Once the online platform is operational, MINAE's staff will take control of it and continue updating its content. Furthermore, it is important to mention that MINAE has experience administering this type of online platforms – as it will later be mentioned in the knowledge management section A.8.

Expected Outcome 2: Suppliers provide the public sector with electric appliances that comply with required energy efficiency specifications (lighting, air conditioners and refrigerators) and energy efficiency services.

Table 10. Outputs and activities for Component 2

| Outputs | Activities |
|---|---|
| 2.1 Database of companies that can provide energy efficiency services to the public sector | 2.1.1 Adapt a certification standard for companies that provide energy efficiency services (e.g. ISO 50003:2014) |
| | 2.1.2 Define selection criteria for companies that provide energy efficiency services to the public sector (e.g. energy diagnosis, energy audit, monitoring) |
| | 2.1.3 Elaborate a database of companies that can provide energy efficiency services to the public sector according to defined selection criteria |
| 2.2 Enabling framework provided to update current catalog of energy efficient appliances available to the public sector through their procurement platforms | 2.2.1 Coordinate with procurement platforms used by the public sector (i.e. SICOP and MER-LINK) the required conditions to facilitate procurement of efficient lighting products and appliances |
| | 2.2.2 Evaluate availability of energy efficient lighting products and appliances in the domestic market complying with Executive Directive 011-MINAE and update database of energy efficient appliances |

| | |
|---|---|
| | 2.2.3 Issuance of framework agreement on energy efficient appliances (i.e. lighting, air conditioning and refrigeration) to be adopted by the procurement platforms used by the public sector |
| 2.3 Training delivered to (A) procurement and environmental management officials from highest energy consuming public institutions; (B) efficient appliances and energy efficiency service providers; and (C) technical public officials | 2.3.1 Provide training to (A) procurement and environmental management officials from highest energy consuming public institutions on (1) economic and environmental benefits from energy efficiency (2) procurement of efficient appliances and energy efficiency services and (3) procedures of conformity assessment, certification and labeling for products verification and compliance with the specification of product for energy efficiency |
| | 2.3.2 Provide training to (B) efficient equipment and energy efficiency service providers on government's specifications (i.e. procedures of conformity assessment, certification and labeling for products verification and compliance with the specification of product for energy efficiency) |
| | 2.3.3 Strengthen capacities of (C) public technical officials in charge of training related to energy efficiency (i.e. train the trainers) |
| 2.4 Online platform launched to centralize information resources relevant for procurement of efficient appliances and energy efficiency services | 2.4.1 Develop and launch online platform to centralize information resources relevant for procurement of efficient appliances and energy efficiency services (i.e. database of energy efficiency companies, framework agreement on efficient appliances, etc) |

**Component 3 – Support to the establishment of a Revolving Loan Fund (RLF) for the financing of large-scale replacement programs in the public sector**

To give continuity to the electrical appliance modernization process in the public sector, it is proposed to set up a specialized financial mechanism to provide financing to public sector institutions. A large-scale conventional appliance replacement program is needed. Furthermore, it is desirable for such effort to be systematic and sustainable in terms of resources and over time. The VII PNE sets as one of its goals to improve the efficiency of lighting products and appliances used by the public sector through the creation of a revolving fund to finance massive substitution of inefficient lighting and appliances. Therefore, Component 3 will contribute to this goal by establishing a revolving fund (RLF).

Outputs 3.2 and 3.3 will be conducted by U4E Centre of Excellence through its partner organizations (i.e. Carbon Trust, Base), who has proven experience implementing similar financial mechanisms. Furthermore, the Central American Bank for Economic Integration (CABEI) – appointed as Executing Agency of the project has an outstanding track record executing and leveraging funding for similar financial mechanisms related to energy efficiency and renewable energy in the region. Component 3 will start with the creation of a Steering Committee who will oversee the establishment and operation of the RLF.

During formulation phase of the project, existing financial mechanisms from CABEI were identified such as: MIPYMES Verdes Initiative, ARECA Project and PROMUNI Municipal Infrastructure Financing Program – refer to section A.2. CABEI has made available these financial mechanisms to the project. Hence, allowing the revolving fund to build upon an existing mechanism rather than embarking on the establishment of the RLF from the beginning. Annex O, provides a contextualization of one of CABEI's financial mechanism in terms of its governance structure and investment criteria. U4E Centre of Excellence through its partner organizations (i.e. Carbon Trust, Base) will assess the existing financial mechanisms available from CABEI from a legal, financial and operational point of view to determine the best architecture for a revolving fund for the financing of large-scale replacement of conventional appliances in the public sector. To date, strict regulations apply in terms of financing and indebtedness of certain public institutions. Thereby, this should be revised by the project to be considered by the RLF. The financial model of the RLF (i.e. generation, distribution and pay-back mechanics) will be elaborated with close support from the project's co-financing partners (i.e. especially CABEI and the Costa Rican Institute of Electricity who have significant experience in the field). It is important for the RLF to address the incremental cost of efficient lighting and appliances compared to conventional and obsolete lighting and appliances as well as the financial sustainability in order not to deplete its funding. In this sense, an accounting, auditing and control system, a risk management plant as well as operational procedures will be defined to ensure the sustainability of the RLF and to make sure its operations are in accordance to its intended purpose.

Once the revolving is established, Component 3 will allocate a seed capital to operationalize the RLF. It is expected for this seed capital to attract more funding. Again, CABEI's experience leveraging funding will be crucial to raise funding for the RLF. Furthermore, based on the prioritized energy efficiency opportunities identified by Output 1.1 in strategic sites from high energy consuming public institutions. Component 3 will deploy demonstration projects to showcase the revolving fund is operational. In addition, the tracking instrument for the quantification of benefits from Output 1.2 will also be showcased with the demonstration projects. This will also help to track progress of the GEF projects accomplishments (e.g. energy savings, GHG direct emission reductions, mercury or refrigerant gas recovered). By the end of Component 3 it is expected for the revolving fund to be operational and ready to finance additional projects for large-scale replacement in the public sector.

Expected Outcome 3: A revolving fund is designed for the financing of procurement of efficient appliances that ensures sustainability of large-scale replacement programs.

Table 11. Outputs and activities for Component 3

| Outputs | Activities |
|---|---|
| 3.1 RLF Steering Committee created | 3.1.1 Create a Steering Committee for decision making and supervision of establishment and operation of RLF |
| 3.2 Legal, financial and operational aspects of the RLF assessed to ensure sustainability of large-scale replacement programs in the public sector | 3.2.1 Conduct a legal feasibility study to assess borrowing capacity from public institutions and recommend alternatives to engage them with large-scale replacement programs |
| | 3.2.2 Analyze the suitability of existing financial mechanisms and recommend a financial model for the RLF (i.e. generation, distribution and pay-back mechanics) |
| | 3.2.3 Define RLF's operational procedures (e.g. review, evaluation and selection of projects) |
| | 3.2.4 Design a risk management plan for the RLF |
| 3.3 Accounting, auditing and control system deployed to ensure transparency from the RLF | 3.3.1 Develop an accounting, auditing and control system for RLF |
| 3.4 Seed capital allocated to operationalize the RLF | 3.4.1 Allocate seed capital to operationalize the RLF |
| 3.5 Demonstration projects implemented to showcase energy efficiency in the public sector | 3.5.1 Deploy demonstration projects based on prioritized opportunities from energy diagnosis (from Output 1.1) |
| | 3.5.2 Supervise benefits obtained from demonstration projects using tracking instrument (from Activity 1.2.1) |

**Component 4 - Development of capacities for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances**

Component 4 builds upon efforts carried by the Ministry of Health and the Environmental Quality Management Directorate (DIGECA) appointed as leading public body and assistance body (respectively) in terms of integrated waste management (Legislative Act 8839, 2010). Outputs under Component 4 aim to strengthen capacities of relevant stakeholders and to increase their implementation scope with regard to end-of-life integrated management of lighting, refrigeration and air conditioning appliances. DIGECA is currently working on a solution for environmentally sound end-of-life integrated management of disposed refrigerants (e.g. R-410A, R-134a and R-22) and mercury contained in replaced lighting products and appliances. The project will contribute with part of the equipment needed and the rest would be acquired by others means by DIGECA. More specifically, the project will contribute with procurement of:

- Three storage tanks and their respective recovery equipment for refrigerant gas with a storage capacity of 1,000 lb (DIGECA has already procured six of these storage tanks and recovery equipment for refrigerant gas)

- One fluorescent lamp compressor with a carbon-activated filter to extract and store mercury from disposed fluorescent lighting products

Procured recovery equipment will be operated by authorized waste handlers – entitled by the Ministry of Health to provide end-of-life integrated management of disposed lighting products and appliances – and DIGECA will oversee their operation.

Component 4 also includes the creation of an enabling framework for environmentally sound end-of-life integrated management services (i.e. from lighting, air conditioning and refrigeration) for public procurement. Similarly to Output 2.2, a framework agreement for environmentally sound integrated waste management services will be created to be adopted by the public sector procurement platform (i.e. SICOP). The reason to do so is because a similar – yet more generic – waste framework agreement was used by Compr@Red (previous public procurement platform) but it expired in 2016 and has not been renewed.

Moreover, Articles 9 and 10 from Executive Mandate No 38272-S, define criteria for the establishment of recovery targets of special handling waste – including replaced lighting products and appliances. However, a methodology is needed to set recovery targets. Thereby, together with DIGECA and the Ministry of Health, a methodology will be developed to establish recovery targets for substituted conventional lighting, air conditioning and refrigeration appliances.

Similarly to Component 2, the project will build upon a training initiative carried by MINAE under the Program for the Strengthening of Institutional Environmental Management Plans (PGAI in Spanish) to provide technical training to public institutions, including energy efficiency and integrated waste management. This capacity building initiatives will be strengthened by the project through the collaboration from U4E Centre of Excellence. Both, MINAE and U4E will provide training related to environmentally sound end-of-life integrated management of replaced lighting products and appliances focusing on three relevant stakeholders. First, procurement and environmental management officers from high energy consuming public institutions and secondly private sector stakeholders (i.e. waste compliance and units and authorized waste handlers). Both group of stakeholders will receive training on legislation related to special waste integrated management (i.e. Executive Mandate 38272-S). Thirdly, capacity building will also be provided to public sector technical officials by granting access to at least one public official to Ambilamp Academy's technical training on integrated waste management of disposed lighting products.

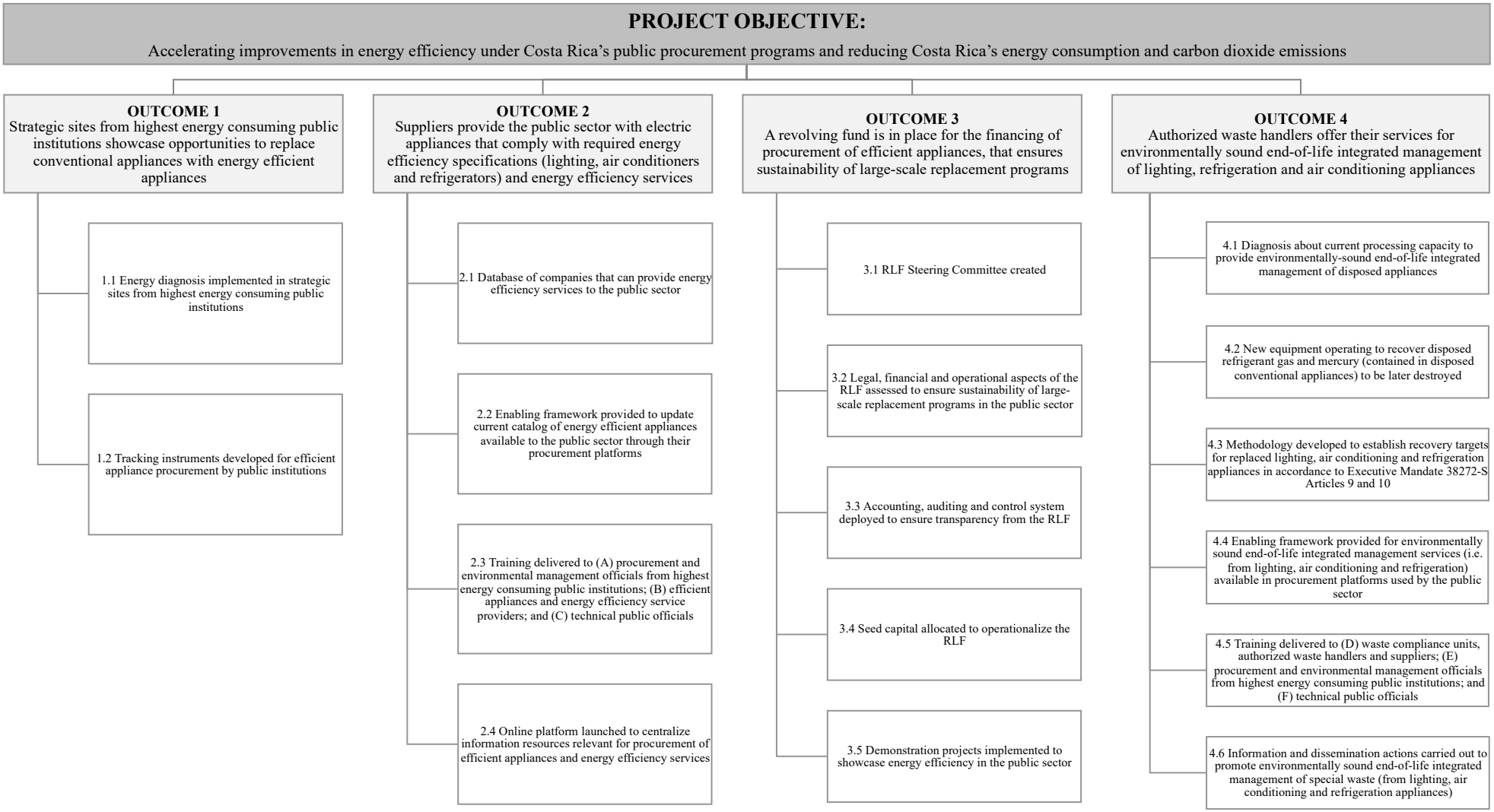
Component 4 will include hiring of a social media and communication consultant to conduct information and dissemination actions through social media to promote environmentally sound end-of-life integrated management of special waste (from lighting, air conditioning and refrigeration appliances). This consultant will make use of MINAE's existing social media channels to periodically design and disseminate information resources targeted to citizens (e.g. infographics, day-to-day tips) and based on project outcomes related to environmentally sounded end-of-life integrated waste management of so called "special handling waste".

Expected Outcome 4: Authorized waste handlers offer their services for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances.

Table 12. Outputs and activities for Component 4

| Outputs | Activities |
|---|---|
| 4.1 Diagnosis about current processing capacity to provide environmentally-sound end-of-life integrated management of disposed appliances | 4.1.1 Diagnose the current processing capacity of authorized waste handlers that provide end-of-life integrated management services (i.e. from lighting, air conditioning and refrigeration) |
| 4.2 New equipment operating to recover disposed refrigerant gas and mercury (contained in disposed conventional appliances) to be later destroyed | 4.2.1 Acquire 3 refrigerant gas tanks and recovery equipment and high capacity storage tanks |
| | 4.2.2 Acquire 1 specialized equipment to recover mercury contained in disposed fluorescent lighting appliances |
| | 4.2.3 Acquired equipment installed and commissioned |
| 4.3 Methodology developed to establish recovery targets for replaced lighting, air conditioning and refrigeration appliances in accordance to Executive Mandate 38272-S Articles 9 and 10 | 4.3.1 Develop a methodology to establish recovery targets for replaced conventional lighting, air conditioning and refrigeration appliances in accordance to Executive Mandate 38272-S Articles 9 and 10 |

| | |
|---|---|
| 4.4 Enabling framework provided for environmentally sound end-of-life integrated management services (i.e. from lighting, air conditioning and refrigeration) available in procurement platforms used by the public sector | 4.4.1 Issuance of new framework agreement on waste from end-of-life integrated management of lighting, refrigeration and air conditioning appliances to be adopted by the procurement platforms used by the public sector |
| 4.5 Training delivered to (D) waste compliance units, authorized waste handlers and suppliers; (E) procurement and environmental management officials from highest energy consuming public institutions; and (F) technical public officials | 4.5.1 Provide training to (D) waste compliance units, authorized waste handlers as well as efficient appliance providers and energy efficiency service providers on legislation related to special waste integrated management (i.e. Executive Mandate 38272-S) |
| | 4.5.2 Provide training to (E) procurement and environmental management officials from highest energy consuming public institutions on legislation related to special waste integrated management (i.e. Executive Mandate 38272-S) |
| | 4.5.3 Strengthen capacities of (F) technical public officials related to environmentally sound integrated management of replaced conventional appliances by facilitating access to international training opportunities (e.g. Ambilamp Academy) |
| 4.6 Information and dissemination actions carried out to promote environmentally sound end-of-life integrated management of special waste (from lighting, air conditioning and refrigeration appliances) | 4.6.1 Conduction of information and dissemination actions through social media to promote environmentally sound integrated management of special waste (from lighting, air conditioning and refrigeration appliances) and to avoid reuse or reselling of replaced conventional appliances in accordance to Executive Mandate 011-MINAE |


PROJECT OBJECTIVE:
Accelerating improvements in energy efficiency under Costa Rica's public procurement programs and reducing Costa Rica's energy consumption and carbon dioxide emissions
OUTCOME 1
Strategic sites from highest energy consuming public institutions showcase opportunities to replace conventional appliances with energy efficient appliances
1.1 Energy diagnosis implemented in strategic sites from highest energy consuming public institutions
1.2 Tracking instruments developed for efficient appliance procurement by public institutions
OUTCOME 2
Suppliers provide the public sector with electric appliances that comply with required energy efficiency specifications (lighting, air conditioners and refrigerators) and energy efficiency services
2.1 Database of companies that can provide energy efficiency services to the public sector
2.2 Enabling framework provided to update current catalog of energy efficient appliances available to the public sector through their procurement platforms
2.3 Training delivered to (A) procurement and environmental management officials from highest energy consuming public institutions; (B) efficient appliances and energy efficiency service providers; and (C) technical public officials
2.4 Online platform launched to centralize information resources relevant for procurement of efficient appliances and energy efficiency services
OUTCOME 3
A revolving fund is in place for the financing of procurement of efficient appliances, that ensures sustainability of large-scale replacement programs
3.1 RLF Steering Committee created
3.2 Legal, financial and operational aspects of the RLF assessed to ensure sustainability of large-scale replacement programs in the public sector
3.3 Accounting, auditing and control system deployed to ensure transparency from the RLF
3.4 Seed capital allocated to operationalize the RLF
3.5 Demonstration projects implemented to showcase energy efficiency in the public sector
OUTCOME 4
Authorized waste handlers offer their services for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances
4.1 Diagnosis about current processing capacity to provide environmentally-sound end-of-life integrated management of disposed appliances
4.2 New equipment operating to recover disposed refrigerant gas and mercury (contained in disposed conventional appliances) to be later destroyed
4.3 Methodology developed to establish recovery targets for replaced lighting, air conditioning and refrigeration appliances in accordance to Executive Mandate 38272-S Articles 9 and 10
4.4 Enabling framework provided for environmentally sound end-of-life integrated management services (i.e. from lighting, air conditioning and refrigeration) available in procurement platforms used by the public sector
4.5 Training delivered to (D) waste compliance units, authorized waste handlers and suppliers; (E) procurement and environmental management officials from highest energy consuming public institutions; and (F) technical public officials
4.6 Information and dissemination actions carried out to promote environmentally sound end-of-life integrated management of special waste (from lighting, air conditioning and refrigeration appliances)

**4)** Incremental/additional cost reasoning **and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and** co-financing

The current project aims to focus on the public sector so that it can lead with example and allow other sectors to follow. The VII PNE recognizes the lack of resources as well as outdated policy instruments as some of the main barriers to energy efficiency in Costa Rica (MINAE, 2015). This project builds upon previous efforts carried locally by the Costa Rican government and regionally together with international initiatives (e.g. en.lighten) and contributes to strengthening capacities and filling implementation gaps through policy-making inputs or specialized technology. To date, the public sector is the only sector obliged to procure efficient appliances (Executive Mandate No 011-MINAE, 2014). Local efforts to engage and train relevant actors have contributed to raise awareness on the importance of energy efficiency among appliance suppliers and public institutions. However, there is still need to strengthen capacities, fill in operational voids and most importantly make energy efficiency a permanent and systematic effort – these are some of the main areas that the current project is targeting.

Moreover, the project contributes to the upscaling of energy efficiency efforts by designing the architecture of a financial mechanism for large-scale replacement of conventional and obsolete appliances. To date, this type of appliances is still available in the Costa Rican market although it has been set as priority to gradually face out their consumption. The project will contribute to establishing a revolving fund for the modernization of lighting, air conditioning and refrigeration appliances in the public sector with the potential to expand its scope of action to other types of appliances or sectors (such as the private sector). To date, energy efficiency programs have been intermittent and with a significantly limited scope of action (MINAE, 2015).

Finally, the project provides specific outputs to deal with substituted conventional appliances through the conduction of an environmentally sound end-of-life integrated waste management. Costa Rica has created a strong policy framework (Legislative Act 8839, 2010) yet its implementation requires specific contributions to strengthen national capacities and raise awareness. Although the project focuses on waste derived from substituted lighting, air conditioning and refrigeration appliances, the outcomes can be replicated to other types of waste.

The current project will set a precedent for energy efficiency in Costa Rica by reinvigorating and strengthening efforts that are currently been made or contributing to priority targets that have not been accomplished. Costa Rica has done an outstanding work to incorporate sustainable energy sources to its electricity-generation system, yet improvements to electricity demand have lagged. The current project expects to kick start energy efficiency at the demand side and get rid of conventional and inefficient appliances not only to reduce energy consumption and related costs but also to meet the country's ambitious climate mitigation targets.

**5)** Global environmental benefits **(GEFTF) and/or** adaptation benefits **(LDCF/SCCF)**

The project will contribute to global environmental benefits through energy savings leading to GHG emissions reduction. It will also enable the sound management of the hazardous waste (refrigerant gas and mercury) which will generated by the replacement and disposal of conventional appliances.

A period of analysis of 15 years post-project (2021-2035) has been considered to quantify the benefits. The following paragraphs describe the main assumptions and results for Direct and Indirect benefits. Further details on the calculations are provided in Annex J-2.

*Direct GHG emissions reductions*

The direct GHG emissions reductions resulting from this project have been estimated considering the potential energy savings due to the replacement of conventional appliances by energy efficient appliances in Costa Rica's public institutions once the national policy on public procurement is enforced.

Assuming the framework agreement is adopted in 2020 (i.e.by project technical completion), any building lighting, refrigerator or air conditioner to be procured in the public sector from 2021 onwards will have to comply with energy efficiency standards. Since these 3 technologies have a life expectancy of 10 years or less, it is assumed that all the inefficient or conventional building lightings, refrigerators and air conditioners in public institutions will have been replaced by 2030 with the best available technologies (with the financial support from the Revolving Loan Fund whenever required). Based on this and for the purpose of quantifying the environmental benefits, a linear replacement rate of 10% per year, has been considered starting in 2021 (i.e. 10% in 2021; 20% in 2022; 30% in 2023; etc.), reaching full replacement of the obsolete appliances by the best available energy efficient technology by year 2030 (refer to detailed assumptions and calculations in Annex J-2).

Under these assumptions, the project would allow a total of 8,954,397 MWh of Direct energy savings and 660,655 $tCO_{2eq}$ Direct GHG emissions reductions over the period 2021-2035 – translating into a cost effectiveness of 3.02 US$/tCO2eq mitigated.

However, as agreed with the GEF Secretariat, the Direct benefits attributable to each of the child projects under the "*Leapfrogging markets to high efficiency products (appliances, including lighting and electrical equipment)*" Programme shall represent 50% of the projects' estimated Direct GHG emission reductions. Under this condition, **the project's targets are 330,328 $tCO_{2eq}$ of Direct GHG emission reductions and 4,477,199 MWh (or 16,117,915 GJ) of Direct energy savings by year 2035.**

*Indirect GHG emissions reductions*

The Indirect GHG emissions reductions resulting from this project have been estimated under the assumption that the framework agreement could be further expanded to cover street lighting by 2024 (4 years after project completion) Indeed, the procurement of street lighting in Costa Rica is managed by the ministry. Under this assumption, any street lighting to be procured in the public sector from 2025 onwards will have to comply with energy efficiency standards. Since this technology has a life expectancy of 10 years or less, it is assumed that all the inefficient or conventional street lighting will have been replaced by 2034 with the best available technology (once again, with the financial support from the Revolving Loan Fund whenever required). For the purpose of quantifying the environmental benefits, a linear replacement rate of 10% per year, has been considered starting in 2025 (i.e. 10% in 2025; 20% in 2026; 30% in 2027; etc.), achieving complete replacement of the obsolete appliances by the best available energy efficient technology by year 2034 (refer to detailed assumptions and calculations in Annex J-2).

Based on the above, the project will target a total of **98,537 $tCO_{2eq}$ of Indirect GHG emissions reductions** over the period 2021-2035.

*Other environmental benefits*

Finally, as described in Component 4, the project will contribute to the environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances to be disposed following the pilot demonstrations and the further large-scale replacement programmes. The GEF project will allow Costa Rica to increase its ability to handle hazardous waste through:

- The procurement of 3 refrigerant gas storage tanks along with the required recovery equipment, **increasing the country's refrigerant storage capacity by 3,000 lb;**
- The procurement of 1 specialized piece of equipment to recover mercury contained in disposed fluorescent lighting appliances, with a **capacity to process the mercury contained in 18,000 CFLs** (at least).

**6) Innovativeness, sustainability and potential for scaling up**

The proposed project supports the GEF climate change focal area objective CCM-1 that deals with the promotion, demonstration, deployment, and transfer of **innovative low-carbon technologies**. The project aims to set a precedent for energy efficiency in Costa Rica by providing incremental improvements to the current electricity regime as well as providing a new financial mechanism for large-scale replacement of conventional and obsolete appliances through a revolving fund.

On **sustainability**, several risks may affect the likelihood of continuation of the project's benefits after the project ends. These are listed in the next section A.5 and possible risk mitigation measures are assessed. The project will expand its strong partnership with private sector companies, technical organizations and international agencies and initiatives to encourage energy efficiency innovation and its duly public procurement.

Regarding **scaling up**, the project has been designed to focus on the public sector to empower it to lead with example in terms of energy efficiency. The replacement of conventional and obsolete appliances in public institutions is envisioned to be scaled up, starting from a small number of demonstration projects focused on the highest energy consuming public institutions and then expanded to all public institutions through the enforcement of the national policy on public procurement and the support from the revolving fund. Since 2015, the government of Costa Rica forbids the procurement of low efficiency appliances to public institutions (Executive Mandate No 011-MINAE).

The project will support the government in revising the existing energy efficiency requirements for lighting, refrigeration and air conditioning by defining more ambitious energy efficiency requirements for the technical specifications to access the revolving loan fund. Based on the fund's technical specifications, the project will also design a framework agreement on energy efficient appliances (i.e. lighting, air conditioning and refrigeration) for the procurement platforms used by the public sector. The project will also assess borrowing capacity from public institutions and recommend alternatives to engage them in large-scale replacement programs. These activities will help the government in defining a clear roadmap for the replacement of obsolete technologies in the public sector.

If the revolving loan fund is proven to be successful, the technology scope can be expanded to cover additional products such as water pumps (or pumping systems) that consume 24% of the electricity consumed by the public sector. Street lighting could also be targeted since in Costa Rica, the utilities are public institutions and they are in charge of installing and providing street lighting to their customers. Moreover, they are already committed to the renewal of street lighting equipment by more efficient technologies (e.g. LED technology).

In the end, the energy efficiency specifications defined for the revolving fund will be used by the Government of Costa Rica to revise the current MEPS in place in the country. Building on the outputs and experience gained through the project, Costa Rica can develop a roadmap to enforce the energy efficiency regulations in the country with revised MEPS and the establishment of a financial mechanism to accelerate the deployment of energy efficient lighting, appliances and products in non-public sectors, such as the industrial sector, the residential sector, the commercial sector, etc.

***A.2. Child Project?*** **If this is a child project under a program, describe how the components contribute to the overall program impact.**

The current project is hosted under the program "Leapfrogging markets to high efficiency products (appliances, including lighting, and electrical equipment)" lead by UNEP. The Program builds on the UNEP-GEF global project "Establishing the Foundations of a Partnership to Accelerate the Global Market Transformation for Efficient Appliances and Equipment" (UNEP Project #5831), hereinafter called the "SE4ALL Global Project". The project is called this due to its contribution to the UN Secretary General's Sustainable Energy for All (SE4ALL) initiative's Lighting and Appliance & Equipment Accelerators. The SE4ALL Global Project has formed a global partnership, recently named United for Efficiency (U4E), which compiles international organizations, like-minded organizations, and private sector companies. Further, by the end of the project, it will have the commitment from at least thirty countries to transform their markets to energy efficient lighting, appliances, and equipment.

The program "Leapfrogging markets to high efficiency products (appliances, including lighting, and electrical equipment" proposed GEF program, hereinafter called the "Global Leapfrogging Program" utilizes the resources already developed under SE4ALL Global Project, such as country assessments and best practice policy guides to increase the number of countries committing to advance energy efficient products. Further, it follows the consensus recommendations on the policy framework when developing technical guides and training under the Global Leapfrogging Program. This relationship is reflected in the Figure 1 below and the text describing each component.


Figure 6. Relation between the SE4ALL Global Project (#5831) and the Global Leapfrogging Program (#9083)

The Global Leapfrogging Program was originally submitted (GEF Council October 2015) with child projects of Costa Rica, Kazakhstan, and Sudan and a projected eight additional countries are expected to join. The project was re-submitted (GEF Council March, 2016) with child projects in Myanmar, Indonesia, Tunisia, South Africa, and Chile. Other countries interested in submitting a child project under Global Leapfrogging Program, include China and Lesotho. For each child project, a concept note including national background, policy status, baseline scenario, description of individual national components, and potential savings.

The Leapfrogging Program is divided into three components:

- Component 1: National child projects on lighting, appliances, and equipment
- Component 2: Global services for partner countries
- Component 3: Outreach on Efficient Appliances and Equipment

The current project's components contribute to the Leapfrogging Program as described below:

- **Creation of monitoring, verification and enforcement (MVE)** capacities to ensure an effective transition to efficient appliances and equipment markets. Output 1.2 of the proposed project specifically address the challenge to provide tracking instruments in terms of public procurement of of efficient appliances. Furthermore, an accounting, auditing and control system will be deployed to track progress of the revolving fund and will promote the use of the tracking instrument developed under Output 1.2 among the demonstration projects financed by the revolving fund.
- **Supporting policies for the market transformation to energy efficient products.** Throughout the project policy-making inputs will be provided to ensure public procurement of efficient appliances and environmentally sound end-of-life integrated management of substituted conventional equipment. In addition, a large-scale replacement program will be design to support the establishment through a financial mechanism (i.e. revolving fund) under Component 3.
  Communication and information actions are considered to raise awareness about environmentally sound end-of-life integrated management of substituted conventional appliances. And as mentioned above, demonstration projects are considered to showcase successful examples of conventional appliance replacement. Technical trainings are transversal to the project to make sure policy-making inputs are adopted and duly implement
- **Ensuring environmentally sound management and sustainable transition to efficient appliances and equipment.** Environmentally sound management systems ensure that precautions are taken to safeguard the environment and human health throughout the full lifecycle of appliances and equipment. Component 4 builds upon current efforts being made in terms of integrated waste management and provides policy-making inputs, specialized equipment, capacity building and conducts awareness campaigns to make sure that replaced conventional and obsolete lighting, air conditioning and refrigeration appliances are handled in environmentally sound manner

***A.3. Stakeholders.*** **Identify key stakeholders and elaborate on how the key stakeholders engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations** (yes ☐ /no☒)? **and indigenous peoples** (yes ☐ /no☒)? [14]

Leading public institutions as well as the private and financial sector have been directly engaged throughout the project preparation phase:

- MINAE through the Energy Sector Directorate (DSE) as well as the Environmental Quality Management Directorate (DIGECA) have assisted in the construction of outputs aiming to create a symbiosis with the national priorities and ongoing initiatives.
- The Ministry of Health and the Treasury Ministry (appointed as leading body in terms of waste management and public procurement, respectively) have also contributed and approved the outputs and activities proposed in this project.
- CABEI, who was appointed as the Executing Agency, participated in the definition of the activities, especially the ones related to the establishment of the revolving fund under Component 3. The bank offered to build upon their existing financial mechanisms for energy efficiency and renewable energy, and expressed their intent to increase financing for the revolving fund once it is established.
- Electric utilities were consulted through the National Commission for Energy Conservation (CONACE) and provided detailed information for the project (i.e. top 20 highest electricity consuming public institutions and candidate sites from top 20 to conduct energy diagnosis). Electric utilities intend to contribute notably for capacity building activities related to energy efficiency and integrated waste management of replaced appliances.
- Standard setting bodies were consulted to provide inputs concerning the technical standards required to foster the implementation related to energy efficiency (i.e. ISO 50001 and standards related to energy service companies).
- Additional stakeholders from the private sector (i.e. lighting and appliances providers and local energy service companies) and financial sector (i.e. GCPF, Banco Promerica) Efficient and energy service companies were consulted and provided support in the definition of activities.

The project proposal was validated at the final stakeholder consultation workshop that was organized at MINAE on March 3rd, 2017. This workshop brought together representatives from lead public bodies (i.e. MINAE, DIGECA, Treasury Ministry), electric utilities (i.e. ICE, CNFL, ESPH, COOPEALFARO RUIZ and COOPELESCA), CABEI and UN Environment/U4E Centre of Excellence. Several participants highlighted the work done during the PPG phase of the project to coordinate with existing initiatives as well as lead public agencies.

Since the project specifically focuses on public institutions, civil society was not directly consulted during the project preparation phase, it is not a direct stakeholder for this project and its activities.

The table 13 below provides an overview of the key stakeholders contributing to the project:

[14] As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.

Table 13. Stakeholders involved for the GEF project

| Category | Stakeholder | General Duty and Relation to the Project | Engagement and/or Contribution to the Project | Component |
|---|---|---|---|---|
| Governmental bodies | Ministry of Energy and Environment (MINAE) | It is the lead public body responsible for coordinating the country's energy sector and administering Costa Rica's environmental protection resources. It is made up of different decentralized agencies attached to the Ministry. | Appointed as leader of Project Steering Committee (PSC) – refer to Annex H<br>Will provide in-kind co-financing to the project through its decentralized agencies – refer to Annex H | All Components |
| Governmental bodies | Energy Sector Directorate (DSE) | Hosted by MINAE and has been appointed as lead body in terms of national energy planning and decision-making.<br>Responsible for formulating and promoting comprehensive energy planning, through policies and strategic actions that guarantee the timely supply and quality of energy, contributing to the sustainable development of the country.<br>DSE, through its technical staff were in charge of the conceptualization and provided support during preparation phase. | Will be part of PSC<br>Will be part of project's working groups: (I) Technical Taskforce, (II) Capacity Building Taskforce and (III) Financial Taskforce<br>Will lead implementation of Outputs 2.3, 4.5<br>Will supervise implementation of all Outputs | All Components |
| Governmental bodies | Energy Direction | Established by the latest VII PNE to strengthen MINAE's capacity to ensure implementation of energy efficient actions. | Will replace DSE and will oversee execution once the project finishes<br>Will be engaged by DSE during project implementation to ease transition | All Components |
| Governmental bodies | Environmental Quality Management Directorate (DIGECA) | Hosted by MINAE and is in charge of dealing with the so-called "brown agenda", which deals with pollution issues from a preventive perspective, hence promoting environmental management (through voluntary mechanisms and regulations) to ensure that projects and activities, both public and private, are framed in a vision of sustainable development.<br>Appointed by Legislative Act 8839 in 2010 as technical assistance body in terms of integrated waste management.<br>Hosts the Ozone Technical Office in accordance to the Montreal Protocol and the Mercury Technical Office in accordance to the Minamata Agreement | Will be part of (II) Capacity Building Taskforce<br>Will provide support to the implementation of Outputs 2.3 and 2.4, 4.1, 4.3, 4.4, 4.5 and 4.6<br>Will supervise implementation of Output 4.2 | Component 2 and 4 |
| Governmental bodies | Treasury Ministry | Aside from its duties related to public finance, is the lead body in terms of public procurement. Supervises the formulation of framework agreements which supply the public sector public procurement platforms with products and services – including efficient lighting products and appliances<br>The current public procurement platform developed by the Treasury Ministry is named Integrated Purchase System for Public Institutions (SICOP), hence considered the official public sector procurement platform | Will be part of PSC<br>Will provide support to the implementation of Outputs 2.1, 2.2, 2.3, 2.4, 4.1, 4.4, 4.5, 4.6 | Component 2 and 4 |

| Category | Stakeholder | General Duty and Relation to the Project | Engagement and/or Contribution to the Project | Component |
|---|---|---|---|---|
| Governmental bodies | Ministry of Health | Aside from its duties related to national health, it was appointed by Legislative Act 8839 in 2010 as lead public body in terms of integrated waste management.<br>Supervises "Waste Compliance Units" and their annual waste management plan in accordance to Executive Mandate No 37567-S-MINAET-H<br>Supervises "Authorized Waste Handlers" – lawful entities who conduct adequate waste management<br>Therefore, environmentally-sound end-of-life integrated waste management of replaced inefficient and conventional lighting products and appliances governed by the Ministry of Health | Will be part of PSC<br>Will provide support to the implementation of Component 4<br>Will supervise implementation of Outputs 4.1 and 4.3 | Component 4 |
| Governmental bodies | Climate Chante Directorate (DCC) | Hosted by MINAE and it is in charge to coordinate, manage and formulate public policy on climate change, promoting the integration of an inter-ministerial agenda. | Will be of invited to be part of project's working group: (I) Technical Taskforce<br>Can provide support to the implementation of Output 1.2, 2.3 and 4.5 | All Components |
| Electricity supply | National Commission for Energy Conservation (CONACE) | Was reactivated in 2015 to coordinate inter-institutional actions on energy efficiency and energy conservation.<br>CONACE is formed by MINAE, together with the eight electric utilities present in Costa Rica and the National Authority for Public Service Regulation (ARESEP).<br>The VII PNE designates CONACE as lead entity for implementation of energy efficiency-related targets, including public sector procurement of efficient appliances. | Will be part of PSC<br>Will be part of project's working groups: (I) Technical Taskforce, (II) Capacity Building Taskforce and (III) Financial Taskforce<br>Electric utilities that are part of CONACE are co-finance partners to the project (i.e. ICE, COOPELESCA, ESPH)<br>Will provide support to Outputs 1.1, 1.2, 2.2 2.3, 2.4,, 3.1,3.2, 3.5, 4.5, 4.6<br>CONACE can channel communication and cooperation between the project and electric utilities. | All Components |
| Electricity supply | Costa Rican Institute of Electricity (ICE) | Costa Rica's largest electricity company, it is a vertically-integrated autonomous public institution in charge of supply, transmission and part of the distribution and retail of electricity.<br>Aside from its commitments with CONACE, ICE hosts the Energy Efficiency Laboratory (LEE in Spanish) which provides testing and technical assistance services. | Will be part of PSC<br>Will be of invited to be part of project's working groups: (I) Technical Taskforce, (II) Capacity Building Taskforce and (III) Financial Taskforce<br>Will provide in-kind co-financing to the project though its own technical staff<br>Will provide support to Outputs 1.1, 1.2, 2.1, 2.3, 3.1, 3.2, 3.3, 3.5 and 4.5 | All Components |
| Financial Institutions | Central America Bank for Economic Integration (CABEI) | International development bank whose objective is to promote the integration and the development of its founding member countries: Guatemala, Honduras, El Salvador, Nicaragua and Costa Rica.<br>CABEI has a strong track record providing finance, managing funding and executing projects related to energy and infrastructure in Central America. | Appointed as Executing Agency of the project<br>Appointed as leader of Project Management Unit (PMU) – refer to Annex H | All Components |

| Category | Stakeholder | General Duty and Relation to the Project | Engagement and/or Contribution to the Project | Component |
|---|---|---|---|---|
| Public-private partnership | United for Efficiency Centre of Excellence (U4E) | U4E is a public-private partnership led by UNEP, GEF, the United Nations Development Programme (UNDP) and other international partners. U4E is a global effort supporting developing countries and emerging economies to move their markets to energy-efficient appliances and equipment.<br>U4E builds on the success of the en.lighten initiative, which accelerates the transition to efficient lighting worldwide. | Will provide technical support to activities 1.2.1, 1.2.2, 2.3.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 4.1.1, 4.3.1, 4.5.1, 4.5.2 and 4.5.3<br>Specific to the revolving fund under Component 3, U4E will contribute to Output 3.2 and 3.3 through its international partners (i.e. Carbon Trust, Base) | All Components |
| National standards-setting bodies | Institute of Technical Standards of Costa Rica (INTECO) | It is a private non-for-profit association created in 1987 and endorsed by the government as the national standards-setting body through Legislative Act 8279.<br>In terms of energy efficiency, INTECO has contributed in the formulation and adaptation the technical standards and regulations. | Will be part of project's working groups: (I) Technical Taskforce<br>Will lead implementation of Activity 2.1.3 | Component 2 |
| National standards-setting bodies | Costa Rican Accreditation Body (ECA) | It is a non-state public body, created by Legislative Act 8279 in 2002 to support the technical competence and credibility of accredited entities, including the products and services they offer (e.g. ECA accredited testing services provided by ICE's Energy Efficiency Laboratory)<br>Supervises the development and adoption of technical standards in the country and the correspondent verification and validation bodies | Will be part of PSC<br>Can supervise implementation of Activity 2.1.3 | Component 2 |
| Private sector | Efficient lighting and appliances providers and Energy service companies | This includes domestic and international efficient appliance providers (i.e. importers, distributors, retailers) as well as energy efficiency service providers<br>Several local efficient lighting and appliances providers have been trained in the light of PGAI and Executive Mandate No 011-MINAE by DIGECA and DSE to duly procure efficient products to the public sector. | Will be invited to be part of project's working group: (I) Technical Taskforce<br>Will be engaged through Outputs 2.1, 2.2, 2.4, 4.6<br>Will be trained through Output 2.3 and 4.5 | Component 1, 2 and 3 |
| Private sector | Waste compliance units and Authorized waste handlers | Waste Compliance Units are a legal figure composed by one or more producers or importers who have the responsibility to establish the mechanisms and actions to ensure an integrated management and sustainability of their waste. They are an operational structure that allows to comply with the principle of Extended Producer Responsibility (EPR) and in accordance with national technical, health and environmental guidelines.<br>Authorized waste handlers are a natural or legal, public, private or mixed economy figure who works in total or partial management of waste (i.e. collection, transport, storage, recovery, disassembly, export, treatment and disposal). | Will be invited to be part of project's working group: (I) Technical Taskforce<br>Will be engaged through Outputs 4.1, 4.2, 4.3, 4.4, 4.6<br>Will be trained through Output 4.5 | Component 4 |
| Other | Private sector, academia and civil society | Other private sector and civil society stakeholders | Will be invited to be part of project's working group: (I) Technical Taskforce<br>Will be engaged through Output 4.6 | All Components |

***A.4. Gender Equality and Women's Empowerment.*** **Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men. In addition, 1) did the project conduct a gender analysis during project preparation (yes ☐ /no☒)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes ☐ /no☒)?; and 3) what is the share of women and men direct beneficiaries (women %, men %)? [15]**

Costa Rica is committed to the goal of equal access for women and girls to economic resources, political participation and inclusive equitable quality education. Costa Rica has adopted a minimum political gender quota of 50 percent. In 2014, women represented 48.9% of the employees in the public sector (ILO). Quotas in Costa Rica have proven to be some of the most successful gender reforms in the hemisphere. However, women only make up 23 percent of private sector leadership positions. In response to low rates of women's leadership in the Costa Rican private sector, the government conducts publicity campaign to motivate and challenge women to take on leadership positions. Additionally, 17 companies signed the Costa Rican Chamber of Commerce's 2013 Affirmative Action Agreement for the Promotion of Women's Leadership in Business.

To better understand gender implications and to make sure that, if existent, the current project will perform the following activities under each component:

- Component 1: Whenever it is possible and/or relevant, the project will aim to include sex-disaggregated data. Guidelines and documents elaborated under Component 1 will be designed and targeted considering gender sensitiveness to assess and evaluate potential impact and related policy integration of specific gender considerations.
- Component 2: All training material must avoid gender stereotypes, employ inclusive language and use appropriate illustrations. Significant women representation will be encouraged during capacity building workshops (both, among trainers and trainees) to promote gender parity.
- Component 3: In case relevant gender-related findings and sex-disaggregated data has been brought to light under Component 1, these gender implications will be considered for the design and establishment of the revolving fund
- Component 4: All training material are to be women friendly (e.g. avoiding gender stereo-types, using inclusive language and using appropriate illustrations) and significant women representation will be encouraged during capacity building workshops (both, among trainers and trainees) to promote gender parity. Information and dissemination actions will be designed and targeted considering gender sensitiveness to assess and evaluate potential impact and related policy integration of specific gender considerations.

Furthermore, the project will consider gender gap in Costa Rica and will implement gender a cross-cutting strategy to guarantee that gender equality is considered and promoted throughout the implementation project. This cross-cutting strategy will consist on the following:

- Project stakeholders will be sensitized regarding gender equality. Efforts will be made to promote balance between male and female participation.
- Gender inclusion will be encouraged by balancing gender representation in all working teams of the governance structure, from the Project Steering Committee, the Project Management Unit, the Taskforces, and the Project Work Team.
- Gender equality will be promoted during all project's recruitment of personnel/consultants. All advertised positions will be equally opened to all genders and the text on ToRs will be carefully checked to avoid any gender stereotypes and to encourage women to apply.

[15] Same as the previous footnote.

- Significant women representation will be promoted in all capacity building workshops and trainings, as trainers and among invitees/participants.
- Equal training opportunities and transfer of skills will be available for every person, regardless of their gender.
- Under no circumstances, chauvinistic behaviour will be tolerated among project staff or project partners.
- All training materials, technology and methodology of dissemination are to be gender aware (e.g. avoiding gender stereotypes, using inclusive language and using appropriate illustrations).

## *A.5. Risk.* Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Table 14. Potential risks faced during project implementation

| Risk description | Category | Risk likelihood | Impacted Project Outputs | Risk Management Strategy & Safeguards | By When/ Whom? |
|---|---|---|---|---|---|
| Government ministries remove their support for the project | Political | Low | All Outputs | Leading public bodies (i.e. MINAE, Ministry of Health and Treasury Ministry) have taken an active role in the project's design stage and activities have been aligned with government's priorities;<br>Representatives from leading public bodies will be part of the Project Steering Committee (PSC) to make sure they remain engaged and are able to provide feedback to project implementation;<br>Project Management Unit (PMU) reports to PSC regarding project progress;<br>A high ranking officer from MINAE will assume the position as National Project Director (NPD) to reinforce coordination with other ministerial bodies; | Throughout the project<br><br>PMU<br>PSC<br>NPD |
| Changes of staff in policy-making bodies, especially after election time in 2018, may hinder implementation and cause delays. | Political | Medium | All Outputs | Leading public bodies (i.e. MINAE, Ministry of Health and Treasury Ministry) have taken an active role in the project's design stage and activities have been aligned with government's priorities;<br>Strategic Taskforces will integrate representatives from relevant bodies with an atemporal designation to the election period;<br>Work plan has been designed to conduct activities since the early stages of implementation to create momentum and provide concrete deliverables to create track record after election time; | Second and third year of the project<br><br>PSC<br>Strategic Taskforces |
| Policy inputs might be recommended but not implemented | Political | Medium | Outputs 2.2 and 4.4 | Leading public bodies (i.e. MINAE, Ministry of Health and Treasury Ministry) have taken an active role in the project's design stage and activities have been aligned with government's priorities;<br>Representatives from leading public bodies will be part of the Project Steering Committee (PSC) to make sure they remain engaged and are able to provide feedback to project implementation;<br>Project Management Unit (PMU) reports to PSC regarding project progress;<br>A high ranking officer from MINAE will assume the position as National Project Director (NPD) to reinforce coordination with other ministerial bodies; | First year of the project<br><br>PMU<br>PSC<br>NPD |
| Low commitment of key public sector stakeholders (i.e. highest energy consuming public institutions, relevant Ministries); | Political | Low | Output 1.1, 2.1, 2.2, 2.3, 3.1, 3.4, 4.1, 4.2, 4.3, 4.4 and 4.5 | Relevant public sector stakeholders have already been identified and will be engaged on the basis to strengthen their capacity to comply with mandatory policy on energy efficiency; | Throughout the project<br><br>PSC<br>NPD |

| Risk description | Category | Risk likelihood | Impacted Project Outputs | Risk Management Strategy & Safeguards | By When/ Whom? |
|---|---|---|---|---|---|
| Low participation from the private sector actors; | Organizational | Medium | Output 2.1, 2.2, 2.3, 4.4 and 4.5 | Activities of the GEF project intend to identify existing and new private sector actors, train them and (if they comply with relevant regulations) make their products or services available public sector procurement; | Throughout the project<br><br>PMU<br>PSC<br>NPD |
| Co-finance partners remove support for the Initiative | Organizational | Low | All Outputs | Co-finance partners have expressed their support to the project through co-finance letters – refer to Annex L; | Throughout the project<br><br>PSC<br>NPD |
| Delayed implementation of activities that are baselines for specific incremental activities; | Management | Medium | All Outputs | Project outputs and activities have been designed following critical path method to identify milestones and alleviate bottlenecks in implementation. Albeit interdependency between project components, implementation has been designed to allow parallel execution of specific critical outputs;<br>In case of delays, the Project Manager shall notify UNEP and the PSC in writing if there is need for modification to the agreed implementation plan and budget, and to seek approval; | Throughout the project<br><br>PMU<br>PSC<br>UNEP |
| Lack of funding for long-term operation of revolving fund | Financial | High | Component 3 | Potential funding partners have been engaged since design stage of the project and have expressed their interest to invest in revolving fund;<br>The executing agency of the project (i.e. CABEI) has a strong track record successfully managing, executing and leveraging funding for similar financial mechanisms;<br>Seed capital from project's budget is aimed to attract capital and showcase implementation since early stage of revolving fund establishment;<br>Advise from Financial workgroup (refer to Annex H) will be taken into consideration for revolving fund establishment; | Second and third year of the project<br><br>Executing Agency<br>PSC<br>UNEP<br>Strategic Taskforces |
| Designed and executed information and dissemination actions are not effective in terms of educating and raising awareness of target groups | Socio-economic | Low | Output 4.6 | In general, consumer education will be implemented as a collaborative effort, involving public institutions, technology providers, retailers, electricity companies, consumer associations and NGOs; | Second year<br><br>PMU<br>Strategic Taskforces |
| Climate change negatively impacts the optimal functioning of cooling appliances | Environmental | Low | Component 2 | The project will take into account projected seasonal temperature patterns over the next 20 years (including the potential variations due to climate change) and build these into the procurement specifications for air conditioners and refrigerators. | Throughout the project<br><br>Executing Agency<br>MINAE |

***A.6. Institutional Arrangement and Coordination.*** **Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

Institutional Arrangements

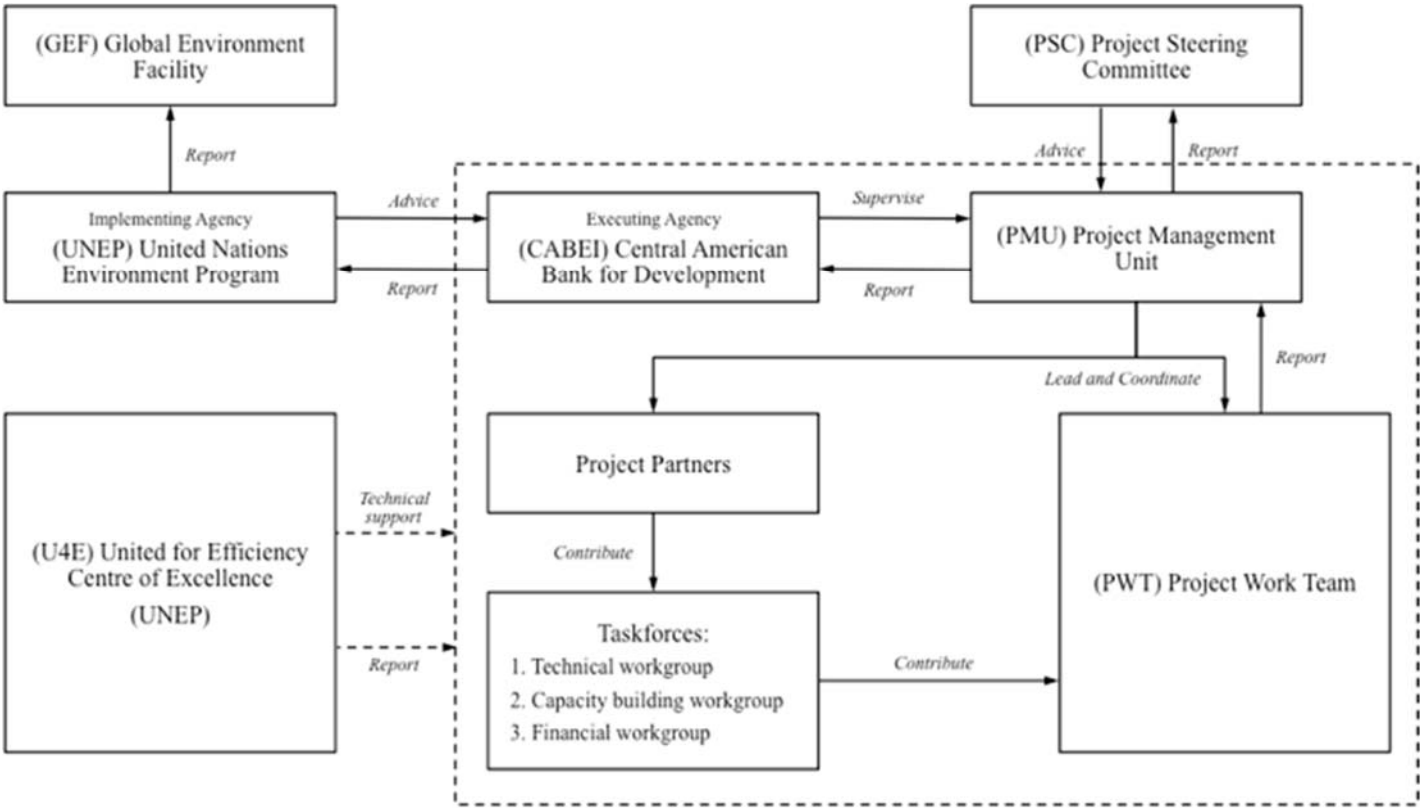



Figure 7. Governance structure of the project

The Project is funded by the Global Environment Facility (GEF) with co-finance from national and international partners (refer to Annex F-2). The United Nations Environment Programme (UNEP) acts as the GEF Implementing Agency and the Central American Bank for Economic Integration (CABEI) has been appointed as Executing Agency by the Ministry of Energy and Environment (MINAE) through the Energy Sector Directorate (DSE, in Spanish). The U4E Centre of Excellence Technical will provide execution support.

The project governance structure (Figure 7) has been designed to ensure decision-making, management and implementation arrangements are appropriate and operate effectively. The governance structure comprises of a Project Steering Committee (PSC), a Project Management Unit (PMU), a Project Work Team (PWT) and Strategic Taskforces whose functions are detailed in Annex H.

**Executing agency**

The Central American Bank for Economic Integration (CABEI) has been appointed as the Executing Agency by the Ministry of Energy and Environment (MINAE) through the Energy Sector Directorate (DSE, in Spanish) and will be accountable for ensuring:

- Ensure technical execution according to the execution plan laid out in the project document;
- Ensure technical quality of products, outputs and deliverables;
- Ensure compilation and submission of progress, financial and audit reporting to IA;
- Submission of budget revisions to IA for approval;

- Addressing and rectifying any issues or inconsistencies raised by the IA;
- Bringing issues raised by or associated with clients to the IA for resolution;
- Facilitating Steering Committees and other oversight bodies of the project;
- Day to day oversight of project execution;
- Submit all technical reports and completion reports to IA (realized outputs, inventories, verification of co-finance, terminal reporting, etc.)
- Proper achievement of the objectives of the Project;
- Monitoring and evaluation of the project outputs and outcomes;
- Effective use of both international and national resources allocated to it;
- Timely availability of financing to support project execution;
- Proper coordination among all project stakeholders; in particular national parties;
- Timely submission of all project reports, including work plans and financial reports.

**Technical support**

UN Environment's United for Efficiency (U4E) Centre of Excellence, given its technical capabilities, has been requested by MINAE and CABEI to provide technical support to the project. The United for Efficiency Centre for Excellence (U4E) with its network of experts and international partners will provide strategic, technical and methodological support to the Executing Agency's PMU, contribute to PWT and the PSC. The U4E Centre of Excellence will:

- Provide technical assistance for:
  (i) the design of the financial mechanism and tracking the benefits from public procurement of energy efficient appliances or services,
  (ii) the training of public technical officials on energy efficiency, and
  (iii) the development of methodologies and frameworks for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances, as well as related training of waste compliance units, authorized waste handlers, efficient appliance providers and energy efficiency service providers, procurement and environmental management officials and public technical officials;
- Facilitate the engagement and support of U4E partners notably the co-financing partners (NLTC, Whirlpool, Mabe), relevant expert organizations (e.g. Ambilamp, Carbon Trust, Base) and international experts;
- Support the dissemination of results;
- Facilitate synergies and links between the project and the Global U4E programme and related national projects.

**Implementing agency**

The United Nations Environment Programme (UNEP), acting as the GEF Implementing Agency (IA), will be responsible for the project's oversight. The main roles of the IA are as follows:

- Ensure timely disbursement/sub-allotment to executing agency, based on agreed legal document and in accordance with UNEP and GEF fiduciary standards;
- Follow-up with Executing Agency for progress, equipment, financial and audit reports;
- Provide consistent and regular oversight on project execution and conduct project supervisory missions as per Supervision Plans and in doing so ensures that all UNEP and GEF criteria, rules and regulations are adhered to by project partners;
- Technically assess and oversee quality of project outputs, products and deliverables – including formal publications;
- Provide non-objection to main TORs and subcontracts issued by the project, including selection of Project Manager or equivalent;
- Attend and facilitate inception workshops, field visits where relevant, and selected steering committee meetings;
- Asses project risks, and monitor and enforce a risk management plan;

- Regularly monitors project progress and performance and rates progress towards meeting project objectives, project execution progress, quality of project monitoring and evaluation, and risk;
- Monitor reporting by project executing partners and provides prompt feedback on the contents of the report;
- Promptly informs management of any significant risks or project problems and takes action and follows up on decisions made;
- Apply adaptive management principles to the supervision of the project;
- Review of reporting, checking for consistency between execution activities and expenditures, ensuring that it respects GEF rules;
- Clearance of cash requests, and authorization of disbursements once reporting found to be complete;
- Approve budget revision, certify fund availability and transfer funds;
- Ensure that GEF and UNEP quality standards are applied consistently to all projects, including branding and safeguards;
- Certify project operational completion;
- Link the project partners to any events organised by GEF and UNEP to disseminate information on project results and lessons;
- Manage relations with GEF.

**Coordination with other existing projects or initiatives**

Coordination of the project with other existing projects or initiatives is explained in Table 15 below:

Table 15. Coordination of the project with existing projects or initiatives

| National / Regional | Project or initiative | Description of project or initiative | Coordination with project or initiative |
|---|---|---|---|
| National | Program for the Strengthening of Institutional Environmental Management Plans (PGAI) | It is an environmental planning tool for Costa Rican public institutions.<br>It has three strategic axes (energy, environmental quality and GHG emissions) and three lines of action (metrics, capacity building and procurement). It starts with an environmental assessment that is the basis for public institutions to prioritize, establish and implement prevention, mitigation, compensation or restoration of environmental impacts in the short, medium and long-term. | Coordination with PGAI is channeled through DIGECA and DSE (both decentralized agencies form MINAE).<br>The project will contribute to PGAI in terms of EE tracking instruments (Output 1.3), strengthening technical capacities (Outputs 2.3 and 4.5) and improving overall public procurement of energy efficient lighting products and appliances. |
| National | Integrated Purchase System for Public Institutions (SICOP) | The Costa Rican government, through the Treasury Ministry, is consolidating a procurement platform for the public sector named Integrated Purchase System for Public Institutions (SICOP).<br>Therefore, public procurement of efficient products and services must be done through SICOP. | The Treasury Ministry has been engaged with the project since the design stage.<br>Outputs 2.1, 2.2, 2.4 and 4.4 have been designed in close cooperation with the Treasury Ministry. |
| National | Strengthening of national capacity to recover disposed refrigerant gas and mercury | The Ozone Technical Office and the Mercury Technical Office (both hosted by DIGECA) in response to the Montreal Protocol and the Minamata Agreement, respectively, are constructing an initiative to disposed recovered refrigerant gases and mercury in an environmentally-sound manner. | The project will contribute with DIGECA through Output 4.2 through financing of part of key specialized equipment required to recover and store refrigerant gas and mercury. |
| National | Legislative Act 8839 for Integrated Waste Management | The Ministry of Health has been appointed as leading body in terms of integrated waste management by Legislative Act 8839. | The Ministry of Health has been engaged with the project since the design stage.<br>Component 4 has been designed in close cooperation with the Ministry of Health. |
| Regional | MIPYMES Verdes Initiative | "MIPYMES Verdes" stands for green micro, small and medium enterprises. It was created by the Central American Bank for Economic Integration (CABEI) to provide financing to environmentally-sounded investments that satisfy *mipymes* needs.<br>It is active in Costa Rica, Nicaragua, Honduras, El Salvador and Guatemala. | CABEI has been engaged with designated as executing agency of the project.<br>The establishment of the revolving fund under Component 3 of the project is expected to be achieved by channeling resources through MIPYMES Verdes Initiative. |

| National / Regional | Project or initiative | Description of project or initiative | Coordination with project or initiative |
|---|---|---|---|
| Regional | En.lighten Initiative | It is a global initiative established by UNEP in 2009 to accelerate market transformation to environmentally sustainable, energy efficient lighting technologies, as well as to develop strategies to phase-out inefficient incandescent lamps to reduce CO2 emissions and the release of mercury from fossil fuel combustion.In coordination with the Mesoamerican Project, the Regional Efficient Lighting Strategy for Central America was enacted, Costa Rican being one of the beneficiaries. | Coordination with enligh.en will be channeled through UNEPThe project will contribute to enlight.en Initiative through:– Component 1 and 3, developing instruments to improve Monitoring, Verification and Enforcement related to EE– Component 4, strengthening Costa Rica's end-of-life integrated management of replaced lighting products and appliances |
| Regional | Mesoamerican Project (MP) | Launched in 2008 by 10 Mesoamerican countries, including Costa Rica<br>Energy is one of its main work areas and oversees such as:<br>– Mesoamerican Program for Rational and Efficient Use of Energy<br>– Regional Lighting Efficiency Strategy in Central America<br>– Central American Electrical Interconnection System (SIEPAC) | Coordination with MP is expected to be channeled through MINAE, who is been active in the articulation of efforts and implementation of MP's energy agenda<br>The project will contribute to solve some of the energy efficiency challenges identified by MP (Mesoamerican Project, 2014), such as:<br>– Need for energy diagnosis<br>– Lack of tracking instruments for EE<br>– Lack of an EE project portfolio<br>– Training to final consumers |

***A.7. Benefits.*** **Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?**

The overall benefits of the project can be detailed as follows:

**Economic benefits**

The proposed project aims to provide socio-economic benefits at the national and local level. The implementation of energy diagnosis and projects financed by the revolving fund will have a direct impact on energy savings and hence cost reductions from the electricity bills of the participant public institutions. As it has been mentioned, the project expects to intervene and strengthen the public sector to lead with example, expecting for other sectors (i.e. private sector) to follow.

That is the case for the revolving fund for the financing of large-scale replacement programs in the public sector. The project will allow to build the architecture for a systematic and permanent financial mechanism to replace conventional and obsolete appliances within the public sector. It is expected for additional donors and financial partners to contribute and then expand it to the private sector. The operation of the revolving fund will allow to modernize of technology appliances and to achieve significant energy savings and cost reductions at a national scale.

**Environmental and health benefits**

In addition to economic benefits, the project contributes to the ongoing efforts carried by the Ministry of Health in terms of integrated waste management by strengthening capacities of relevant stakeholders and raising awareness about integrated waste management. The project focuses on lighting products, air conditioners and refrigerators which are categorized as special handling waste by the Ministry of Health due to hazardous chemicals they contain (i.e. mercury from lighting products and refrigerant gas from air conditioners and refrigerators). The project contributes to strengthening national capacity to recover such hazardous chemicals to be properly destroyed. Moreover, public procurement of efficient appliances offers a great potential to avoid greenhouse gas emissions from the reduction of electricity consumption and contributing to Costa Rica's ambitious climate change mitigation target.

**Social development benefits**

The proposed project has a social contribution by assisting public institutions whose primary purpose is to improve welfare in Costa Rica. Furthermore, the identification of energy efficiency opportunities through energy diagnosis is mainly focused on strategic sites with relevant social impact (refer to Table 8) i.e. educational and health centers, many of which are located in rural areas of the country. Subsequent financing of energy efficiency opportunities in these strategic sites through the revolving fund not only provides access to improved technologies or reductions in the electricity bill, it also impacts on the quality of life of people who depend on these infrastructures. Moreover, the reductions in the electricity bill will free-up financial resources that public institutions can allocate to further improve their services to the population.

***A.8. Knowledge Management.*** **Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.**

A) ***External knowledge management*** will be undertaken through: i) an online platform to centralize and update information relevant for public procurement of efficient appliances and energy efficiency services, ii) information and dissemination actions to promote environmentally sound end-of-life management of replaced conventional lighting products and appliances.

**An online platform** will be launched in collaboration with MINAE and the Treasury Ministry to centralize information inputs relevant for procurement of efficient appliances and energy efficiency services. The online platform will be designed as a content management system to allow for authorized users to curate and update content even after the project has concluded. Similar online platforms are administered by MINAE's decentralized agencies. For example:

- DSE: http://www.dse.go.cr/
- DIGECA: http://www.digeca.go.cr/documentos
- DCC: http://cambioclimaticocr.com/biblioteca-virtual?view=docman

**Information and dissemination actions** will be conducted to promote and raise awareness about environmentally sound end-of-life management of replaced conventional lighting products and appliances. The information and dissemination actions will consist of teaching material, infographics and brochures that will be shared during project trainings and made available online through social media.

B) ***Internal knowledge management*** will be undertaken through: i) training to relevant stakeholders under Components 2.3 and 4.5 and ii) participation in technical in international workshops and capacity building events and iii) pilot projects.

**Trainings** are led by DSE and DIGECA as part of the Institutional Environmental Management Programs (PGAI) initiative. Both agencies have provided training to procurement and environmental management officials public institutions as well as local efficient appliance providers since 2015. The project together with its co-financing partners will contribute to this ongoing effort by providing additional teaching material and broadening the training scope.

**Participation in technical and international workshops and capacity building events** will be conducted in collaboration with UNEP to strengthen capacities of MINAE's technical staff. Member countries of the parent project (i.e. Leapfrogging markets to high efficiency products) have access to the Energy Efficiency Training Week. Therefore, the project has allocated a limited budget to cover for the travel costs of 3 technical officers from MINAE.

**Pilot projects** will be implemented as part of Component 3 to deploy the first projects financed by the revolving fund to replace conventional and obsolete appliances with energy efficient alternatives. The pilot projects aim to showcase successful experiences and learnt lessons.

**B. *Consistency with National Priorities.* Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.:**

The relevant national priorities focus on three main aspects for the energy system: (1) to promote renewable and low GHG emission energy sources able to meet demand, (2) to update legislation and to improve its implementation and enforcement, and (3) to provide energy at competitive prices to maintain or improve competitiveness:

- The National Development Plan 2015-2018 (PND) recognizes a growing and inefficient consumption of fossil-based fuels, as well as the partial implementation of legislation and national plans in terms of energy use and energy savings. Therefore, it sets the goal "to meet energy demand through an energy matrix that ensures optimum and continuous supply of electricity and fuel by promoting efficient use of energy to maintain and improve competitiveness". (MIDEPLAN, 2014)
- Complementary, the Seventh National Energy Plan of Costa Rica 2015-2018 (VII PNE) reiterates the country's commitment to a low emission pathway for the energy sector and emphasizes the relevance of energy efficiency. It defines "energy sustainability with low emissions" as its central orientation. This means that the country should aim for a low GHG emissions energy system based in clean and renewable energy sources, able to supply demand with competitive energy prices and to satisfy the wellbeing of the population. (MINAE, 2015)
- In terms of climate change, Costa Rica's third National Communication, submitted to the UNFCCC, defines three key strategies in the energy sector to reduce GHG emissions: energy efficiency, renewable energies and awareness raising education and information campaigns in companies to reduce energy consumption. (IMN-MINAE, 2014)
- Costa Rica's Nationally Determined Contribution (NDC), submitted to the UNFCCC, emphasizes the need for an integral approach between energy supply and demand and proposes reduction of energy demand (through energy efficiency and conservation, as well as sectoral strategies) as one of the four mitigation alternatives for Costa Rica in terms of energy. (MINAE, 2015)
- Focusing to the public sector, the PND sets the creation of a Program for the Strengthening of Institutional Environmental Management Plans (PGAI in Spanish) with the aim to improve energy efficiency among Costa Rica's highest energy consuming public institutions (MIDEPLAN, 2014). Correspondingly, the VII PNE sets the goal to facilitate improvements related to energy efficiency, especially to develop institutional capacities to systematically promote and increase energy efficiency in the public sector (MINAE, 2015).

The Seventh National Energy Plan of Costa Rica 2015-2018 (VII PNE) sets a path towards energy efficiency as one of its main lines of action and focuses on improving the efficiency of the electricity system. The VII PNE was elaborated based on a series of multi-stakeholder and multi-sector roundtables. During this process, energy efficiency presented one of the highest levels of support and consensus among participants. In fact, improving the efficiency of appliances through subsidies and regulation and providing mechanisms to substitute conventional appliances were some of the most mentioned opportunities during the participatory process.

The VII PNE sets seven strategic objectives related to energy efficiency and the main actions each one proposes (MINAE, 2015):

Table 16. Strategic objectives of VII PNE related to energy efficiency (MINAE, 2015)

| STRATEGIC OBJECTIVE | SHORT TERM GOALS | DEADLINE |
|---|---|---|
| **1.1 Implement a more effective model for planning and coordinating energy efficiency** | | |
| 1.1.1 Improve coordination of actions related to EE | • Reactivation of CONACE through monthly meetings | Permanent |
| 1.1.2 Improve planning related to EE | • Update and follow-up PRONACE | Annual |

| STRATEGIC OBJECTIVE | SHORT TERM GOALS | DEADLINE |
|---|---|---|
| 1.1.3 Modernize legal framework for EE | • Elaboration of legal framework proposal to modernize Legislative Act 7447<br>• Consultation of proposal<br>• Presentation and follow-up of Legislative process | Jul, 2016<br><br>Dec, 2016<br>Jul, 2017 |
| 1.1.4 Strengthen MINAE's capacity to operationalize energy efficiency by establishing an Energy Direction | • Operationalization of Energy Direction | Dec, 2015 |
| 1.1.5 Improve knowledge about energy consumption behavior | • Methodology & plan for residential sector<br>• Determination of:<br>o Residential demand curve<br>o Commercial demand curve<br>o Industrial demand curve<br>o Public sector demand curve | Jul, 2016<br><br>Dec, 2016<br>Jul, 2017<br>Dec, 2017<br>Jul, 2018 |
| 1.1.6 Determine impact of policy related to EE | • Proposal of policy impact assessment mechanism | Dec, 2016 |
| **1.2 Increase energy efficiency in appliances** | | |
| 1.2.1 Improve the affordability of energy efficient lighting and appliances through tax exemptions | • Update of tax exempt energy efficient technology list | Dec, 2015 |
| 1.2.2 Regulate the efficiency of consumer appliances and update minimum energy performance standards | • Elaboration of technical standards for:<br>• Residential refrigeration<br>• Commercial refrigeration<br>• Electric stoves<br>• Lighting<br>• Air conditioning<br>• Engines<br>• Electric heaters | <br>Dec, 2015<br>Jul, 2016<br>Jul, 2016<br>Dec, 2016<br>Jul, 2017<br>Dec, 2017<br>Jul, 2018 |
| 1.2.3 Promote acquisition of efficient appliances through labelling | • Establishment of energy labels for:<br>• CFL<br>• Residential refrigeration<br>• Commercial refrigeration<br>• Air conditioning<br>• Engines<br>• Electric heaters<br>• LED lamps | <br>Jul, 2016<br>Dec, 2016<br>Jul, 2017<br>Jul, 2017<br>Dec, 2017<br>Dec, 2017<br>Jul, 2018 |
| 1.2.4 Facilitate replacement of current conventional and inefficient appliances | • Elaboration of study to promote technological change<br>• Conduction of pilot project | Dec, 2016<br><br>Dec, 2018 |
| 1.2.5 Improve energy efficiency in buildings | • Establishment of mechanism to promote efficient buildings | Dec, 2017 |
| **1.3 Promote an energy efficiency culture** | | |
| 1.3.1 Promote cultural changes through formal education | • Revision & improvement of existing programs<br>• Incorporate EE in technical careers curricula related to energy<br>• Introduction of training in EE at INA | Jul, 2017<br><br>Jul, 2017<br><br>Dec, 2018 |

| STRATEGIC OBJECTIVE | SHORT TERM GOALS | DEADLINE |
|---|---|---|
| 1.3.2 Provide training to teaching staff and students (primary and secondary education) in energy efficiency | • Annual training on EE to 332 teachers and 5400 students plus EE and basic electricity training to 80 science teachers | Annual |
| 1.3.3 Promote energy efficiency through awareness raising and communication campaigns | • Conduction of at least one information campaign on EE per year | Annual |
| **1.4 Optimize energy efficiency from the supply-side** | | |
| 1.4.1 Reduce technical losses in electricity supply (for each electric utility) | • Assessment to identify potential improvements<br>• Elaboration of plan to reduce technical losses | Jul, 2016<br>Dec, 2016 |
| 1.4.2 Ensure efficient public lighting | • Elaboration of plan for efficient public lighting (for each electric utility)<br>• Elaboration of standard for public lighting | Jul, 2016<br>Jul, 2016 |
| 1.4.3 Improve the efficiency of equipment used to provide electricity | • Establishment of EE Executive Mandate for supply-side equipment | Jul, 2017 |
| 1.4.4 Evaluate the possibility for energy storage | • Conduction of feasibility study to assess and prioritize energy storage alternatives | Dec, 2016 |
| 1.4.5 Promote smart grid concepts | • Elaboration of smart grid roadmap<br>• Implementation of pilot project | Jul, 2016<br>Dec, 2018 |
| **1.5 Encourage energy efficiency among macro consumers** | | |
| 1.5.1 Create enabling conditions to provide energy efficient services | • Establishment of certification standard for EE service companies | Dec, 2017 |
| 1.5.2 Provide EE advisory to macro consumers | • Maintain and expand EE technical advisory services to macro consumers provided by public utilities | Permanent |
| **1.6 Promote energy efficiency in the public sector** | | |
| 1.6.1 Improve efficiency levels in public institutions, focusing on the 20 highest energy-consuming institutions | • Incorporation of efficiency regulations for appliance procurement by 20 highest energy consuming public institutions in accordance to PND (5 each year) | Dec, 2018 |
| 1.6.2 Improve the efficiency of appliances procured by the public sector | • Creation of a revolving fund<br>• Allocation of 100% available resources to finance inefficient appliance substitution in the public sector | Jul, 2016<br>Dec, 2018 |
| **1.7 Adjust tariffs to promote energy efficiency** | | |
| 1.7.1 Establish tariffs in accordance to energy consumption patterns | • Implementation of impact assessment on time-of-use tariffs for each electric utility | Dec, 2016 |
| **STRATEGIC OBJECTIVE** | **SHORT TERM GOALS** | **DEADLINE** |
| **1.1 Implement a more effective model for planning and coordinating energy efficiency** | | |
| 1.1.1 Improve coordination of actions related to EE | • Reactivation of CONACE through montly meetings | Permanent |
| 1.1.2 Improve planning related to EE | • Update and follow-up PRONACE | Annual |
| 1.1.3 Modernize legal framework for EE | • Elaboration of legal framework proposal to modernize Legislative Act 7447<br>• Consultation of proposal<br>• Presentation and follow-up of Legislative process | Jul, 2016<br>Dec, 2016<br>Jul, 2017 |

| STRATEGIC OBJECTIVE | SHORT TERM GOALS | DEADLINE |
|---|---|---|
| 1.1.4 Strengthen MINAE's capacity to operationalize energy efficiency by instaurating an Energy Direction | • Operationalization of Energy Direction | Dec, 2015 |
| 1.1.5 Improve knowledge about energy consumption behavior | • Methodology & plan for residential sector<br>• Determination of:<br>o Residential demand curve<br>o Commercial demand curve<br>o Industrial demand curve<br>o Public sector demand curve | Jul, 2016<br><br>Dec, 2016<br>Jul, 2017<br>Dec, 2017<br>Jul, 2018 |
| 1.1.6 Determine impact of policy related to EE | • Proposal of policy impact assessment mechanism | Dec, 2016 |
| **1.2 Increase energy efficiency in appliances** | | |
| 1.2.1 Improve the affordability of energy efficient lighting and appliances through tax exemptions | • Update of exonerable energy efficient list | Dec, 2015 |
| 1.2.2 Regulate the efficiency of consumer appliances and update minimum energy performance standards | • Elaboration of technical standards for:<br>• Residential refrigeration<br>• Commercial refrigeration<br>• Electric stoves<br>• Lighting<br>• Air conditioning<br>• Engines<br>• Electric heaters | <br>Dec, 2015<br>Jul, 2016<br>Jul, 2016<br>Dec, 2016<br>Jul, 2017<br>Dec, 2017<br>Jul, 2018 |
| 1.2.3 Promote acquisition of efficient appliances through labelling | • Establishment of energy labels for:<br>• CFL<br>• Residential refrigeration<br>• Commercial refrigeration<br>• Air conditioning<br>• Engines<br>• Electric heaters<br>• LED lamps | <br>Jul, 2016<br>Dec, 2016<br>Jul, 2017<br>Jul, 2017<br>Dec, 2017<br>Dec, 2017<br>Jul, 2018 |
| 1.2.4 Facilitate replacement of current conventional and inefficient appliances | • Elaboration of study to promote technological change<br>• Conduction of pilot project | Dec, 2016<br><br>Dec, 2018 |
| 1.2.5 Improve energy efficiency in buildings | • Establishment of mechanism to promote efficient buildings | Dec, 2017 |
| **1.3 Promote an energy efficiency culture** | | |
| 1.3.1 Promote cultural changes through formal education | • Revision & improvement of existing programs<br>• Incorporate EE in technical careers curricula related to energy<br>• Introduction of training in EE at INA | Jul, 2017<br><br>Jul, 2017<br><br>Dec, 2018 |
| 1.3.2 Provide training to teaching staff and students (primary and secondary education) in energy efficiency | • Annual training on EE to 332 teachers and 5400 students plus EE and basic electricity training to 80 science teachers | Annual |
| 1.3.3 Promote energy efficiency through awareness raising and communication campaigns | • Conduction of at least one information campaign on EE per year | Annual |
| **1.4 Optimize energy efficiency from the supply-side** | | |
| 1.4.1 Reduce technical losses in electricity supply (for each electric utility) | • Assessment to identify potential | Jul, 2016 |

| STRATEGIC OBJECTIVE | SHORT TERM GOALS | DEADLINE |
|---|---|---|
| | improvements<br>• Elaboration of plan to reduce technical lossess | Dec, 2016 |
| 1.4.2 Ensure efficient public lighting | • Elaboration of plan for efficient public lighting (for each electric utility)<br>• Elaboration of standard for public lighting | Jul, 2016<br>Jul, 2016 |
| 1.4.3 Improve the efficiency of equipment used to provide electricity | • Establishment of EE Executive Mandate for supply-side equipment | Jul, 2017 |
| 1.4.4 Evaluate the possibility for energy storage | • Conduction of feasibility study to assess and prioritize energy storage alternatives | Dec, 2016 |
| 1.4.5 Promote smart grid concepts | • Elaboration of smart grid roadmap<br>• Implementation of pilot project | Jul, 2016<br>Dec, 2018 |
| **1.5 Encourage energy efficiency among macro consumers** | | |
| 1.5.1 Create enabling conditions to provide energy efficient services | • Establishment of certification standard for EE service companies | Dec, 2017 |
| 1.5.2 Provide EE advisory to macro consumers | • Maintain and expand EE technical advisory services to macro consumers provided by public utilities | Permanent |
| **1.6 Promote energy efficiency in the public sector** | | |
| 1.6.1 Improve efficiency levels in public institutions, focusing on the 20 highest energy-consuming institutions | • Incorporation of efficiency regulations for appliance procurement by 20 highest energy consuming public institutions in accordance to PND (5 each year) | Dec, 2018 |
| 1.6.2 Improve the efficiency of appliances procured by the public sector | • Creation of a revolving fund<br>• Allocation of 100% available resources to finance inefficient appliance substitution in the public sector | Jul, 2016<br>Dec, 2018 |
| **1.7 Adjust tariffs to promote energy efficiency** | | |
| 1.7.1 Establish tariffs in accordance to energy consumption patterns | • Implementation of impact assessment on time-of-use tariffs for each electric utility | Dec, 2016 |

The project is in line with the Costa Rican national priorities and will contribute directly to its sustainable development. As explained earlier, the project is in accordance with:

- Costa Rica's third national communication to the UNFCCC the country defined three key strategies in the energy sector to reduce GHG emissions: energy efficiency, renewable energies and awareness raising education and information campaigns in companies to reduce energy consumption.
- The Seventh National Energy Plan of Costa Rica 2015-2018 (VII PNE) to facilitate improvements related to energy efficiency, especially to develop institutional capacities to systematically promote and increase energy efficiency in the public sector
- Technical regulation for efficient appliances as well as relevant policy framework and regulations to promote environmentally sound end-of life waste management
- The Central America Regional Efficient Lighting Strategy, endorsed by Costa Rica as a partner from the en.lighten initiative, to gradually phase out incandescent lamps by 2016

Costa Rica has set itself the target of achieving the Sustainable Development Goals (SDGs) for 2030, and has made fulfilment and implementation of the SDGs part of government strategy. Action is being encouraged, actions to combat global climate change (SDG 13) through citizen participation, technological change, processes of innovation and research, while promoting the efficient use of energy in order to maintain and improve the country's competitiveness.

Finally, the project is in line with Costa Rica's United Nations Development Assistance Framework (UNDAF), which outlines "Environmental sustainability and risk management" as one of its 5 focal areas for the period 2013-2017.

## C. Describe the budgeted M&E Plan:

M&E activities and related costs are presented in the costed M&E Plan (Annex G) and are fully integrated in the overall project budget.

The project will comply with UNEP standard monitoring, reporting and evaluation procedures. Reporting requirements and templates are an integral part of the legal instrument to be signed by the Executing Agency and the Implementing Agencies.

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Annex A includes SMART indicators for each expected outcome as well as end-of-project targets. These indicators along with the key deliverables and benchmarks included in Annex I will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification to track the indicators are summarized in Annex A.

The M&E plan will be reviewed and revised as necessary during the project Inception Workshop (IW) to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. General project monitoring is the responsibility of the Project Management Unit but other project partners could have responsibilities in collecting specific information to track the indicators. It is the responsibility of the Project Manager to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

The project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E Plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of the UNEP Task Manager. The UNEP Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. The UNEP Task Manager will develop a project supervision plan at the inception of the project, which will be communicated to the Project Management Unit and the project partners during the inception workshop. The emphasis of the Task Manager's supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring.

Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by the Project Management Unit, the project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The PIR will be completed by the Project Manager and ratings will be provided by UNEP's Task Manager. The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. UNEP's Task Manager will have the responsibility of verifying the PIR and submitting it to the GEF. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

In-line with UNEP Evaluation Policy and the GEF's Monitoring and Evaluation Policy the project will be subject to a Terminal Evaluation (TE) commissioned by the UNEP Evaluation Office. If the project is rated as being at risk or if deemed needed by the Task Manager, he/she will initiate a Mid-Term Review (MTR) or Evaluation (MTE). The latter will be conducted by the UNEP Evaluation Office (EOU).

Resources will be set aside for an optional Mid-Term Review (MTR) or Mid-Term Evaluation (MTE). The Task Manager will decide whether such MTR/MTE is required. The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. The review will include all parameters recommended by the GEF Evaluation Office for Terminal Evaluations and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see previous section A.3 and Annex H). Members of the project Steering Committee could be interviewed as part of the MTR/MTE process and the Project Management Unit (PMU)

will develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented.

An independent Terminal Evaluation (TE) will take place at the end of project implementation. The EOU will be responsible for the Terminal Evaluation and will liaise with the Task Manager and Executing Agency(ies) throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the GEF, executing partners and other stakeholders. The direct costs of the evaluation will be charged against the project evaluation budget. The Terminal Evaluation will be initiated no earlier than 6 months prior to the operational completion of project activities and, if a follow-on phase of the project is envisaged, should be completed prior to completion of the project and the submission of the follow-on proposal. Terminal Evaluations must be initiated no later than 6 months after operational completion.

While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions.

The draft TE report will be sent by the UNEP Evaluation Office to project stakeholders for comments. Formal comments on the report will be shared by the EOU in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. The final determination of project ratings will be made by the EOU when the report is finalized and further reviewed by the GEF Independent Evaluation Office upon submission. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation.

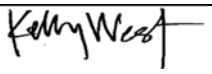
The GEF tracking tool is attached as Annex J-1. It will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above, the MTE and TE will verify the information of the tracking tool.

The direct costs of reviews and evaluations will be charged against the project evaluation budget. A summary of M&E activities envisaged is provided in Annex G. The GEF contribution for this project's M&E activities (including audits and evaluations) is US$ 65,000.

## PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

### GEF Agency(ies) certification

**This request has been prepared in accordance with GEF policies[16] and procedures and meets the GEF criteria for CEO endorsement under GEF-6.**

| Agency Coordinator, Agency Name | Signature | Date (MM/dd/yyyy) | Project Contact Person | Telephone | Email Address |
|---|---|---|---|---|---|
| Kelly West,<br>Senior Programme Manager & Global Environment Facility Coordinator<br>Corporate Services Division<br>UN Environment |  | September 19, 2017 | Ruth Coutto<br>Task Manager | +33144371634 | ruth.coutto@unep.org |

[16] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

**ANNEX A: PROJECT RESULTS FRAMEWORK** (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

| Project Objective | Objective level Indicators | Baseline | Targets and Monitoring Milestones | Means of Verification | Assumptions & Risks | UNEP MTS reference* / MTS Expected Accomplishment |
|---|---|---|---|---|---|---|
| Accelerating improvements in energy efficiency under Costa Rica's public procurement programs and reducing Costa Rica's energy consumption and carbon dioxide emissions. | % of top 20 highest energy consuming public institutions procuring efficient appliances in accordance with Executive Mandate 011-MINAE | 15% | 100% (by the end of the project) | PGAI Reports through MINAE-DIGECA (Semáforo PGAI) | The assumption is that risks as given in Section A.5 of Part II do not have negative impact on the project's progress or can be mitigated | Strategic focus: Climate change |
| | Amount of Direct GHG emissions reductions | 0 $tCO_{2eq}$ | 330,328 $tCO_{2eq}$[17] (by 2035) | Tracking tool developed as part of Component 1 | | |

[17] This figure represents 50% of the Direct GHG emission reductions calculated in Annex J-2. Indeed, as agreed with the GEF Secretariat, the Direct benefits to be attributable to a child project under the "*Leapfrogging markets to high efficiency products (appliances, including lighting and electrical equipment)*" Programme shall represent 50% of the project's estimated Direct GHG emission reductions.

| Project Outcome | Outcome Indicators | Baseline | Targets and Monitoring Milestones | Means of Verification | Assumptions & Risks | UNEP MTS reference* / MTS Expected Accomplishment |
|---|---|---|---|---|---|---|
| 1. Strategic sites from highest energy consuming public institutions showcase opportunities to replace conventional appliances with energy efficient appliances | # of buildings retrofitted following the recommendations of the diagnoses | 0 | At least 3 buildings (by end of the project) | Project monitoring and evaluation reports | The assumption is that risks as given in Section A.5 of Part II do not have negative impact on the project's progress or can be mitigated | Expected Accomplishment (EA) 2: Low emission growth |
| 2. Suppliers provide the public sector with electric appliances that comply with required energy efficiency specifications (lighting, air conditioners and refrigerators) and energy efficiency services | # of appliance suppliers registered in the Electronic Catalog | 0 | At least 5 suppliers per appliance type (by the end of the project) | Electronic Catalog from public procurement platform (i.e. SICOP) | The assumption is that risks as given in Section A.5 of Part II do not have negative impact on the project's progress or can be mitigated | Expected Accomplishment (EA) 2: Low emission growth |
| 3. A revolving fund is in place for the financing of procurement of efficient appliances, that ensures sustainability of large-scale replacement programs | Amount of funds supplied to the revolving fund | 0 | US$ 4 million[18] (by the end of the project) | Project monitoring and evaluation reports | The assumption is that risks as given in Section A.5 of Part II do not have negative impact on the project's progress or can be mitigated | Expected Accomplishment (EA) 2: Low emission growth |
| | Amount of Direct energy savings | 0 GJ | 16,117,915 GJ (by 2035) | Tracking tool developed as part of Component 1 | | |
| 4. Authorized waste handlers offer their services for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances | # of fluorescent tubes from which mercury can be recovered | 0 | At least 18,000 fluorescent tubes (by the end of the project) | Reports from authorized waste handlers | The assumption is that risks as given in Section A.5 of Part II do not have negative impact on the project's progress or can be mitigated | Expected Accomplishment (EA) 3: Waste |
| | Storage capacity to recover refrigerant gas from replaced appliances | 6,000 lb | 9,000 lb (by the end of the project) | Reports from authorized waste handlers | | |

[18] This amount includes the US$ 1 million seed capital from the GEF grant (refer to budget line 2202 in Annex F-1)

**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).

**Scientific and Technical Advisory Panel**

The Scientific and Technical Advisory Panel, administered by UNEP, advises the Global Environment Facility
(Version 5)

**STAP Scientific and Technical screening of the Project Identification Form (PIF)**

Date of screening: September 26, 2015
Screener: Lev Neretin
Panel member validation by: Ralph E. Sims
Consultant(s):

**I. PIF Information** *(Copied from the PIF)*
**FULL SIZE PROJECT GEF TRUST FUND**
**GEF PROJECT ID**: 9083
**PROJECT DURATION**: 5.5
**COUNTRIES**: Global (Costa Rica, Kazakhstan, Sudan)
**PROJECT TITLE**: Leapfrogging Markets to High Efficiency Products (Appliances, including Lighting, and Electrical Equipment)(PROGRAM)
**GEF AGENCIES**: UN Environment and UNDP
**OTHER EXECUTING PARTNERS**: Ministry of Environment (MINEA), Costa Rica
Ministry of Investment and Development of the Republic of Kazakhstan
Ministry of Water Resources, Irrigation and Electricity â€“ The Electricity Regulatory Authority (Sudan)
**GEF FOCAL AREA**: Climate Change

**II. STAP Advisory Response** *(see table below for explanation)*

Based on this PIF screening, STAP's advisory response to the GEF Secretariat and GEF Agency(ies):
**Concur**

**III. Further guidance from STAP**

1. This is an ambitious program aiming to include many countries over the longer term and with a wide range of co-financiers. The child projects have not been sighted so this review relates only to the PFD. Overall, the PFD lacks important information about prioritization of different proposed activities, particularly a country-specific menu of options that limits the scope of STAP's advice. Such an ambitious expansion of coverage from 30 to 100 countries in the program is questionable and has to be scrutinized during program preparation.

**UN Environment Response:**

- The menu of options included in the PFD is prioritized by each individual child project countries based on their national circumstances. U4E recommends the use of the U4E integrated policy approach including minimum energy performance standards, supporting policies (labeling and communication campaigns); monitoring, verification, and enforcement; environmentally sound management; and financial mechanisms.
- The project development phase team held a consultation meeting with Child Project countries in September 2016 to understand the common needs of countries. The following is a summary of the principle requests from child project countries and partner countries for U4E support:
- Should facilitate countries' access to the best available information and tools.

- Should collect and report success stories i.e. develop detailed case studies and include them into the training programmes to illustrate the topics covered with real cases.
- Should continue engaging partners and experts who have the experience and expertise to support countries in their efforts to transform their markets and deploy energy efficient appliances and equipment.
- Should especially focus to the following areas: monitoring, verification and enforcement, financial mechanisms/access to finance, communication campaigns/tools for the different stakeholders (end users, manufacturers, distributors/retailers…), data and information on the technologies (costs, origins/availability…), and environmentally sound management (especially the disposal and handling of products containing hazardous substances). These areas of support have been reflected in the training and the tools/training packages that will be developed as part of the "Global Project to leapfrog markets to energy efficient lighting, appliances and equipment" (GEF ID 9337). These were prioritized based on tools that will be useful for all countries and also based on cost to develop.
- The target number of countries sought has been reduced from 100 to 75 based on the recommendation of STAP in order to provide timely and high quality support to countries.

2. The program appears to be well thought through and links well with other GEF funded country projects on energy efficient appliances at various stages of completion. It is encouraging that lessons learned from the more advanced of these projects will be assessed as such knowledge management approaches are not always undertaken.

**UN Environment Response:** Noted. During project preparation, the project team has already made links with on-going projects (for example with UN Environment, UNDP, UNIDO) to incorporate lesson learned and best practices of these projects.

3. The flexibility of the program that enables a country to make choices over the products to be included based on varying national situations makes good sense. It is also commendable that disposal of hazardous wastes at the end of life of an appliance is acknowledged in the approach. Ideally the cost of managing hazardous wastes including refrigerants will be built into the purchase price of the product (e.g., through an extended producer responsibility) so that sufficient funding is then available to ensure environmental and human health safeguards are put in place. However, the effectiveness of this approach will depend strongly on the regulatory and policy frameworks available and may be limited in many developing countries that project intends to cover.

**UN Environment Response:** Noted. All projects that do contain products containing hazardous substances include environmentally sound management to ensure increase capacities are in place to properly handle the substances. The project makes linkages with the relevant convention (for example Minamata Convention, Stockholm Convention, and Montreal Protocol).

4. The definition of "high efficiency products" is not fully clarified in the PDF but it is assumed it does not include appliances such as cook stoves, kerosene lamps and solar water heaters. Water heating is mentioned specifically in section 9 but it is not clear if heaters were included under this heading, or only electric resistance element systems?

**UN Environment Response**:

- The term high efficiency is difficult to define at the global level as each country is different. Efficiency depends on country specific factors such as hours of use of the product, climate and electricity prices. Each project is encouraged to advance energy efficiency to the product that is most cost effective over the entire lifetime of the product.
- The project focuses on on-grid lighting, appliances and equipment. It does not include cook stoves, kerosene lamps and solar lamps.
- The project no longer includes water heaters with its focus products. With interest from countries and additional funding the project could expand to other products and the initiative could include water heaters in the future.

5. The mitigation of 558 Mt CO2-eq is impressive but details of how this number was calculated are not provided. Since every country has a different emission factor for its power supply (kg CO2/kWh generated) and a wide range of energy consuming products are involved, the calculation is complex so can only be taken as very indicative. In addition, the rebound effect resulting from many energy saving initiatives is not mentioned, so probably not included in the assessment. Project proponents are advised to follow the updated guidelines on GHG accounting released by the GEF recently (www.thegef.org/gef/node/11187).

**UN Environment Response:**
The GHG estimates have been recalculated and prepared using an updated methodology which is described in section A.1.5) of the "Global Project to leapfrog markets to energy efficient lighting, appliances and equipment" (GEF ID 9337). Each Child Project calculates the savings based on the factors within the country, such as product scope, emission factor and rebound factor.

Regarding the rebound factor, the project includes recommendations to overcome this such as take back schemes of older products. For example to providing rebates for older and energy-efficient refrigerator when purchasing a new refrigerator. This helps to avoid the risk that the consumer will continue to utilize the older refrigerator even after the new one is purchased. U4E recommendations will also behavioral energy efficiency to avoid consumers from using products for longer periods of time or purchase more/larger products due to their energy efficiency gains.

6. MEPS work well, but will they be applied to imported products or only to those manufactured locally? To be effective they have to be applied to both groups, so any policies should be developed accordingly.

**UN Environment Response:** MEPS are applied to both imported and locally manufactured goods.

7. Fifteen countries (other than those with child projects) will receive funding support for training and capacity building. They will be selected by representatives of the SE4ALL Global Project but the criteria are not known. Perhaps this could be linked to the level of ambition of the INDCs of candidate countries?

**UN Environment Response:** Noted. The selection of the countries will be completed based on GHG mitigation potential, degree commitment made to energy efficiency in their NDC, and based on regional priority as the training will be conducted at the regional level

8. While STAP acknowledges the merit and importance of various activities on knowledge management mentioned in the project, further details about prioritization of different activities to have an impact such as training of trainers, awareness raising and etc. have to be thought through. In structuring knowledge management support, STAP recommends considering emerging GEF-wide lessons learned (https://www.thegef.org/gef/node/11232).

**UN Environment Response:** Noted. The GEF Wide lessons learned were taken into account in the drafting the project document.

9. STAP recommends considering further risks of the program. Some of mitigation measures listed in
Section 5 (e.g., risks of policies not being implemented) have to be revised and focused on national and subnational level actions more than on the role of intergovernmental organizations to generate national benefits.

**UN Environment Response:** This project document is on the global aspects of the project. None the less, the risks have been reviewed to provide greater detail at the national level.

## GEF-6 GEF SECRETARIAT REVIEW FOR PROGRAMMATIC FRAMEWORK DOCUMENT* THE GEF/LDCF/SCCF TRUST FUNDS

| | | | |
|---|---|---|---|
| GEF ID: | **9436** | | |
| Country/Region: | **Global (Chile, Costa Rica, Indonesia, Kazakhstan, Myanmar, Sudan, Tunisia, South Africa)** | | |
| Program Title: | **Leapfrogging Markets to High Efficiency Products (Appliances, including Lighting, and Electrical Equipment) (Resubmission of #9083)** | | |
| GEF Agency: | **UNEP, DBSA and UNDP** | GEF Agency Project ID: | |
| Type of Trust Fund: | **GEF Trust Fund** | GEF Focal Area (s): | **Climate Change** |
| GEF-6 Focal Area/ LDCF/SCCF Objective (s): | | **CCM-1 Program 1;** | |
| Anticipated Financing PPG: | | Program Grant: | **$30,362,753** |
| Co-financing: | **$149,941,000** | Total Program Cost: | **$180,303,753** |
| PIF Approval: | | Council Approval/Expected: | |
| Program Manager: | **David Elrie Rodgers** | Agency Contact Person: | |

| Review Criteria | Questions | Secretariat Comments | Agency Response |
|---|---|---|---|
| **Program Consistency** | 1. Is the program aligned with the relevant GEF strategic objectives and results framework?[1] | DER, March 21, 2016. Yes. This program is a re-submission of PFD #9083 which has been approved by Council. The program is fully aligned with GEF-6 focal area objectives. The PFD is being re-submitted to add additional child projects. | |

[1] For BD projects: has the project explicitly articulated which Aichi Target(s) the project will help achieve and are SMART indicators identified, that will be used to track the project's contribution toward achieving the Aichi Target(s)?

| | | | |
|---|---|---|---|
| | 2. Is the description of the baseline scenario reliable, and based on sound data and assumptions? Are the activities that will be financed using GEF/LDCF/SCCF funding based on incremental/ additional reasoning? | DER, March 21, 2016. Yes. This program is a re-submission of PFD #9083 which has been approved by Council. The program is fully aligned with GEF-6 focal area objectives. The PFD is being re-submitted to add additional child projects. The following new child projects are being submitted: Chile; Indonesia; Myanmar; Tunisia; and South Africa | |
| **Program Design** | 3. Is the program framework (Table B) sound and sufficiently clear and appropriate to achieve program objectives and the GEBs? | DER, March 21, 2016. This program is a re-submission of PFD #9083 which has been approved by Council. Table B reflects the inclusion of additional child projects.<br><br>Please address the following comments:<br>1) Please clarify if any of the project components have changed since the submission of the first PFD, and if so, please explain.<br>2) Based on the large number of child projects, please provide a one-page summary table those shows each child project, including the global project; the responsible agency; the funding amounts; and a very brief summary of the top priorities for the child project, including which appliances or technologies will be the focus.<br>3) For Indonesia, please justify why two agencies will be implementing the project. Please describe the division of labor and responsibilities of the UNDP and UNEP in the child project.<br>4) For South Africa, please justify why two agencies will be implementing the project. Please more fully describe the division of labor and responsibilities of | 1. The components have remained the same.<br><br>2. Please see Annex I below for our response to this comment.<br><br>3. The project was submitted with two GEF agencies due to the complementary strengths of both agencies. UNEP, with its en.lighten initiative, has strong technical capacities and experience in implementing national projects to develop the policy framework for energy efficient lighting. While UNDP has the experience and country presence in Indonesia to work with local industry and development of demonstration projects and financial mechanisms. Therefore it has been |

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|---|---|---|---|
| | | the UNDP and DBSA in the child project. The GEB estimate on page 19 appears to be consistent with the first PFD submission, which only included 3 child projects. Please clarify if the in the PFD should be updated as the GHG figure matches the figure on page 18 for all eight child projects.<br>6) Please indicate if PPGs will be requested for the child projects and if those requests will come before or after June 2016 | agreed that UNDP will implement Component 1 (Support to local industry) and 2 (High efficiency lighting technology penetration), while UNEP will implement Component 2 (policy framework). UNDP will be the lead agency and receive the PPG.<br><br>4. The project was submitted with two GEF agencies due to the complementary strengths of both agencies. UNDP and DBSA will be jointly implementing the project so that South Africa benefits from the complementary strengths of both institutions:<br><br>• UNDP's proven experience with supporting countries to establish Energy Efficiency policies, including its experience in South Africa for the implementation of the GEF-financed project "Market transformation through energy efficiency standards and labeling of appliances in South Africa". UNDP is therefore best positioned to lead the implementation of the policy components of the project (Components 1, 2, 3 and 5) building on the experiences/lessons-learned from previous energy efficiency projects.<br>• DBSA's proven experience with establishing and managing financial mechanisms (including South Africa's Green Fund) and implementing investment projects. |

| | | | |
|---|---|---|---|
| | | | DBSA is therefore uniquely positioned to lead the development of a financial mechanism and support to local industry (Component 4).<br><br>5. The CO2 emissions were already updated for the child project, previously they were 1,530,245 tons with 3 child projects and now they are 10,158,095 tons with 8 child projects. The text in table incorrectly stated "only 3 child country projects" this has now been updated to "only 8 child country projects".<br><br>6. PPG requests will be submitted to all 5 child projects before June 2016. |
| | 4. Are socio-economic aspects, including relevant gender elements, indigenous people, and CSOs considered? | DER, March 21, 2016. Yes. | |
| | 5. Does the program take into account potential major risks, including the consequences of climate change, and describes sufficient risk response measures? (e.g., measures to enhance climate resilience) | DER, March 21, 2016. Yes. | |
| | 6. If there is a non-grant instrument in the program, is the GEF Agency(ies) capable of managing it? | DER, March 21, 2016. NA | |

| | | | |
|---|---|---|---|
| | 7. Is the program coordinated with other related initiatives and national/regional plans in the country or in the region? | DER, March 21, 2016. Yes. Please ensure that child projects are developed in coordination with countries INDCs. | |
| | 8. Is the program implementation/ execution arrangement adequate? | DER, March 21, 2016. As there are many agencies involved in this program, please explicate the responsibilities for submission of PPGs, CEO endorsements, tracking tools, PIRs, and other GEF required reports. | Please see Annex II below for our response to this comment. |
| | 9. Does the program include a budgeted M&E Plan that monitors and measures results with indicators and targets? | DER, March 21, 2016. Yes. | |
| | 10. Does the program have description of knowledge management plan? | DER, March 21, 2016. Yes. | |

| | | | |
|---|---|---|---|
| **Resource Availability** | 11. Is the proposed Grant (including the Agency fee) within the resources available from (mark all that apply): | | |
| | [redacted]he STAR allocation? | DER, March 21, 2016. Yes. This program is a re-submission of PFD #9083 which has been approved by Council. The program is fully aligned with GEF-6 focal area objectives. The PFD is being re-submitted to add additional child projects. The following new child projects are being submitted: Chile; Indonesia; Myanmar; Tunisia; and South Africa.<br><br>STAR Allocation and CCM allocation for the five new child projects is sufficient to cover the amount requested. | |
| | [redacted]he focal area allocation? | DER, March 21, 2016. Yes. This program is a re-submission of PFD #9083 which | |

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|---|---|---|---|
| | | has been approved by Council. The program is fully aligned with GEF-6 focal area objectives. The PFD is being re-submitted to add additional child projects. The following new child projects are being submitted: Chile; Indonesia; Myanmar; Tunisia; and South Africa. | |
| | | STAR Allocation and CCM allocation for the five new child projects is sufficient to cover the amount requested: Chile has $6.4 million CCM STAR allocation remaining; the requested child project is within that amount.<br>Indonesia has $14 million CCM STAR allocation remaining; the requested child project is within that amount.<br>Myanmar has $14.9 million CCM STAR allocation remaining; the requested child project is within that amount.<br>Tunisia has $2.6 million CCM STAR allocation remaining; the requested child project is within that amount and will consume all remaining CCM resources.<br>South Africa has $12.7 million CCM STAR allocation remaining; the requested child project is within that amount, leaving a balance of approximately $1 million. | |
| | [redacted]he LDCF under the principle of equitable access? | NA | |

| | | | |
|---|---|---|---|
| | [redacted]he SCCF (Adaptation or Technology Transfer)? | NA | |
| | [redacted]ocal area set-aside? | NA | |
| **Secretariat Recommendation** | | | |
| **PFD Clearance** | **Is the PFD recommended for clearance to include in the work program?** | DER, March 21, 2016. not at this time. Please address the comments in boxes 3 and 8. | |
| **Review Date (s)** | Review* | March 21, 2016 | |
| | Additional Review (as necessary) | | |
| | Additional Review (as necessary) | | |

*** This is the first time the Program Manager provides full comments for the program. Subsequent follow-up reviews should be recorded. For specific comments for each section, please insert a date after comments.**

**Annex I - Response to Comment on box 3:**

## Child Projects under the Leapfrogging markets to high efficiency products (appliances, including lighting, and electrical equipment)

| Country (GEF agency) | Product(s) of focus | Project Cost (US$) | Top priorities |
|---|---|---|---|
| **Global (UNEP)** | Lighting, appliances and equipment | 3,100,000 | • Development of tools and resources to support country officials in implementing projects on energy efficient appliances and equipment.<br>• Providing training to 10 child project countries and 15 non-child project countries.<br>• Holding of outreach events in order to increase the number of countries and companies committing to advance energy efficient |
| **Costa Rica (UNEP)** | Lighting, air conditioners and refrigerators | 2,000,000 | • Demonstration projects with energy efficient appliances in public institutions.<br>• Training and information program for market actors on the country's obligations to procure efficient appliances.<br>• Establishment of a revolving loan fund for the financing of large-scale replacement programs in the public sector. |
| **Sudan (UNDP)** | Lighting and air conditioners | 1,770,000 | • Development of a national strategy to advance energy efficiency as part of the National Energy Efficiency Action plan (NEEAP)<br>• Development of the policy framework with minimum energy performance standards (MEPS); monitoring, verification, and enforcement (MVE) system; supporting policies; and environmentally sound management. |

| | | | |
|---|---|---|---|
| **Kazakhstan (UNDP)** | Domestic appliances (except lighting) | 3,500,000 | • Development of the policy framework with minimum energy performance standards (MEPS); monitoring, verification, and enforcement (MVE) system; supporting policies; and environmentally sound management. Boosting demand for energy efficient appliances and equipment |
| **Myanmar (UNEP)** | Lighting and appliances | 2,223,578 | • Development of the policy framework with minimum energy performance standards (MEPS); monitoring, verification, and enforcement (MVE) system; supporting policies; and environmentally sound management. |
| **Indonesia (UNEP, UNDP)** | Lighting | 3,895,873 | • Support to local lighting industry to improve the efficiency of lamps and ballasts<br>• Development of the policy framework with minimum energy performance standards (MEPS); monitoring, verification, and enforcement (MVE) system; supporting policies; and environmentally sound management.<br>• High efficiency lighting technology penetration with the development of financial mechanisms and distribution campaigns. |
| **South Africa (UNDP, DBSA)** | LED lighting and distribution transformers | 10,000,000 | • Development of a national strategy to advance energy efficiency<br>• Development of the policy framework with minimum energy performance standards (MEPS); monitoring, verification, and enforcement (MVE) system; supporting policies; and environmentally sound management. |
| **Tunisia (UNEP)** | Lighting | 2,500,000 | • Development of the policy framework with minimum energy performance standards (MEPS); monitoring, verification, and enforcement (MVE) system; supporting policies; and environmentally sound management. |
| **Chile (UNEP)** | Refrigerators | 1,473,762 | • Development of the policy framework with updated minimum energy performance standards (MEPS); monitoring, verification, and enforcement (MVE) system; supporting policies; and environmentally sound management. |

**Annex II – Response to comment on box 8:**

*As there are many agencies involved in this program, please explicate the responsibilities for submission of PPGs, CEO endorsements, tracking tools, PIRs, and other GEF required reports.*

| | |
|---|---|
| PPGs | Each child project agency will submit their own PPG requests independently of the lead agency. This precedent was set by UNDP at the request of the GEF Secretariat. |
| CEO endorsements | Each child project agency will submit their own CEO endorsement documents to the GEF. However, the Lead agency will discuss the programme monitoring framework, programme tracking tool and the institutional arrangements to ensure: (a) consistency in reporting against the programme tracking tool and programme monitoring framework; and (b) coordination or technical input to the child projects from the different agencies. |
| PIRs, | Each child project agency will prepare and submit directly to the GEF, its own Project Implementation Review every year. |
| tracking tools, | • Programme tracking tool: the lead agency will develop and submit the baseline for the programme monitoring framework and programme tracking tool at the program commitment deadline. |

| | |
|---|---|
| | • Project tracking tools: each child project agencies will be responsible for developing and submitting progress reports on, their own tracking tools, as per the GEF guidelines. |
| Other GEF required reports. | • Reports from each child project will also contribute to the programme level results and impacts. Each child project agency will report to the lead programme agency: programme tracking tool and programme monitoring framework, at the following points: (a) at CEO endorsement, (b) at midterm and (c) at project completion.<br>• The Program Lead Agency will consolidate and send to the GEF Secretariat a report (a) at program baseline when all child projects are CEO endorsed/approved (i.e. program commitment deadline), (b) at midterm on progress toward program outcomes, and (c) at program completion on progress towards the programme indicators. |

## ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[19]

Provide detailed funding amount of the PPG activities financing status in the table below:

| PPG Grant Approved at PIF: **US$ 50,000** | | | |
|---|---|---|---|
| ***Project Preparation Activities Implemented*** | ***GEF/LDCF/SCCF Amount ($)*** | | |
| | ***Budgeted Amount*** | ***Amount Spent To date*** | ***Amount Committed*** |
| 1200 Consultants | 37,000 | 36,250 | 0 |
| 1600 Travel on Official business | 8,000 | 1,099 | 0 |
| 3300 Meetings/Conferences | 5,000 | 0 | 0 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| **Total** | 50,000 | 37,349 | 0 |

Note: the PPG balance of US$ 12,651 will be used during the first year following CEO endorsement for project development activities.

[19] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

**ANNEX D: CALENDAR OF EXPECTED REFLOWS (**if non-grant instrument is used**)**

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

**Not applicable.**

## ANNEX E: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF/LDCF/SCCF RESOURCES

| *Position Titles* | *$/ Person Week** | *Estimated Person Weeks*** | *Tasks To Be Performed* |
|---|---|---|---|
| **For Technical Assistance** | | | |
| Local | | | |
| 1201 EE products and EE service companies identification expert | 1,250 | 24 | Will be in charge for identification and selection of companies providing efficient appliances and energy efficiency services locally available and willing to procure to the Costa Rican public sector through its procurement platforms (i.e. SICOP)<br>Will provide a database of (1) companies that provide energy efficiency services and (2) efficient appliances available in Costa Rica. |
| 1202 Online platform developer | 1,250 | 16 | Will be in charge for design and construction of a web platform in the form of a content management system to be administered by MINAE and aimed to centralize information resources relevant to public procurement in Costa Rica. |
| 1203 Social media and communication consultant | 250 | 120 | Will be in charge for conduction of information and dissemination actions through social media to promote environmentally sounded end-of-life integrated waste management of so called "special handling waste" e.g. lighting, air conditioning and refrigeration appliances.<br>Will make use of MINAE's existing social media channels to periodically design and disseminate information resources targeted to citizens (e.g. infographics, day-to-day tips) and based on the project outcomes related to environmentally sounded end-of-life integrated waste management of so called "special handling waste". |
| International | | | |
| 1281 EE tracking instrument specialist | 800 | 20 | Will be in charge of developing a tracking instrument to track and monitor environmental benefits obtained from public procurement of efficient products – focused on lighting, air conditioning and refrigeration appliances.<br>Will also be in charge of developing a practical guide for the implementation of the tracking instrument targeted to procurement and environmental management officials from public institutions. |

| *Position Titles* | *$/ Person Week** | *Estimated Person Weeks*** | *Tasks To Be Performed* |
|---|---|---|---|
| 1282 Waste management experts | 1,444 | 72 | A Consultant will be in charge of assessing the current national capacity from authorized waste handlers by the Ministry of Health to supply local demand for integrated waste management services of special handling waste – focused on replaced conventional lighting, air conditioning and refrigeration appliances<br><br>Based on international best practices, a consultant will be in charge of developing a methodology to establish recovery targets for special handling waste from replaced lighting, air conditioning and refrigeration appliances in accordance to Executive Mandate 38272-S Articles 9 and 10.<br><br>A consultant will provide training to public and private sector on integrated waste management. The targeted audience for the public sector will be procurement and environmental management officials from highest energy consuming public institutions. Meanwhile, the targeted audience for the private sector will be waste compliance units, authorized waste handlers as well as efficient appliance providers and energy efficiency service providers. The topic of the training shall focus on legislation related integrated management of special handling waste from replaced lighting, air conditioning and refrigeration appliances. |
| 1283 U4E Technical support | 833 | 144 | Will be in charge of providing day to day technical support to the project and oversee work from consultants or subcontracted agencies hired by the project and related to activities were U4E will provide support to the project.<br><br>Will also be in charge of the formulation of and provision of training to public sector technical officials that provide trainings (i.e. train the trainer) related to energy efficiency. Strengthening of capacities will be based on international best practices and state-of-the-art knowledge related to energy efficiency. |
| Justification for travel, if any: | | | |

# ANNEX F-1: DETAILED GEF BUDGET

| ANNEX F-1 - RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET LINE (GEF FUNDS ONLY US$) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Project title: | | | Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica | | | | | | | | | |
| Project number: | | | 9283 | | | | | | | | | |
| Project executing partner: | | | Central American Bank for Economic Integration (CABEI) | | | | | | | | | |
| Project implementation period: | | | | | | | | | | | | |
| From: | July 2017 | | Expenditure by project component | | | | | | Expenditure by project year | | | |
| To: | June 2020 | | Component 1 | Component 2 | Component 3 | Component 4 | PMC | Total | Year 1 | Year 2 | Year 3 | Total |
| UNEP Budget Line | | | | | | | | | | | | |
| 10 | PERSONNEL COMPONENT | | | | | | | | | | | |
| | 1100 | Project personnel | | | | | | | | | | |
| | 1101 | National Project Director | | | | | - | - | - | - | - | - |
| | 1102 | Project Manager | | | | | 144,000 | 144,000 | 48,000 | 48,000 | 48,000 | 144,000 |
| | **1199** | **Sub-total** | **-** | **-** | **-** | **-** | **144,000** | **144,000** | **48,000** | **48,000** | **48,000** | **144,000** |
| | 1200 | Consultants | | | | | | | | | | |
| | 1201 | EE products and EE service companies identification expert | | 30,000 | | | | 30,000 | | 30,000 | | 30,000 |
| | 1202 | Online platform developer | | 20,000 | | | | 20,000 | | 20,000 | | 20,000 |
| | 1203 | Social media and communication consultant | | | | 30,000 | | 30,000 | 6,000 | 12,000 | 12,000 | 30,000 |
| | 1281 | EE tracking instrument specialist | 16,000 | | | | | 16,000 | | 16,000 | | 16,000 |
| | 1282 | Waste management expert | | | | 104,000 | | 104,000 | 32,000 | 72,000 | | 104,000 |
| | 1283 | U4E Technical support | 4,000 | 50,000 | 40,000 | 26,000 | | 120,000 | 46,000 | 54,000 | 20,000 | 120,000 |
| | **1299** | **Sub-total** | **20,000** | **100,000** | **40,000** | **160,000** | **-** | **320,000** | **84,000** | **204,000** | **32,000** | **320,000** |
| | 1300 | Administrative Support | | | | | | | | | | |
| | 1301 | Financial reporting officer | | | | | 27,800 | 27,800 | 5,800 | 11,000 | 11,000 | 27,800 |
| | **1399** | **Sub-total** | **-** | **-** | **-** | **-** | **27,800** | **27,800** | **5,800** | **11,000** | **11,000** | **27,800** |
| | 1600 | Travel on official business | | | | | | | | | | |
| | 1601 | Travels of technical public officials to workshops | | 14,000 | | 3,000 | | 17,000 | 4,667 | 7,667 | 4,667 | 17,000 |
| | 1602 | Travels of Project Manager | | | | | 10,000 | 10,000 | 2,000 | 4,000 | 4,000 | 10,000 |
| | 1603 | Travels of consultants | 1,200 | 5,750 | 7,250 | 9,800 | | 24,000 | 9,000 | 11,000 | 4,000 | 24,000 |
| | 1681 | Travels of U4E staff | 6,250 | 6,250 | 6,250 | 6,250 | | 25,000 | 8,333 | 8,333 | 8,334 | 25,000 |
| | **1699** | **Sub-total** | **7,450** | **26,000** | **13,500** | **19,050** | **10,000** | **76,000** | **24,000** | **31,000** | **21,001** | **76,000** |
| **1999** | **Component total** | | **27,450** | **126,000** | **53,500** | **179,050** | **181,800** | **567,800** | **161,800** | **294,000** | **112,001** | **567,800** |
| | | | | | | | | | | | | |
| **20** | **SUB-CONTRACT COMPONENT** | | | | | | | | | | | |
| | 2100 | Sub-contracts (MOUs/LOAs for cooperating agencies) | | | | | | | | | | |
| | 2101 | | | | | | | | | | | |
| | **2199** | **Sub-total** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| | 2200 | Sub-contracts (MOUs/LOAs for supporting organizations) | | | | | | | | | | |
| | 2201 | EE certification standard setting institution (i.e. INTECO) | | 10,000 | | | | 10,000 | 10,000 | | | 10,000 |
| | 2202 | Financial mechanism operation entity | | | 1,000,000 | | | 1,000,000 | | 1,000,000 | | 1,000,000 |
| | 2281 | Financial mechanism design | | | 160,000 | | | 160,000 | 106,000 | 54,000 | | 160,000 |
| | 2203 | Ambilamp Academy | | | | 4,000 | | 4,000 | | 4,000 | | 4,000 |
| | **2299** | **Sub-total** | **-** | **10,000** | **1,160,000** | **4,000** | **-** | **1,174,000** | **116,000** | **1,058,000** | **-** | **1,174,000** |
| | 2300 | Sub-contracts (for commercial purposes) | | | | | | | | | | |
| | 2301 | Energy diagnosis services | 150,000 | | | | | 150,000 | 37,500 | 112,500 | | 150,000 |
| | **2399** | **Sub-total** | **150,000** | **-** | **-** | **-** | **-** | **150,000** | **37,500** | **112,500** | **-** | **150,000** |
| **2999** | **Component total** | | **150,000** | **10,000** | **1,160,000** | **4,000** | **-** | **1,324,000** | **153,500** | **1,170,500** | **-** | **1,324,000** |
| | | | | | | | | | | | | |

| ANNEX F-1 - RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET LINE (GEF FUNDS ONLY US$) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Project title: | | | Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica | | | | | | | | | |
| Project number: | | | 9283 | | | | | | | | | |
| Project executing partner: | | | Central American Bank for Economic Integration (CABEI) | | | | | | | | | |
| Project implementation period: | | | | | | | | | | | | |
| From: | July 2017 | | Expenditure by project component | | | | | | Expenditure by project year | | | |
| To: | June 2020 | | Component 1 | Component 2 | Component 3 | Component 4 | PMC | Total | Year 1 | Year 2 | Year 3 | Total |
| UNEP Budget Line | | | | | | | | | | | | |
| 30 | TRAINING COMPONENT | | | | | | | | | | | |
| | 3200 | Group training | | | | | | | | | | |
| | 3201 | Training to (A) procurement & environmental management public officials on EE | | 4,550 | | | | 4,550 | 1,516 | 1,517 | 1,517 | 4,550 |
| | 3202 | Training to (B) efficient appliances and energy efficiency service providers | | 4,550 | | | | 4,550 | 1,516 | 1,517 | 1,517 | 4,550 |
| | 3203 | Training to (D) waste compliance units, authorized waste handlers and suppliers | | | | 4,550 | | 4,550 | 1,516 | 1,517 | 1,517 | 4,550 |
| | 3204 | Training to (E) procurement & environmental management public officials on integrated waste management | | | | 4,550 | | 4,550 | 1,516 | 1,517 | 1,517 | 4,550 |
| | **3299** | **Sub-total** | **-** | **9,100** | **-** | **9,100** | **-** | **18,200** | **6,064** | **6,068** | **6,068** | **18,200** |
| | 3300 | Meetings/Conferences | | | | | | | | | | |
| | 3301 | Inception workshop | | | | | | - | - | | | - |
| | 3302 | Project Steering Committee semi-annual meetings | | | | | | - | | - | | - |
| | **3399** | **Sub-total** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| **3999** | **Component total** | | **-** | **9,100** | **-** | **9,100** | **-** | **18,200** | **6,064** | **6,068** | **6,068** | **18,200** |
| | | | | | | | | | | | | |
| 40 | EQUIPMENT AND PREMISES COMPONENT | | | | | | | | | | | |
| | 4100 | Expendable equipment | | | | | | | | | | |
| | 4101 | Office materials for PMU | | | | | | - | | | | - |
| | **4199** | **Sub-total** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| | 4200 | Non-expendable equipment | | | | | | | | | | |
| | 4201 | Recovery & storage tanks for disposed refrigerant gas (procurement) | | | | 15,000 | | 15,000 | 15,000 | | | 15,000 |
| | 4202 | Recovery equipment for disposed mercury (procurement) | | | | 10,000 | | 10,000 | 10,000 | | | 10,000 |
| | 4203 | Office equipment for PMU | | | | | | - | | | | - |
| | **4299** | **Sub-total** | **-** | **-** | **-** | **25,000** | **-** | **25,000** | **25,000** | **-** | **-** | **25,000** |
| | 4300 | Premises | | | | | | | | | | |
| | 4301 | Office space for PMU | | | | | | - | | | | - |
| | **4399** | **Sub-total** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| **4999** | **Component total** | | **-** | **-** | **-** | **25,000** | **-** | **25,000** | **25,000** | **-** | **-** | **25,000** |
| | | | | | | | | - | | | | - |
| 50 | MISCELLANEOUS COMPONENT | | | | | | | | | | | |
| | 5300 | Sundry | | | | | | | | | | |
| | 5301 | Audit | 2,500 | 2,500 | 2,500 | 2,500 | | 10,000 | 3,300 | 3,300 | 3,400 | 10,000 |
| | **5399** | **Sub-total** | **2,500** | **2,500** | **2,500** | **2,500** | **-** | **10,000** | **3,300** | **3,300** | **3,400** | **10,000** |
| | 5400 | Hospitality and entertainment | | | | | | | | | | |
| | 5401 | | | | | | | - | | | | - |
| | **5499** | **Sub-total** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| | 5500 | Evaluation | | | | | | | | | | |
| | 5501 | MTR/MTE | 6,250 | 6,250 | 6,250 | 6,250 | | 25,000 | | 25,000 | | 25,000 |
| | 5502 | Terminal evaluation | 7,500 | 7,500 | 7,500 | 7,500 | | 30,000 | | | 30,000 | 30,000 |
| | **5599** | **Sub-total** | **13,750** | **13,750** | **13,750** | **13,750** | **-** | **55,000** | **-** | **25,000** | **30,000** | **55,000** |
| **5999** | **Component total** | | **16,250** | **16,250** | **16,250** | **16,250** | **-** | **65,000** | **3,300** | **28,300** | **33,400** | **65,000** |
| | | | | | | | | | | | | - |
| **99** | **GRAND TOTAL** | | **193,700** | **161,350** | **1,229,750** | **233,400** | **181,800** | **2,000,000** | **349,664** | **1,498,868** | **151,469** | **2,000,000** |

## ANNEX F-2: DETAILED CO-FINANCE BUDGET

**ANNEX F-2 - RECONCILIATION BETWEEN GEF BUDGET AND CO-FINANCE BUDGET (TOTAL GEF & CO-FINANCE US$)**

Project title: Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica
Project number: 9283
Project executing partner: Central American Bank for Economic Integration (CABEI)
Project implementation period:

| From: | July 2017 | GEF Cash | MINAE | | CABEI | | UNEP | | ICE | | COOPELESCA | | COOPEGUANACASTE | | ESPH | | CNFL | | NLTC | | Whirlpool | | MABE | | Total project funding | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| To: | June 2020 | | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind | Cash | In-kind |
| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | A+B+D+F+H+J+L +N+P+R+T+V | C+E+G+I+K+M+O +Q+S+U+W |
| **UNEP Budget Line** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **10** | **PERSONNEL COMPONENT** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1100 | Project personnel | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1101 | National Project Director | - | | 100,000 | | | | | | | | | | - | | | | | | | | | | | - | 100,000 |
| 1102 | Project Manager | 144,000 | | 95,000 | | | | | | | | | | - | | | | | | | | | | | 144,000 | 95,000 |
| **1199** | **Sub-total** | **144,000** | - | **195,000** | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | **144,000** | **195,000** |
| 1200 | Consultants | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1201 | EE products and EE service companies identification expert | 30,000 | | 50,000 | | | | | | | | 15,000 | | 5,000 | | 25,000 | | 952 | | 35,000 | | 25,000 | | 30,000 | 30,000 | 185,952 |
| 1202 | Online platform developer | 20,000 | | 20,000 | | | | | | | | | | | | 20,000 | | | | | | | | | 20,000 | 40,000 |
| 1203 | Social media and communication consultant | 30,000 | | 30,000 | | | | | | | | | | | | 25,000 | | | | | | | | | 30,000 | 55,000 |
| 1281 | EE tracking instrument specialist | 16,000 | | 25,000 | | | | | | | | 23,505 | | 3,795 | | 20,000 | | | | 85,000 | | 25,000 | | 30,000 | 16,000 | 212,300 |
| 1282 | Waste management expert | 104,000 | | 25,000 | | | | 5,000 | | | | 50,000 | | - | | 450,000 | | | | - | | | | 30,000 | 104,000 | 560,000 |
| 1283 | U4E Technical support | 120,000 | | | | | | 10,000 | | | | | | - | | - | | - | | - | | | | - | 120,000 | 10,000 |
| **1299** | **Sub-total** | **320,000** | - | **150,000** | - | - | - | **15,000** | - | - | - | **88,505** | | **8,795** | - | **540,000** | - | **952** | - | **120,000** | - | **50,000** | - | **90,000** | **320,000** | **1,063,252** |
| 1300 | Administrative Support | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1301 | Financial reporting officer | 27,800 | | | | | | | | | | | | | | | | | | | | | | | 27,800 | - |
| **1399** | **Sub-total** | **27,800** | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | **27,800** | - |
| 1600 | Travel on official business | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1601 | Travels of technical public officials to workshops | 17,000 | | | | | | | | | | | | | | | | | | | | | | | 17,000 | - |
| 1602 | Travels of Project Manager | 10,000 | | | | | | | | | | | | | | | | | | | | | | | 10,000 | - |
| 1603 | Travels of consultants | 24,000 | | | | | | | | | | | | | | | | | | | | | | | 24,000 | - |
| 1681 | Travels of U4E staff | 25,000 | | | | | | | | | | | | | | | | | | | | | | | 25,000 | - |
| **1699** | **Sub-total** | **76,000** | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | **76,000** | - |
| **1999** | **Component total** | **567,800** | - | **345,000** | - | - | - | **15,000** | - | - | - | **88,505** | | **8,795** | - | **540,000** | - | **952** | - | **120,000** | - | **50,000** | - | **90,000** | **567,800** | **1,258,252** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **20** | **SUB-CONTRACT COMPONENT** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2100 | Sub-contracts (MOUs/LOAs for cooperating agencies) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2201 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **2199** | **Sub-total** | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2200 | Sub-contracts (MOUs/LOAs for supporting organizations) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2201 | EE certification standard setting institution (i.e. INTECO) | 10,000 | | 10,000 | | | | | | | | 30,000 | | 10,000 | | 12,300 | | | | 30,000 | | | | | 10,000 | 92,300 |
| 2202 | Financial mechanism operation entity | 1,000,000 | | 200,000 | | 470,000 | | | | 5,000 | | 30,000 | | 10,000 | | 400,000 | | | | | | | | | 1,000,000 | 1,115,000 |
| 2281 | Financial mechanism design | 160,000 | | 200,000 | | | | | | 35,000 | | 30,000 | | | | 400,000 | | | | | | 20,000 | | 100,000 | 160,000 | 785,000 |
| 2203 | Ambilamp Academy | 4,000 | | | | | | | | | | | | | | | | | | | | | | | 4,000 | - |
| **2299** | **Sub-total** | **1,174,000** | - | **410,000** | - | **470,000** | - | - | - | **40,000** | - | **90,000** | | **20,000** | - | **812,300** | - | - | - | **30,000** | - | **20,000** | - | **100,000** | **1,174,000** | **1,992,300** |
| 2300 | Sub-contracts (for commercial purposes) | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2301 | Energy diagnosis services | 150,000 | | 100,000 | | | | | | | | | | | | | | | | | | | | | 150,000 | 100,000 |
| **2399** | **Sub-total** | **150,000** | - | **100,000** | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | **150,000** | **100,000** |
| **2999** | **Component total** | **1,324,000** | - | **510,000** | - | **470,000** | - | - | - | **40,000** | - | **90,000** | | **20,000** | - | **812,300** | - | - | - | **30,000** | - | **20,000** | - | **100,000** | **1,324,000** | **2,092,300** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **30** | **TRAINING COMPONENT** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3200 | Group training | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3201 | Training to (A) procurement & environmental management public officials on EE | 4,550 | | 150,000 | | | | | | 3,000 | | 12,500 | | 7,500 | | 25,000 | | | | 20,000 | | | | 25,000 | 4,550 | 243,000 |
| 3202 | Training to (B) efficient appliances and energy efficiency service providers | 4,550 | | 150,000 | | | | | | 3,000 | | 12,500 | | 7,500 | | 25,000 | | 1,900 | | 30,000 | | 30,000 | | 25,000 | 4,550 | 284,900 |
| 3203 | Training to (D) waste compliance units, authorized waste handlers and suppliers | 4,550 | | 150,000 | | | | | | 3,000 | | 12,500 | | 7,500 | | 25,000 | | | | | | | | 25,000 | 4,550 | 223,000 |
| 3204 | Training to (E) procurement & environmental management public officials on integrated waste management | 4,550 | | 150,000 | | | | | | 3,000 | | 12,500 | | 7,500 | | 25,000 | | | | | | | | 25,000 | 4,550 | 223,000 |
| **3299** | **Sub-total** | **18,200** | - | **600,000** | - | - | - | - | - | **12,000** | - | **50,000** | | **30,000** | - | **100,000** | - | **1,900** | - | **50,000** | - | **30,000** | - | **100,000** | **18,200** | **973,900** |
| 3300 | Meetings/Conferences | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3301 | Inception workshop | - | | 15,000 | | | | | | | | | | | | | | | | | | | | | - | 15,000 |
| 3302 | Project Steering Committee semi-annual meetings | - | | 15,000 | | | | - | | 15,000 | | | | | | | | | | | | | | 10,000 | - | 40,000 |
| **3399** | **Sub-total** | - | - | **30,000** | - | - | - | - | - | **15,000** | - | - | | - | - | - | - | - | - | - | - | - | - | **10,000** | - | **55,000** |
| **3999** | **Component total** | **18,200** | - | **630,000** | - | - | - | - | - | **27,000** | - | **50,000** | | **30,000** | - | **100,000** | - | **1,900** | - | **50,000** | - | **30,000** | - | **110,000** | **18,200** | **1,028,900** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **40** | **EQUIPMENT AND PREMISES COMPONENT** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4100 | Expendable equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4101 | Office materials for PMU | - | | 30,000 | | 5,000 | | | | | | | | | | | | | | | | | | | - | 35,000 |
| **4199** | **Sub-total** | - | - | **30,000** | - | **5,000** | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | **35,000** |
| 4200 | Non-expendable equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4201 | Recovery & storage tanks for disposed refrigerant gas (procurement) | 15,000 | | 150,000 | | | | | | | | | | | | | | | | | | | | | 15,000 | 150,000 |
| 4202 | Recovery equipment for disposed mercury (procurement) | 10,000 | | 50,000 | | | | | | | | | | | | | | | | | | | | | 10,000 | 50,000 |
| 4203 | Office equipment for PMU | - | | 25,000 | | 5,000 | | | | | | | | | | | | | | | | | | | - | 30,000 |
| **4299** | **Sub-total** | **25,000** | - | **225,000** | - | **5,000** | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | **25,000** | **230,000** |
| 4300 | Premises | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4301 | Office space for PMU | - | | 60,000 | | 20,000 | | | | | | | | | | | | | | | | | | | - | 80,000 |
| **4399** | **Sub-total** | - | - | **60,000** | - | **20,000** | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | **80,000** |
| **4999** | **Component total** | **25,000** | - | **315,000** | - | **30,000** | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | **25,000** | **345,000** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **50** | **MISCELLANEOUS COMPONENT** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5300 | Sundry | - | | | | | | | | | | | | | | | | | | | | | | | - | - |
| 5301 | Audit | 10,000 | | | | | | | | 3,000 | | 15,000 | | - | | | | | | | | | | | 10,000 | 18,000 |
| **5399** | **Sub-total** | **10,000** | - | - | - | - | - | - | - | **3,000** | - | **15,000** | | - | - | - | - | - | - | - | - | - | - | - | **10,000** | **18,000** |
| 5400 | Hospitality and entertainment | - | | | | | | | | | | | | | | | | | | | | | | | - | - |
| 5401 | | - | | | | | | | | | | | | | | | | | | | | | | | - | - |
| **5499** | **Sub-total** | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5500 | Evaluation | - | | | | | | | | | | | | | | | | | | | | | | | - | - |
| 5501 | MTR/MTE | 25,000 | | 100,000 | | | | 5,000 | | 2,500 | | 5,000 | | - | | | | | | | | | | | 25,000 | 112,500 |
| 5502 | Terminal evaluation | 30,000 | | 100,000 | | | | 5,000 | | 2,500 | | 5,000 | | 5,000 | | | | | | | | | | | 30,000 | 117,500 |
| **5599** | **Sub-total** | **55,000** | - | **200,000** | - | - | - | **10,000** | - | **5,000** | - | **10,000** | | **5,000** | - | - | - | - | - | - | - | - | - | - | **55,000** | **230,000** |
| **5999** | **Component total** | **65,000** | - | **200,000** | - | - | - | **10,000** | - | **8,000** | - | **25,000** | - | **5,000** | - | - | - | - | - | - | - | - | - | - | **65,000** | **248,000** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **99** | **GRAND TOTAL** | **2,000,000** | - | **2,000,000** | - | **500,000** | - | **25,000** | - | **75,000** | - | **253,505** | - | **63,795** | - | **1,452,300** | - | **2,852** | - | **200,000** | - | **100,000** | - | **300,000** | **2,000,000** | **4,972,452** |

## ANNEX G - M&E BUDGET AND WORK PLAN

| M&E Activity | Description | Responsible Parties | GEF budget (USD) | Co-finance budget | Timeframe |
|---|---|---|---|---|---|
| Inception Workshop (IW) and Report | Report prepared immediately following the IW; it includes:<br><br>Detailed Work Plan and budget for the first year, as well as an overview of AWPs for subsequent years, divided per output and inputs (budget lines).<br><br>A more detailed narrative of roles of UNEP, Country Offices and PSC: institutional responsibilities, coordinating actions and feedback mechanisms<br>Detailed Project Supervision and a Monitoring Framework Plan | Execution:<br>Project Manager (PM)<br><br>Support:<br>UNEP Task Manager (TM)<br>National Project Director (NPD)<br>MINAE | Costs included in the budget for PM and for travel expenses | US$ 3,000<br><br>MINAE will provide a venue for the event | Immediately following, within 2 months of project start-up |
| Half-yearly progress report | Part of UNEP procedures for project monitoring.<br><br>Analyses project performance over the reporting period UNEP; Describes constraints experienced in the progress towards results and the reasons<br><br>Describes Work Plan for the next period in an Annex and the detailed budget divided per output and inputs (budget lines) | Execution: PM<br><br>Support:<br>UNEP TM | Costs included in the budget for PM | | Two (2) bi-annual reports for any given year (July 31 and January 31);<br><br>Last progress Report within 60 days of project closure of operations |
| Quarterly expenditure reports | Detailed financial reports (in Excel), with justification of any change; | Execution: PM<br><br>Support:<br>NPD<br>UNEP Fund Management Office (FMO) | Costs included in the budget for PM | | Four (4) quarterly expenditure reports for any given year (January 31, April 30, July 31, October 31)<br><br>Last financial Report within 60 days of project completion |
| Project Steering Committee meetings | Meeting of partners directly involved in the project implementation and reporting recap the PSC meeting and actions made | Execution: PM<br><br>Support:<br>NPD<br>UNEP FMO | Costs included in budget for PM and for travel expenses | US$ 8,500<br><br>MINAE will provide a venue for the meetings | Twice a year for PSC and at least once a year for national PSC |
| Technical and thematic Reports; Communication of lessons learnt | Technical and thematic periodic reports could also be prepared to focus on specific issues or areas of activity covered by the project | Execution: PM<br><br>Support: Project Work Team (PWT) | Costs included in the budget for PM and for travel expenses | | As necessary for the thematic reports |
| Project Implementation Review (PIR) | Building on the measured performance indicators, the PIR analyses project performance over the reporting period UNEP; describes constraints experienced in the progress towards results and the reasons; and draws lessons and makes clear recommendations for future orientation in addressing the key problems in the lack of progress.<br>The PIR can be discussed at PSC meetings | Execution:<br>PM / UNEP TM<br><br>Support:<br>PSC | Costs included in the budget for PM | | Yearly, by 31 July latest |

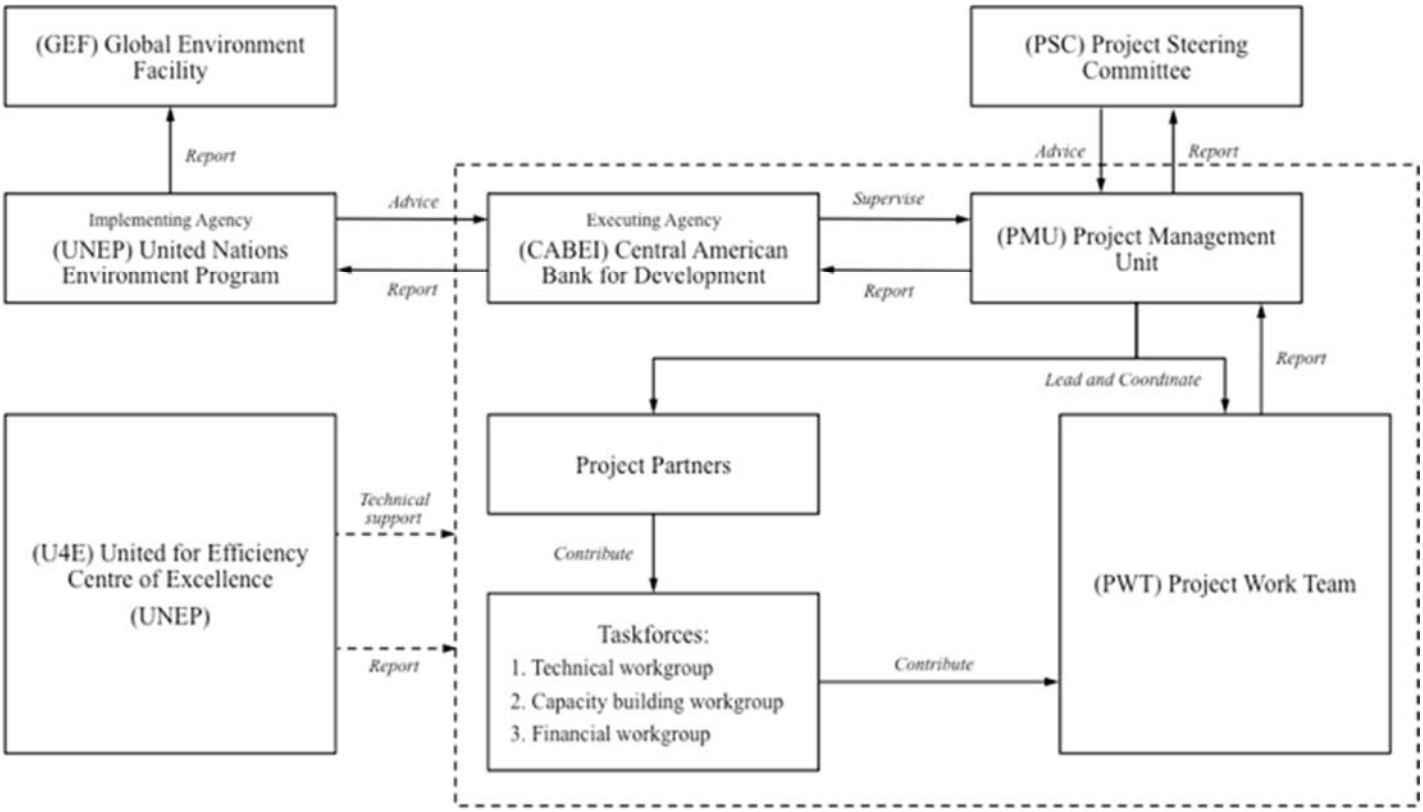
| M&E Activity | Description | Responsible Parties | GEF budget (USD) | Co-finance budget | Timeframe |
|---|---|---|---|---|---|
| Medium-Term Evaluation / Review | The purpose of the Mid-Term Evaluation (MTE) or Mid-Term Review (MTR) is to provide an independent assessment of project performance at mid-term, to analyse whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools. Since for a short duration project, PIR can serve as the project MTR, the need of a MTE or MTR for this project will be assessed according to the progress of the project by the Task Manager | Execution:<br>Independent evaluator<br><br>Support:<br>PM<br>NPD<br>UNEP TM<br>MINAE | US$ 25,000 | US$ 45,000<br><br>MINAE and co-financing partners will contribute with person-hours of their staff | At mid-point of project implementation if deemed needed by the Task Manager |
| Final Report | Building on the measured project indicators and the PIR, the project team will draft and submit a Final Report, with other docs (such as last PIR) can serve as Project Final Report to the UNEP, at least two weeks before the PSC meeting for their review and comments; this meeting decides whether any action is needed to achieve the sustainability of project results; and draws lessons to be captured into other projects;<br>Comprehensive report summarizing all activities, achievements, lessons learned, objectives met or not achieved structures and systems implemented, etc. Lays out recommendations for any further steps that may need to be taken to ensure the sustainability and replication of project activities. | Execution:<br>PM<br><br>Support:<br>UNEP<br>PSC | Costs included in the budget for PM | | At least two-three months following the project completion date |
| Terminal Evaluation | Further review the topics covered in the mid-term evaluation.<br>Looks at the impacts and sustainability of the results, including the contribution to capacity development and the achievement of global environmental goals (refer to section C, page 85-86). | Execution:<br>Independent evaluator<br><br>Support:<br>PM<br>NPD<br>UNEP<br>MINAE<br>Project Partners | US$ 30,000 | US$ 70,000<br><br>MINAE and co-financing partners will contribute with person-hours of their staff | To be started following completion of project activities |
| Co-financing Report | Report on co-financing (cash and/or in-kind) fulfilled contributions from all project partners that provided co-finance letters. | Execution:<br>PM<br>Co-financing partners<br><br>Support:<br>UNEP FMO<br>MINAE | Costs included in the budget for PM | | Annually, within one (1) month of the PIR reporting period, i.e. on or before 31 July |
| Audits | Financial audits | Execution:<br>Independent auditor<br><br>Commissioner:<br>PMU | US$ 10,000 | US$ 65,000<br><br>MINAE and co-financing partners will contribute with person-hours of their staff during audits | Annually |
| **TOTAL M&E COST** | | | **US$ 65,000** | **US$ 191,500** | |

## ANNEX H - PROJECT IMPLEMENTATION ARRANGEMENTS

The Project is co-financed with funding from the Global Environment Facility (GEF) with the United Nations Environment Programme (UNEP) acting as the GEF Implementing Agency. The Central American Bank for Economic Integration (CABEI) has been appointed as executing body by the Ministry of Energy and Environment (MINAE) through the Energy Sector Directorate (DSE, in Spanish).

A project governance structure will be put in place to ensure decision-making, management and implementation arrangements are appropriate and operate effectively. The governance structure will also be integrated by Project Steering Committee (PSC), a Project Management Unit (PMU), a Project Work Team (PWT) and Strategic Taskforces, supported by the project partners. United for Efficiency Centre for Excellence (U4E) will provide technical support to the PSC and PMU and contribute through its network of experts and international partners to the PWT.

The governance structure is shown in the Figure above.



## ***Project Governance Structure***

| Body | Composition | Role and description | Frequency of meetings |
|---|---|---|---|
| Project Steering Committee (PSC) | National Project Director (NPD)<br>Project Manager (PM)<br>GEF Operational Focal Point (GEF OFP)<br>UNEP<br>National Commission for Energy Conservation (CONACE)<br>Ministry of Health<br>Treasury Ministry<br>Costa Rican Accreditation Body (ECA) | • The PSC will be multi-disciplinary and multi-sectoral in fields related to energy efficiency, public procurement and environmentally-sound end-of-life integrated waste management and will be responsible for:<br>• Oversight of the project progress and implementation of outputs in each of the 4 project components;<br>• Approve annual work plans and budget;<br>• Approve management decisions to ensure timely delivery of quality outputs;<br>• Provide overall guidance and strategic direction;<br>• Mobilize national stakeholders to support project implementation, as well as provide synergies with other complementing initiatives and ongoing projects;<br>• Address logistical issues, e.g. through organization of meetings and provision of relevant facilities;<br>• Validate DPWT proposed by the PMU;<br>• Provide insight on national policy barriers and proposed stages of national policy development | Twice a year |
| Implementing Agency (IA) | UNEP Climate Change Mitigation (CCM) Unit | • Ensure timely disbursement/sub-allotment to executing agency, based on agreed legal document and in accordance with UNEP and GEF fiduciary standards<br>• Follow-up with Executing agency for progress, equipment, financial and audit reports<br>• Provide consistent and regular oversight on project execution and conduct project supervisory missions as per Supervision Plans and in doing so ensures that all UNEP and GEF criteria, rules and regulations are adhered to by project partners;<br>• Technically assess and oversee quality of project outputs, products and deliverables – including formal publications<br>• Provide on-objection to main TORs and subcontracts issued by the project, including selection of project manager or equivalent<br>• Attend and facilitate inception workshops, field visits where relevant, and selected steering committee meetings<br>• Asses project risks, and monitor and enforce a risk management plan<br>• Regularly monitors project progress and performance and rates progress towards meeting project objectives, project execution progress, quality of project monitoring and evaluation, and risk;<br>• Monitor reporting by project executing partners and provides prompt feedback on the contents of the report;<br>• Promptly informs management of any significant risks or project problems and takes action and follows up on decisions made;<br>• Apply adaptive management principles to the supervision of the project<br>• Review of reporting, checking for consistency between execution activities and expenditures, ensuring that it respects GEF rules,<br>• Clearance of cash requests, and authorization of disbursements once reporting found to be complete<br>• Approve budget revision, certify fund availability and transfer funds<br>• Ensure that GEF and UNEP quality standards are applied | |

| Body | Composition | Role and description | Frequency of meetings |
|---|---|---|---|
| | | consistently to all projects, including branding and safeguards<br>• Certify project operational completion<br>• Link the project partners to any events organized by GEF and UNEP to disseminate information on project results and lessons<br>• Manage relations with GEF | |
| Executing Agency (EA) | Central American Bank for Economic Integration (CABEI) | • Ensure that the project meets its objectives and achieves expected outcomes;<br>• Ensure technical execution according to the execution plan laid out in the project document;<br>• Ensure technical quality of products, outputs and deliverables;<br>• Ensure compilation and submission of progress, financial and audit reporting to IA;<br>• Submit of budget revisions to IA for approval;<br>• Address and rectifying any issues or inconsistencies raised by the IA;<br>• Bring issues raised by or associated with clients to the IA for resolution;<br>• Facilitate Steering Committees and other oversight bodies of the project;<br>• Day to day oversight of project execution;<br>• Submit all technical reports and completion reports to IA (realized outputs, inventories, verification of co-finance, terminal reporting, etc.)<br>• Monitoring and evaluation of the project outputs and outcomes;<br>• Effective use of both international and national resources allocated to it;<br>• Timely availability of financing to support project execution;<br>• Proper coordination among all project stakeholders; in particular national parties;<br>• Timely submission of all project reports, including work plans and financial reports.<br>• Follow-up with, or progress, procurement, financial and audit reports;<br>• Identify funding sources from donor countries, banks and other financing institutions to help leverage funding for revolving fund; | Internal quarterly meetings with PM and NPD |
| Project Management Unit (PMU) | National Project Director (NPD) | • Will be represented by an officer from the executing agency;<br>• Act as member of the PSC;<br>• Report to and receive advice from the PSC;<br>• Identify and secure partner support for the implementation of project activities;<br>• Advice on hiring process of DPWT | Regular meetings with PM |
| | Project Manager (PM) | • The PM will be paid with GEF funds, will be hosted by CABEI and be responsible for:<br>• Day-to-day project operations and financial accounts;<br>• Take responsibility for the execution of the project in accordance with the project objectives, activities and budget;<br>• Deliver the outputs and demonstrate its best efforts in achieving the project outcomes;<br>• Coordinate project execution and liaison with national counterparts (relevant ministries, electric utilities private sector, | Regular meetings with NPD and DPWT (at least once a month)<br><br>Internal quarterly meetings with |

| Body | Composition | Role and description | Frequency of meetings |
|---|---|---|---|
| | | NGOs etc.).<br>• Undertake field visits;<br>• Manage financial resources and processing all financial transaction relating to sub-allotments;<br>• Prepare all annual/year-end project revisions;<br>• Attend and facilitate inception workshops and national steering committee meetings;<br>• Assess project risks in the field, monitor risk management plan;<br>• Ensure technical quality of products, outputs and deliverables;<br>• Coordinate the project work team;<br>• Coordinate with strategic taskforces;<br>• Act as secretary of the PSC;<br>• Plan and host/chair the PSC annual meetings;<br>• Periodic reporting to UNEP and the PSC for allocation of the GEF grant according to the quarterly and annual work plans and budgets in coordination with UNEP and NPD;<br>• Notify UNEP and the PSC in writing if there is need for modification to the agreed implementation plan and budget, and to seek approval;<br>• Address and rectify any issues or inconsistencies raised by the Executing Agency;<br>• Support compilation and submission of progress, financial and audit reporting to the Executing Agency;<br>• Prepare, at the end of the project, the project Terminal Report. | Executing Agency |
| Strategic Taskforces (Technical, Capacity Building and Financial) | Led by PMU<br><br>Technical workgroup:<br>– DSE<br>– DIGECA<br>– CONACE<br>– Electric utilities (e.g. ICE, CNFL)<br>– INTECO<br>– Climate Chante Directorate (DCC)<br>– Private sector<br><br>Capacity building workgroup:<br>– DSE<br>– DIGECA<br>– CONACE<br>– Electric utilities (e.g. ICE, CNFL)<br><br>Financial workgroup:<br>– DSE<br>– CONACE<br>– Electric utilities (e.g. ICE, CNFL)<br>– Banks / Financial institutions<br><br>National and international project partners will also be invited to be part of the Strategic Taskforces | • Taskforces support the development of project components and allow to coordinate efforts with national and international partners through strategic workgroups.<br>• Technical workgroup:<br>- Advise and support the project with the development of, and access to, technical information, tools, methodologies and guidelines;<br>- Identify opportunities/address barriers to market development and;<br>- Support implementation of energy diagnosis and establishment of RLF;<br>- Support strengthening of capacities for environmentally sound end-of-life integrated management of lighting products and appliances<br>• Capacity building workgroup:<br>- Advise and support the project with transfer of training material, best practices or teaching material;<br>- Contribute to the conduction of capacity building outputs; Contribute to the construction of an online platform to centralize information related to public procurement;<br>• Finance workgroup:<br>- Advise and support the project in the establishment of Component 3 in the design of the revolving fund and identification of funding sources from donor countries, banks and other financing institutions to help leverage funding for revolving fund; | Quarterly meetings and periodic coordination calls |

| Body | Composition | Role and description | Frequency of meetings |
|---|---|---|---|
| Technical Support | UN Environment - United for Efficiency Centre of Excellence (U4E) | • Provide strategic, technical and methodological support to the Executing Agency's PMU, contribute to PWT and the PSC.<br>• Provide technical assistance for:<br>- the design of the financial mechanism and tracking the benefits from public procurement of energy efficient appliances or services,<br>- the training of public technical officials on energy efficiency, and<br>- the development of methodologies and frameworks for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances, as well as related training of waste compliance units, authorized waste handlers, efficient appliance providers and energy efficiency service providers, procurement and environmental management officials and public technical officials;<br>• Facilitate the engagement and support of U4E partners notably the co-financing partners (NLTC, Whirlpool, Mabe), relevant expert organizations (e.g. Ambilamp, Carbon Trust, Base) and international experts;<br>• Support the dissemination of project results and outputs;<br>• Facilitate synergies and links between the project and the Global U4E programme and related national projects. | Periodic meetings with PMU and EA |
| Project Work Team (PWT) | Led by PMU<br>It will consist of consultants and contractors to be hired to develop specific project outputs or activities | • Hired as required by the project work plan to implement specific activities and outputs;<br>• Report to PMU;<br>• Take responsibility for the execution and ensure technical quality of the activities or outputs they conduct;<br>• Undertake field visits (if required); | Periodic meetings with PMU |

## ANNEX I - PROJECT WORK PLAN AND DELIVERABLES

| OUTPUTS | | ACTIVITIES | | RESPONSIBLE | PROJECT YEAR 1 | | | | | | | | | | | | PROJECT YEAR 2 | | | | | | | | | | | | PROJECT YEAR 3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | M22 | M23 | M24 | M25 | M26 | M27 | M28 | M29 | M30 | M31 | M32 | M33 | M34 | M35 | M36 |
| **COMPONENT 1: Energy diagnosis to identify and prioritize opportunities to replace conventional appliances with energy efficient appliances in highest energy consuming public institutions** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1 | Energy diagnosis implemented in strategic sites from highest energy consuming public institutions | 1.1.1 | Consolidate the list of sites from highest energy consuming institutions where the energy diagnosis will be conducted | DSE-MINAE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1.1.2 | Implement the energy diagnosis in the selected sites | 2301 Energy diagnosis services | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1.1.3 | Identify and prioritize opportunities to replace conventional appliances with energy efficient appliances based on the energy diagnosis | 2301 Energy diagnosis services | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** (1) 20 energy diagnosis and (2) Report with EE opportunities to replace conventional appliances | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.2 | Tracking instruments developed for efficient appliance procurement by public institutions | 1.2.1 | Develop a tracking instrument for the quantification of benefits from public procurement of energy efficient appliances or services (e.g. energy savings, avoided GHG emissions, refrigerant or mercury recovered) | 1281 EE tracking instrument specialist | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1.2.2 | Elaborate a practical guide for the implementation of tracking instrument from Activity 1.2.1 | 1281 EE tracking instrument specialist | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** (1) Tracking instrument for quantification of benefits and (2) Practical guide for tracking instrument | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **COMPONENT 2: Training and information program for market actors on the country's obligations to only procure energy efficient appliances and on mechanisms for product compliance** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.1 | Database of companies that can provide energy efficiency services to the public sector | 2.1.1 | Adapt a certification standard for companies that provide energy efficiency services (e.g. ISO 50003:2014) | 2201 EE certification standard setting institution (i.e. INTECO) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2.1.2 | Define selection criteria for companies that provide energy efficiency services to the public sector (e.g. energy diagnosis, energy audit, monitoring) | 1201 EE products and EE service companies identification expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2.1.3 | Elaborate a database of companies that can provide energy efficiency services to the public sector according to defined selection criteria | 1201 EE products and EE service companies identification expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** (1) Adapted certification standard and (2) Database of companies that provide EE services in Costa Rica | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.2 | Enabling framework provided to update current catalog of energy efficient appliances available to the public sector through their procurement platforms | 2.2.1 | Coordinate with procurement platforms used by the public sector (i.e. SICOP and MER-LINK) the required conditions to facilitate procurement of efficient lighting products and appliances | MINAE & Treasury Ministry | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2.2.2 | Evaluate availability of energy efficient lighting products and appliances in the domestic market complying with Executive Directive 011-MINAE and update database of energy efficient appliances | 1201 EE products and EE service companies identification expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2.2.3 | Issuance of framework agreement on energy efficient appliances (i.e. lighting, air conditioning and refrigeration) to be adopted by the procurement platforms used by the public sector | MINAE & Treasury Ministry | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** (1) Updated database of EE appliances and (2) Framework agreement on EE appliances | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.3 | Training delivered to (A) procurement and environmental management officials from highest energy consuming public institutions; (B) efficient appliances and energy efficiency service providers; and (C) technical public officials | 2.3.1 | Provide training to (A) procurement and environmental management officials from highest energy consuming public institutions on (1) economic and environmental benefits from energy efficiency (2) procurement of efficient appliances and energy efficiency services and (3) procedures of conformity assessment, certification and labeling for products verification and compliance with the specification of product for energy efficiency | MINAE-DSE-DIGECA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2.3.2 | Provide training to (B) efficient equipment and energy efficiency service providers on government's specifications (i.e. procedures of conformity assessment, certification and labeling for products verification and compliance with the specification of product for energy efficiency) | MINAE-DSE-DIGECA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2.3.3 | Strengthen capacities of (C) public technical officials in charge of training related to energy efficiency (i.e. train the trainers) | 1283 U4E Technical support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Technical training and training material for (A) and (B) and (C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.4 | Online platform launched to centralize information resources relevant for procurement of efficient appliances and energy efficiency services | 2.4.1 | Develop and launch online platform to centralize information resources relevant for procurement of efficient appliances and energy efficiency services (i.e. database of energy efficiency companies, framework agreement on efficient appliances, etc) | 1202 Online platform developer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Online platform | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| OUTPUTS | | ACTIVITIES | | RESPONSIBLE | PROJECT YEAR 1 | | | | | | | | | | | | PROJECT YEAR 2 | | | | | | | | | | | | PROJECT YEAR 3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 | M19 | M20 | M21 | M22 | M23 | M24 | M25 | M26 | M27 | M28 | M29 | M30 | M31 | M32 | M33 | M34 | M35 | M36 |
| **COMPONENT 3: Establishment of a revolving fund (RLF) for the financing of large-scale replacement programs in the public sector** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.1 | RLF Steering Committee created | 3.1.1 | Create a Steering Committee for decision making and supervision of establishment and operation of RLF | MINAE & CABEI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** RLF Steering Committee | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.2 | Legal, financial and operational aspects of the RLF assessed to ensure sustainability of large-scale replacement programs in the public sector | 3.2.1 | Conduct a legal feasibility study to assess borrowing capacity from public institutions and recommend alternatives to engage them with large-scale replacement program | 2281 Financial mechanism design company | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3.2.2 | Analyze the suitability of existing financial mechanisms and recommend a financial model for the RLF (i.e. generation, distribution and pay-back mechanics) | 2281 Financial mechanism design company | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3.2.3 | Define RLF's operational procedures (e.g. review, evaluation and selection of projects) | 2281 Financial mechanism design company | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3.2.4 | Design a risk management plan for the RLF | 2281 Financial mechanism design company | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** (1) Architecture of the RLF, (2) RLF's operational procedures and (3) Risk management plan for the RLF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.3 | Accounting, auditing and control system deployed to ensure transparency from the RLF | 3.3.1 | Develop an accounting, auditing and control system for RLF | 2281 Financial mechanism design company | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Accounting, auditing and control system for RLF and the projects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.4 | Seed capital allocated to operationalize the RLF | 3.4.1 | Allocate seed capital to operationalize the RLF | 2202 Financial mechanism operation entity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Allocated seed capital | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.5 | Demonstration projects implemented to showcase energy efficiency in the public sector | 3.5.1 | Deploy demonstration projects based on prioritized opportunities from energy diagnosis (from Output 1.1) | 2202 Financial mechanism operation entity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3.5.2 | Use tracking instrument (from Activity 1.2.1) for demonstration projects | MINAE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Demonstration projects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **COMPONENT 4: Development of capacities for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.1 | Diagnosis about current processing capacity to provide environmentally-sound end-of-life integrated management of disposed appliances | 4.1.1 | Diagnose the current processing capacity of authorized waste handlers that provide end-of-life integrated management services (i.e. from lighting, air conditioning and refrigeration) | 1282 Waste management expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Processing capacity diagnosis of authorized waste handlers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.2 | New equipment operating to recover disposed refrigerant gas and mercury (contained in disposed conventional appliances) to be later destroyed | 4.2.1 | Acquire 3 refrigerant gas tanks and recovery equipment and high capacity storage tanks | DIGECA-MINAE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4.2.2 | Acquire 1 specialized equipment to recover mercury contained in disposed fluorescent lighting appliances | DIGECA-MINAE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4.2.3 | Acquired equipment installed and commissioned | DIGECA-MINAE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** (1) Recovery equipment and storage tanks for disposed refrigerants, (2) Specialized equipment to recover mercury | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.3 | Methodology developed to establish recovery targets for replaced conventional lighting, air conditioning and refrigeration appliances in accordance to Executive Mandate 38672-S Articles 9 and 10 | 4.3.1 | Develop a methodology to establish recovery targets for replaced lighting, air conditioning and refrigeration appliances in accordance to Executive Mandate 38272-S Articles 9 and 10 | 1282 Waste management expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Recovery targets methodology for substituted conventional appliances | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.4 | Enabling framework provided for environmentally sound end-of-life integrated management services (i.e. from lighting, air conditioning and refrigeration) available in procurement platforms used by the public sector | 4.4.1 | Issuance of new framework agreement on waste from end-of-life integrated management of lighting, refrigeration and air conditioning appliances to be adopted by the procurement platforms used by the public sector | MINAE & Treasury Ministry | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Framework agreement for environmentally sound waste management services | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.5 | Training delivered to (D) waste compliance units, authorized waste handlers and suppliers; (E) procurement and environmental management officials from highest energy consuming public institutions; and (F) technical public officials | 4.5.1 | Provide training to (D) waste compliance units, authorized waste handlers as well as efficient appliance providers and energy efficiency service providers on legislation related to special waste integrated management (i.e. Executive Mandate 38272-S) | 1282 Waste management expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4.5.2 | Provide training to (E) procurement and environmental management officials from highest energy consuming public institutions on legislation related to special waste integrated management (i.e. Executive Mandate 38272-S) | 1282 Waste management expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4.5.3 | Strengthen capacities of (F) public technical officials related to environmentally sound integrated management of replaced conventional appliances by facilitating access to international training opportunities | 2203 Ambilamp Academy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** (1) Technical training and training material for (D) and (E) and (2) Participation of (F) in Ambilamp training | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.6 | Information and dissemination actions carried out to promote environmentally sound end-of-life integrated management of special waste (from lighting, air conditioning and refrigeration appliances) | 4.6.1 | Conduction of information and dissemination actions through social media to promote environmentally sound integrated management of special waste (from lighting, air conditioning and refrigeration appliances) and to avoid reuse or reselling of replaced conventional appliances in accordance to Executive Mandate 011-MINAE | 1203 Social media and communication consultant | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | **DELIVERABLES:** Information and dissemination actions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## ANNEX J-1 - TRACKING TOOL FOR GEF-6 CCM PROJECTS

The GEF tracking tool is provided in a separate excel file:

*<Annex J-1 - Tracking Tool for GEF-6 CCM Projects.xlsx>*

# ANNEX J-2 - ESTIMATES OF DIRECT AND INDIRECT GHG EMISSION REDUCTION

**Direct savings - Building lighting, refrigerators and air conditionners replacement in public institutions**

Table 1. Final electricity consumption in 2015 [1]

| Final electricity consumption in 2015 | Value | Units |
|---|---|---|
| Total | 9 428 412 | MWh |
| Public sector | 1 220 402 | MWh |
| Public sector as % of Total | 12.94% | % |

Table 2. Absolute and relative consumption per energy use for the Costa Rican public sector in 2015 [2]

| Use | Electricity (MWh/year) | |
|---|---|---|
| | (MWh/year) | (%) |
| Building lighting | 164 841 | 13.51% |
| Heat | 13 683 | 1.12% |
| Vapor | 235 | 0.02% |
| Refrigeration | 86 242 | 7.07% |
| Integrated cooling units | 6 579 | 0.54% |
| Air conditioning | 354 381 | 29.04% |
| Water | 5 214 | 0.43% |
| Fans | 18 354 | 1.50% |
| Water pumps | 295 871 | 24.24% |
| Elevators | 979 | 0.08% |
| Air compressors | 24 824 | 2.03% |
| Lift trucks | 71 | 0.01% |
| Cafeteria | 217 295 | 17.81% |
| Other | 46 376 | 3.80% |
| Total | 1 220 402 | 100.00% |

Table 3. Unit Energy Consumption for building lighting, refrigerators, air conditioning and street lighting units under BAU & BAT scenarios [3]

| Product | Unit Energy Consumption (kWh/year) | | | Type of Product |
|---|---|---|---|---|
| | BAU (*) | | BAT (**) | |
| Building lighting | 65.7 | ==> | 8.8 | Low incandescent Lamp,3h/day VS. 8W LED |
| Refrigerators | 485.0 | ==> | 163.0 | 2-door top-mount Average size 300 liters |
| Air conditioners | 3 252.0 | ==> | 1 738.0 | Split unit with 3.5 kW cooling capacity |

**BAU: Business As Usual*

***BAT: Best Available Technology*

Table 4. Annual electricity demand growth rate in the public sector (GWh/year) [4]

| Category | Year | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2010 | 2011 | 2015 |
| Electricity demand in the public sector | 1 082 | 1 125 | 1 243 | 1 228 | 1 266 | 1 370 | 1 436 | 1 513 | 1 650 | 1 812 | 1 981 | 2 124 | 2 216 | 2 317 | 2 522 | 2 715 | 2 887 | 3 081 | 3 316 | 3 604 | 3 738 | 4 296 |
| Annual electricity demand growth rate | | 1.79% | -1.08% | 5.13% | 7.10% | 1.64% | 3.05% | 5.40% | 7.38% | 9.03% | 9.31% | 2.62% | 3.06% | 4.11% | 8.25% | 8.23% | 4.70% | 6.37% | 7.01% | 8.28% | 2.12% | 15.79% |
| Total final energy consumption | 1 451 | 1 477 | 1 461 | 1 536 | 1 645 | 1 672 | 1 723 | 1 816 | 1 950 | 2 126 | 2 324 | 2 385 | 2 458 | 2 559 | 2 770 | 2 998 | 3 139 | 3 339 | 3 573 | 3 869 | 3 951 | 4 575 |
| 1989-2015 average annual electricity demand growth rate from the public sector | 5.68% | | | | | | | | | | | | | | | | | | | | | |

Table 5. Annual demand projection in the public sector per product assuming BAU (MWh/year)

| Product | Year | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
| Building lighting | 194 560 | 205 612 | 217 293 | 229 637 | 242 682 | 256 468 | 271 037 | 286 434 | 302 706 | 319 902 | 338 075 | 357 280 | 377 577 | 399 026 | 421 694 | 445 649 | 470 966 | 497 720 |
| Refrigeration | 101 790 | 107 573 | 113 684 | 120 142 | 126 967 | 134 180 | 141 802 | 149 858 | 158 371 | 167 367 | 176 875 | 186 923 | 197 542 | 208 764 | 220 623 | 233 156 | 246 401 | 260 399 |
| Air conditioners | 426 037 | 450 239 | 475 816 | 502 846 | 531 412 | 561 600 | 593 503 | 627 219 | 662 850 | 700 505 | 740 299 | 782 353 | 826 797 | 873 766 | 923 402 | 975 859 | 1 031 295 | 1 089 881 |

Table 6. Annual demand projection in the public sector per product assuming BAT (MWh/year)

| Product | Year | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
| Building lighting | 26 060 | 27 540 | 29 105 | 30 758 | 32 505 | 34 352 | 36 303 | 38 366 | 40 545 | 42 848 | 45 283 | 47 855 | 50 573 | 53 446 | 56 483 | 59 691 | 63 082 | 66 666 |
| Refrigeration | 34 210 | 36 153 | 38 207 | 40 378 | 42 671 | 45 095 | 47 657 | 50 365 | 53 226 | 56 249 | 59 445 | 62 822 | 66 390 | 70 162 | 74 147 | 78 360 | 82 811 | 87 515 |
| Air conditioners | 227 691 | 240 626 | 254 295 | 268 741 | 284 008 | 300 142 | 317 192 | 335 211 | 354 254 | 374 378 | 395 645 | 418 121 | 441 874 | 466 976 | 493 503 | 521 538 | 551 166 | 582 476 |

Table 7. Potential annual energy savings projection in the public sector by switching from BAU to BAT for each technology (MWh/year)

| Product | Year | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
| Building lighting | 168 500 | 178 072 | 188 188 | 198 879 | 210 176 | 222 116 | 234 734 | 248 069 | 262 161 | 277 054 | 292 793 | 309 426 | 327 003 | 345 580 | 365 211 | 385 958 | 407 883 | 431 054 |
| Refrigeration | 67 580 | 71 420 | 75 477 | 79 764 | 84 296 | 89 084 | 94 145 | 99 493 | 105 145 | 111 118 | 117 430 | 124 101 | 131 151 | 138 602 | 146 475 | 154 796 | 163 590 | 172 883 |
| Air conditioners | 198 346 | 209 613 | 221 521 | 234 105 | 247 404 | 261 458 | 276 311 | 292 008 | 308 596 | 326 127 | 344 653 | 364 232 | 384 923 | 406 790 | 429 899 | 454 320 | 480 129 | 507 404 |

Table 8. Assumed replacement rate of technologies in public institutions (% of public sector)

| Product | Year | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
| Building lighting | 0% | 0% | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 100% | 100% | 100% | 100% | 100% |
| Refrigeration | 0% | 0% | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 100% | 100% | 100% | 100% | 100% |
| Air conditioners | 0% | 0% | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 9. Direct annual energy savings as a result of the GEF project (MWh/year)

| Product | Year | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
| Building lighting | 0 | 0 | 0 | 19 888 | 42 035 | 66 635 | 93 894 | 124 034 | 157 297 | 193 938 | 234 234 | 278 483 | 327 003 | 345 580 | 365 211 | 385 958 | 407 883 | 431 054 |
| Refrigeration | 0 | 0 | 0 | 7 976 | 16 859 | 26 725 | 37 658 | 49 747 | 63 087 | 77 783 | 93 944 | 111 691 | 131 151 | 138 602 | 146 475 | 154 796 | 163 590 | 172 883 |
| Air conditioners | 0 | 0 | 0 | 23 410 | 49 481 | 78 437 | 110 524 | 146 004 | 185 158 | 228 289 | 275 723 | 327 809 | 384 923 | 406 790 | 429 899 | 454 320 | 480 129 | 507 404 |
| **TOTAL** | **0** | **0** | **0** | **51 275** | **108 375** | **171 798** | **242 076** | **319 785** | **405 541** | **500 009** | **603 901** | **717 983** | **843 078** | **890 971** | **941 585** | **995 075** | **1 051 603** | **1 111 342** |

## Direct savings: summary of the benefits

Table 10. Total Direct energy savings (MWh) as a result of the GEF project between 2021-2035

| Product | (MWh) |
|---|---|
| Building lighting | 3 473 127 |
| Refrigeration | 1 392 969 |
| Air conditioners | 4 088 301 |
| TOTAL | **8 954 397** |

Table 11. Costa Rica emission factor for electricity [5]

| Year | tCO2eq/MWh |
|---|---|
| 2006 | 0.0570 |
| 2007 | 0.0733 |
| 2008 | 0.0650 |
| 2009 | 0.0409 |
| 2010 | 0.0570 |
| 2011 | 0.0824 |
| 2012 | 0.0771 |
| 2013 | 0.1300 |
| 2014 | 0.1170 |
| 2015 | 0.0381 |
| **10-year Average** | **0.0738** |

Table 12. Direct GHG emissions reductions (tCO2eq) as a result of the GEF project between 2021-2035

| Product | tCO2eq avoided |
|---|---|
| Building lighting | 256 247 |
| Refrigeration | 102 773 |
| Air conditioners | 301 635 |
| **TOTAL** | **660 655** |

**REFERENCES:**


[1] DSE (2016). Costa Rican Energy Balance 2015.

[2] DSE (2015). Costa Rican Public Sector Energy Use Survey 2015.

[3] U4E (2016). Country assessment: Costa Rica.

[4] ICE (2016). National report 2015; ICE (2015). National report 2014; ICE (2014). National report 2013; ICE (2013). National report 2012; ICE (2012). National report 2011

[5] IMN (2016). Greenhouse gas emission factor – Sixth Edition

## Indirect savings: Street Lighting replacement

Table 13. Unit Energy Consumption for street lighting units under BAU & BAT scenarios [6]

| Product | Unit Energy Consumption | | | Type of Product |
|---|---|---|---|---|
| | BAU (*) | | BAT (**) | |
| Street lighting | 1,095.0 | ==> | 438.0 | 250W High Pressure Sodium street lamp VS. 100W LED equivalent |

**BAU: Business As Usual*

***BAT: Best Available Technology*

Table 14. Electric consumption from street lighting in Costa Rica between 1989 and 2008 and projected electricity consumption from Street lighting between 2009 and 2030 (MWh/year) [7]

| Year | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Street lighting consumption | 89,300 | 90,900 | 99,700 | 167,600 | 107,700 | 114,300 | 117,300 | 121,200 | 126,900 | 133,200 | 157,300 | 166,400 | 164,400 | 161,000 | 167,800 | 178,500 | 181,200 | 185,300 | 189,300 | 195,500 | 199,000 | 204,000 |
| Annual growth rate (%) | | 1.79% | 9.68% | 68.10% | -35.74% | 6.13% | 2.62% | 3.32% | 4.70% | 4.96% | 18.09% | 5.79% | -1.20% | -2.07% | 4.22% | 6.38% | 1.51% | 2.26% | 2.16% | 3.28% | 1.79% | 2.51% |

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | Average annual growth rate (2009-2030) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Street lighting consumption | 209,000 | 214,000 | 219,000 | 224,000 | 230,000 | 235,000 | 241,000 | 247,000 | 253,000 | 259,000 | 265,000 | 272,000 | 278,000 | 285,000 | 292,000 | 299,000 | 306,000 | 314,000 | 321,000 | 329,000 | |
| Annual growth rate (%) | 2.45% | 2.39% | 2.34% | 2.28% | 2.68% | 2.17% | 2.55% | 2.49% | 2.43% | 2.37% | 2.32% | 2.64% | 2.21% | 2.52% | 2.46% | 2.40% | 2.34% | 2.61% | 2.23% | 2.49% | 2.39% |

| Year | 2031 (*) | 2032 (*) | 2033 (*) | 2034 (*) | 2035 (*) |
|---|---|---|---|---|---|
| Street lighting consumption | 336,877 | 344,943 | 353,202 | 361,658 | 370,318 |

** Projected electricity sales from 2031 onwards were extrapolated using the annual average growth rate from 2009-2030, which takes into consideration the overall effect of the international economic crisis from 2008 on electricity demand*

Table 15. Annual energy demand projections for Street Lighting & potential annual energy savings from Street lighting replacement (MWh)

| Category | Year | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
| Demand projection assuming BAU | 247,000 | 253,000 | 259,000 | 265,000 | 272,000 | 278,000 | 285,000 | 292,000 | 299,000 | 306,000 | 314,000 | 321,000 | 329,000 | 336,877 | 344,943 | 353,202 | 361,658 | 370,318 |
| Demand projection assuming BAT | 98,800 | 101,200 | 103,600 | 106,000 | 108,800 | 111,200 | 114,000 | 116,800 | 119,600 | 122,400 | 125,600 | 128,400 | 131,600 | 134,751 | 137,977 | 141,281 | 144,663 | 148,127 |
| Total potential annual energy savings | 148,200 | 151,800 | 155,400 | 159,000 | 163,200 | 166,800 | 171,000 | 175,200 | 179,400 | 183,600 | 188,400 | 192,600 | 197,400 | 202,126 | 206,966 | 211,921 | 216,995 | 222,191 |
| Replacement rate of street lighting (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 100% |
| **Indirect annual energy savings** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **17,520** | **35,880** | **55,080** | **75,360** | **96,300** | **118,440** | **141,488** | **165,573** | **190,729** | **216,995** | **222,191** |

## Indirect savings: summary of the benefits

Table 16. Total Indirect energy savings (MWh) as a result of the GEF project between 2021-2035

| Product | (MWh) |
|---|---|
| Street lighting | 1,335,556 |
| **TOTAL** | **1,335,556** |

Table 17. Indirect GHG emissions reductions (tCO2eq) as a result of the GEF project between 2021-2035

| Product | tCO2eq avoided |
|---|---|
| Street lighting | 98,537 |
| **TOTAL** | **98,537** |

**REFERENCES:**

[6] U4E (2016). Country assessment: Costa Rica.
[7] DSE (2009). Statistical compendium for the energy sector 2008; DSE (2011). Energy Balance 2010; DSE (2012). Energy Balance 2011; DSE (2016). Energy Balance 2015

## ANNEX K - OFP ENDORSEMENT LETTER TEMPLATE

DIRECCÓN DE OOP RACÓ I TE NA IONAL

COS A RICA

February, 27 2015
DCI-045-2015

o: **BRENNAN VANDYKE**
**DIRECTOR GEF COORDINATION OFFICE**
**UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)**
**UNITED NATIONS AVENUE, GIGIRI**
**PO BOX 30552, 00100 NAIROBI, KENYA**

**Subject: Endorsement for the Development of a Market for Energy Efficient Lighting, Air Conditioners and Refrigerators in Costa Rica**

n my capacity as GEF Operational Focal Point for Costa Rica, confirm that the above Program proposal is (a) in accordance with my government's national priorities [ including, if available the priorities identified in the National Adaptation Plan of Action or the National Capacity Self-Assessment,] and our commitment to the relevant global environmental conventions, and b) was discussed with relevant stakeholders, including the global environmental convention focal points.

am pleased to endorse the preparation of the above Program proposal which will be led by the United Nations Environment Programme approved the proposal will be prepared and implemented by MINAE

total financing being requested for this Program is S$ 2 244 750 inclusive of GEF project grants Agency fees and lump sum PPG that will finance the preparation of individual projects under the Program. The fund requested for Costa Rica is detailed the table below including the GEF Agency that will implement the project(s)

| Agency | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Financing | | |
| GEFTF | UNEP | CLIMATE CHANGE | N/A | 2,000,000 | 180,000 | US$ 2,180,000 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Total Financing | | | | | | US$ 2,180,000 |

consent to the utilization of Costa Rica's allocations in the -6 defined the System for Transparent Allocation of Resources (STAR or projects outside the STAR am endorsing funding from the focal area envelope and with SCCF Trust funds, as the case maybe

Sincerely,

**Operational Focal Point**

Copy to.
Edgar Gutierrez Espeleta Minister MINAE
rene Cañas, Vice minister Energy-MINAE
William Alpizar Convention SCCF ocal Point

[1] "Total financing" refers to funding from the G , DCF, an or SCC .

a 1 a Rica
Central 506)22334533 ext.
Teléfono 506 22580069 506 22233086
www.cooperacioninternacional.go.cr

## ANNEX L - CO-FINANCING COMMITMENT LETTERS FROM PROJECT PARTNERS

REPÚBLICA DE COSTA RICA
*Ministerio de Ambiente y Energía*
*Despacho del Ministro*

San José, 15 de marzo del 2017
DM-233-2017

**Señora**
**Ms. Brennan Van Dyke**
**GEF Executive Coordinator**
**United Nations Environment Programme**
**Nairobi, Kenya**

Estimada señora:

La Secretaria Ejecutiva de Planificación del Subsector Energía –SEPSE (Dirección Sectorial de Energía DSE), en cumplimiento de las funciones establecidas en el Reglamento Orgánico del MINAE, Artículo 17j, del 04 de 12 de 2009, y de conformidad con la política nacional de "Colaborar en la preparación, negociación, ejecución y seguimiento de los proyectos que cuenten con cooperación externa", reconoce y avala los objetivos del proyecto "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica (Desarrollo de un mercado de eficiencia energética en iluminación, aires condicionados y refrigeradores en Costa Rica, en español)" que es financiado por el Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés). El proyecto cuenta con ONU Ambiente como agencia implementadora y el Banco Centroamericano de Integración Económica (BCIE) como agencia ejecutora.

Se hace constar que para la implementación de este proyecto que tiene una duración de tres años, se proyecta un aporte correspondiente a US$ 2.000.000,00 (en especie) por parte del MINAE por concepto de cofinanciamiento.

Agradecemos se consigne y se incluya entre los mecanismos propios del GEF el aporte antes citado.

Atentamente,

Dr. Edgar E. Gutiérrez Espeleta
Ministro

C.c. Ing. Irene Cañas Díaz, Viceministra de Energía (MNAE)
Ing. Laura Lizano Ramón, Directora Sectorial de Energía (DSE)
Sr. Ruben Muñoz Robles, Director DCI (MINAE)

Tel. (506) 2257-5456/2257-0922 ext. 1162 ó 1163 • Fax (506) 2257-0697
Apdo. Postal 10104-1000 San José, Costa Rica
Correo electrónico: ministrominae@minae.go.cr

2017-02-02
0060-055-2017

Sra. Laura Lizano Román
Ministerio de Ambiente y Energía
Dirección Sectorial de Energía
Directora

Estimada señora:

Asunto: Respuesta carta N ° DSE-422-2016

El ICE de conformidad a la política nacional de "Colaborar en la preparación, negociación, ejecución y seguimiento de los proyectos que cuenten con cooperación externa", reconoce y avala los objetivos del proyecto "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica (Desarrollo de un mercado de eficiencia energética en iluminación, aires condicionados y refrigeradores en Costa Rica, en español)" que es financiado por el Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés). El proyecto cuenta con el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) como agencia implementadora y la Dirección Sectorial de Energía como agencia ejecutora.

Se hace constar que para la implementación de este proyecto que tiene una duración de tres años, se proyecta un aporte correspondiente a US 75.000,00 (en especie-horas hombre por el período de los 3 años) por parte del ICE por concepto de cofinanciamiento

Agradecemos se consigne y se incluya entre los mecanismos propios del GEF el aporte antes citado.

Atentamente,

Presidencia Ejecutiva

Firmada digitalmente

Carlos Manuel Obregón Quesada
Presidente

COQ/cbr

: Gerencia Electricidad
Gerencia Administración Y Finanzas
Sr. Edgar E. Gutiérrez Espeleta, Ministro (MINAE)
Sra. Irene Cañas Díaz, Viceministra de Energía (MINAE)
Sr. Rubén Muñoz Robles, Director DCI (MINAE)

Apartado Postal 10032-1000 San José, Costa Rica
Tel. (506) 2000-7422
Fax: (506) 2003-0131
www.grupoice.com

**Banco Centroamericano de Integración Económica**
Gerencia de País-Costa Rica

BCIE

24 de febrero de 2017
**GERCR-079/2017**

Señora
Brennan Van Dyke
Directora de la Oficina de Coordinación GEF
**Programa de las Naciones Unidas para el Medio Ambiente**
Nairobi, Kenya
S.D.

Estimada señora:

El Banco Centroamericano de Integración Económica (BCIE) congruente con el cumplimiento a la Estrategia Institucional 2015-2019 y en seguimiento a sus objetivos estratégicos de Intermediación Financiera y Finanzas para el Desarrollo, Desarrollo Rural y Medio Ambiente, Desarrollo Humano e Infraestructura Social, Energía y Servicios para la Competitividad y de conformidad a la política nacional costarricense de "Colaborar en la preparación, negociación, ejecución y seguimiento de los proyectos que cuenten con cooperación externa", reconoce y avala los objetivos del Proyecto "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica (Desarrollo de un mercado de eficiencia energética en iluminación, aires condicionados y refrigeradores en Costa Rica, en español)" que es financiado por el Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés). El proyecto cuenta con el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) como agencia implementadora y la Dirección Sectorial de Energía como agencia ejecutora.

En línea con lo antes indicado y toda vez que se concreten los acuerdos correspondientes para la asignación del BCIE como Agencia Administradora y/o Ejecutora de este Proyecto, de forma indicativa, se estará poniendo a disposición de los Intermediarios Financieros del BCIE cofinanciamiento a través de sus Líneas Globales de Crédito, por un monto total de Quinientos Mil Dólares Americanos (US$500,000.00), para que éstas otorguen préstamos dirigidos a financiar proyectos y/o inversiones en Eficiencia Energética, para el periodo de tres (3) años que contempla este Proyecto, coadyuvando con una mayor profundización y desarrollo crediticio del mercado costarricense en esta materia.

Atentamente,

BANCO CENTROAMERICANO DE INTEGRACION ECONOMICA
GERENCIA DE PAIS
COSTA RICA

Mauricio Chacón Romero
Gerente de País Costa Rica

Fc: Sr. Edgar Gutiérrez Espeleta, Ministro (MINAE)
Sra. Irene Cañas Díaz, Viceministra de Energía (DSE)
Sra. Laura Lizano Román, Directora DSE
Sr. Rubén Muñoz Robles, Director DCI

UNITED NATIONS ENVIRONMENT PROGRAMME
Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente
Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة
联合国环境规划署
UNEP

Date: 8 March 2017

**Subject: UN Environment/Economy Division Co-financing for the Costa Rica GEF Project**

Dear Brennan,

I have the pleasure to confirm the support of UN Environment to the "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica" (GEF ID 9283).

The UN Environment affirms its desire to support the implementation of this project through an in-kind contribution with an estimated value of US$ 25,000 over the 36 months of the project (starting July 2017).

UN Environment's contribution will comprise staff time and travel during the 3 years from the UN Environment Energy, Climate, and Technology Branch, including:

- US$ 10,000 of staff time from Programme Officer (P-3) to support in outreach to partner initiatives and country training.
- US$ 15,000 of staff time from Latin America & Caribbean Climate Change Coordinator (P-5) to support engagement of senior officials from the government, regional banks and manufacturers.

The UN Environment welcomes this important initiative and is pleased to be part of it.

Sincerely,

Mark Radka
Chief, Energy, Climate, and Technology Branch

Mrs Brennan Van Dyke
GEF Executive Coordinator
Deputy Director, Office for Operations
UN Environment
Nairobi - Kenya

ECONOMY DIVISION
PO Box 30552, Nairobi, Kenya
Paris office: 1 rue Miollis, Building VII, 75015 Paris, France • Tel.: +33 (0)1 44 37 14 50 • Fax: +33 (0)1 44 37 14 74
E-mail: unep.dtie@unep.org • Website: www.unep.org/dtie

27 de enero 2017
GG-049-2017

Señor
Ms. Brennan Van Dyke
GEF Executive Coordinator
United Nations Environment Programme
Nairobi, Kenya

Estimada señora:

La Empresa de Servicios Públicos de Heredia S.A, de conformidad a la política nacional de "Colaborar en la preparación, negociación, ejecución y seguimiento de los proyectos que cuenten con cooperación externa", reconoce y avala los objetivos del proyecto "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica (Desarrollo de un mercado de eficiencia energética en iluminación, aires condicionados y refrigeradores en Costa Rica, en español)" que es financiado por el Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés). El proyecto cuenta con el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) como agencia implementadora y la Dirección Sectorial de Energía como agencia ejecutora.

Se hace constar que para la implementación de este proyecto que tiene una duración de tres años, se proyecta un aporte correspondiente a US$ 1.452.300,00 (en especie) por parte del ESPH por concepto de cofinanciamiento.

Agradecemos se consigne y se incluya entre los mecanismos propios del GEF el aporte antes citado.

Sin otro particular se despide, atentamente,

Ing. Allan Benavides Vílchez
Gerente General

Empresa de Servicios Públicos de Heredia S.A.
GERENCIA GENERAL

copia Dr. Edgar E. Gutiérrez Espeleta, Ministro (MINAE)
Ing. Irene Cañas Díaz, Viceministra de Energía (MINAE)
Ing. Laura Lizano Ramón, Directora Sectorial de Energía (DSE)
Sr. Ruben Muñoz Robles, Director DCI (MINAE)

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info@esph-sa.com
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Coopelesca
FORJANDO EL DESARROLLO DE LA ZONA NORTE

San Carlos, 27 de enero 2017

Señor
Ms. Brennan Van Dyke
GEF Executive Coordinator
United Nations Environment Programme
Nairobi, Kenya

Estimada señora:

COOPELESCA R.L, de conformidad a la política nacional de "Colaborar en la preparación, negociación, ejecución y seguimiento de los proyectos que cuenten con cooperación externa", reconoce y avala los objetivos del proyecto "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica (Desarrollo de un mercado de eficiencia energética en iluminación, aires condicionados y refrigeradores en Costa Rica, en español)" que es financiado por el Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés). El proyecto cuenta con el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) como agencia implementadora y la Dirección Sectorial de Energía como agencia ejecutora.

Se hace constar que para la implementación de este proyecto que tiene una duración de tres años, se proyecta un aporte correspondiente a US$ 253,505.2 (en especie) por parte de COOPELESCA RL, por concepto de cofinanciamiento.

Agradecemos se consigne y se incluya entre los mecanismos propios del GEF el aporte antes citado.

Sin otro particular se despide,

**Carlos Murillo Barquero**
**Subgerente de Servicios al Asociado,**
**COOPELESCA R.L**

CC:
Dr. Edgar E. Gutiérrez Espeleta, Ministro (MINAE)
Ing. Irene Cañas Díaz, Viceministra de Energía (MINAE)
Ing. Laura Lizano Ramón, Directora Sectorial de Energía (DSE)
Sr. Ruben Muñoz Robles, Director DCI (MINAE)
Consecutivo

2017-02-01
2001-0025-2017

Señora
Laura Lizano
Directora, Dirección Sectorial de Energía

Estimada señora:

**Asunto: Respuesta caso 01-2001-2016-2768, Desarrollo de un mercado para la iluminación eficiente, Aires acondicionados y refrigeradores en Costa Rica**

Con respecto a su solicitud, referente a la colaboración de la CNFL en el Proyecto **"Desarrollo de un mercado para la iluminación eficiente, aires acondicionados y refrigeradores en Costa Rica",** Le informo que las condiciones financieras de la CNFL, no nos permiten participar como cofinancistas del Proyecto. No obstante a lo anterior, consideramos que la CNFL tiene el suficiente "Know How" o asesoramiento en los temas de las matrices de componentes del Proyecto, las cuales se detallan en el siguiente cuadro:

**Componente #1:**

| | | | |
|---|---|---|---|
| 1.3 | Instrumentos de seguimiento para (1) proyectos de demostración (2) y compras públicas de equipos eficientes desarrollada | Con respecto a este punto podría implementarse en la CNFL. | 8 horas de asesoría a grupos interesados en:<br><br>Inducción a Compras públicas sostenibles.<br><br>Máximo por grupo 15 personas (300.000,00 colones por grupo).<br><br>Aporte CNFL, capacitación para dos grupos: ₡600 000.00 colones |


Plantel Anonos. Apartado postal 10026-1000.
Teléfono: 2295-5936. Correo electrónico: direstde@cnfl.go.cr

**Componente # 2**

| | | | |
|---|---|---|---|
| 2.3 | Fortalecimiento de capacidades técnicas de (A) responsables de compras y gestión ambiental de instituciones públicas con mayor consumo energético, (B) proveedores de equipos eficientes y servicios en eficiencia energética y (C) personal técnico de MINAE | La CNFL podría dar capacitaciones específicamente en los puntos 2.3.1 y 2.3.2. | 16 horas de formación para responsables de compras:<br><br>Costo grupos de máximo 20 personas (500.000,00 colones por grupo).<br><br>Aporte CNFL, capacitación de dos grupos: ₡1. 000 000,00, colones. |

Cualquier adicional, con gusto.

Atentamente,

Roy Guzmán Ramírez
Director, Dirección Estrategia y Desarrollo de Negocios

CC:

- Ing. Irene Cañas Díaz, Viceministra de Energia – MINAE
- Licda. Nobelty Sanchez, Coordinadora Proyecto GEF-DS
- Víctor Solís Rodriguez, Gerencia General CNFL
- Humberto Guzmán León, Gerencia General CNFL
- Jeffrey Barrientos Campos, Gerencia General
- Archivo DEDN


Plantel Anonos. Apartado postal 10026-1000.
Teléfono: 2295-5936. Correo electrónico: direstde@cnfl.go.cr

National Lighting Test Centre
China

Beijing, 8 December 2016

**Subject: NLTC, co-financing towards the project "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica"**

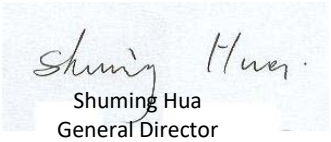
Dear Ms. Van Dyke,

The National Lighting Test Centre (NLTC) is pleased to participate, as a co-financier, in the "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica". NLTC is a partner to the UNEP-GEF en.lighten initiative since 2011 and shares the same objective of promoting the rapid development of energy efficient lighting technologies in developing countries and emerging economies. NLTC is highly experienced in the testing of energy efficient products. The Centre assists in the development of national and international standards, performs research into new testing technologies and equipment, offers technical services and training, and provides assistance to other countries regarding policy consultation and development.

I hereby confirm a co-finance contribution to this project of up to USD 200,000 over 3 years. This contribution is subject to project progress, economic developments and overall project delivery.

The NLTC's in-kind contribution will mainly focus on support through the delivery of tools, remote assistance and activities to strengthen monitoring, verification and enforcement (MVE) capacities to ensure an effective transition to efficient lighting in Costa Rica.

Yours sincerely,



Shuming Hua
General Director
National Lighting Test Centre

Ms. Brennan Van Dyke
GEF Executive Coordinator
Deputy Director, Office for Operations

No. A3, Chaopocun, Dabeiyao, Chaoyang District, Beijing 100022, China
Tel: +86-10-67708989, Fax: +86-10-67761445

Whirlpool CORPORATION

Global Headquarters

2000 M-63 NORTH, BENTON HARBOR, MICHIGAN 49022

Dave Szczupak
Executive Vice President,
Global Product Organization
Phone: 269-923-3875

February 20, 2017

Global Environment Facility
Attention of: Mrs. Naoko Ishii
CEO and Chairperson
1899 Pennsylvania Ave NW
Washington, DC 20006, USA

**Subject: Whirlpool Corporation's Co-financing for the Costa Rica National Project on Energy-Efficient Lighting, Air Conditioners and Refrigerators**

Dear Mrs. Ishii,

I have the pleasure of writing to you to re-confirm the Whirlpool Corporation support to United for Efficiency (U4E) initiative. Energy efficiency is a priority for us as it aligns with our business objectives and we see the U4E as an attractive opportunity to advance the use of energy efficient products.

Whirlpool is already providing co-financing to the current Global Environment Facility-U4E project ("Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica"). Over the last year, with Whirlpool's support, U4E has produced a series of guides to support policymakers in the transition towards energy-efficient products and the development of 150 country savings assessments.

In line with this commitment, Whirlpool would like to continue the support to U4E under the future Costa Rica U4E Child project. Whirlpool will make a total contribution of USD$100,000 over the three years to the project (starting mid-2017). In particular, Whirlpool will support the Costa Rica project activities related to energy-efficient refrigerators.

Under this partnership, Whirlpool will support the following project activities, including:

- Development of training packages and tools to support countries and regions in the transition to energy-efficient products;
- Training for country and officials to develop and implement projects and policies to advance energy-efficient products;
- Regional harmonization activities (regional report, regional events, etc.) for energy-efficient products.

The contribution of Whirlpool will take different forms, such as:

- Providing staff time and travel costs to assist U4E in carrying out national and regional training for country officials.
- Providing staff time for the development and review of training packages, tools and draft projects/policies.
- Providing technical expertise and market insights for training development, regional studies.

Whirlpool strongly supports these important initiatives of the GEF and UN Environment and is pleased to be part of them. We look forward to continue working with UN Environment and its partners to accelerate the global transition to efficient appliances and equipment, and making it a success.

Sincerely,

David Szczupak
EVP, Global Product Organization
WHIRLPOOL CORPORATION

cc: Erik Solheim, Executive Director, UN Environment
Ligia Noronha, Director, UN Environment – Economy Division
Mark Radka, Chief, UN Environment – Energy, Climate, and Technology Branch

mabe

April 2017

Mrs Brennan Van Dyke
GEF Executive Coordinator
Deputy Director, Office for Operations
UN Environment
Nairobi - Kenya

**Subject: Mabe's Co-financing for the United for Efficiency Initiative - "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica"**

Dear Mrs. Van Dyke,

I have the pleasure of writing to you to re-confirm Mabe's support to United for Efficiency (U4E) initiative. Energy efficiency is a priority for us as it aligns with our business objectives and we see the U4E as an attractive opportunity to advance the use of energy efficient products.

In line with this commitment, Mabe would like to continue the support to U4E under the future GEF-U4E project **"Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica"** and will make a contribution of US$ 300,000 over the three years to the project (starting mid-2017). In particular, Mabe will support the project activities related to energy-efficient refrigerators, and air conditioners.

Under this partnership, Mabe will support the following project activities, including:

- Development of training packages and tools to support the country in the transition to energy-efficient products;
- Training for country policy makers and officials to develop and implement projects and policies to advance energy-efficient products;
- Harmonization activities (with regional standards and practices reports, through inter-country information exchange, study tours and events, etc.) for energy-efficient products;
- Local education and action campaigns to promote the global transition to energy-efficient products.
- Regional events to raise awareness on regional harmonization of standards promoting the use of energy-efficient refrigerators.

The contribution of Mabe will take different forms, such as:

- Providing staff time and travel costs to assist U4E in carrying out national training for country officials.

mabe

- Providing staff time for the development and review of training packages, tools and draft projects/policies.
- Providing technical expertise and local market insights for training and education development, country studies and policy consultation and development.

Mabe strongly supports this important initiative of the GEF and UN Environment and is pleased to be part of it. We look forward to continue working with UN Environment and its partners to accelerate the global transition to efficient appliances and equipment, and making it a success.

Yours sincerely,

Pablo Moreno Cadena

Corporates Affairs Director

Coopeguanacaste, R.L.

Cooperativa de Electrificación Rural de Guanacaste, R.L.
COOPEGUANACASTE, R.L.
Gerencia General

Santa Cruz, 04 de abril de 2017
COOPEGTE GG142

**Señora**
**Ms. Brennan Van Dyke**
**GEF Executive Coordinator**
**United Nations Environment Programme**
**Nairobi, Kenya**

**Estimada señora:**

La Cooperativa de Electrificación Rural de Guanacaste R.L., de conformidad a la política nacional de "Colaborar en la preparación, negociación, ejecución y seguimiento de los proyectos que cuenten con cooperación externa", reconoce y avala los objetivos del proyecto "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica (Desarrollo de un mercado de eficiencia energética en iluminación, aires condicionados y refrigeradores en Costa Rica, en español)" que es financiado por el Fondo para el Medio Ambiente Mundial (GEF, por sus siglas en inglés). El proyecto cuenta con el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) como agencia implementadora y la Dirección Sectorial de Energía como agencia ejecutora.

Se hace constar que para la implementación de este proyecto que tiene una duración de tres años, se proyecta un aporte correspondiente a US$ 63.795,00 (en especie) por parte de la Cooperativa de Electrificación Rural de Guanacaste R.L. por concepto de cofinanciamiento.

Agradecemos se consigne y se incluya entre los mecanismos propios del GEF el aporte antes citado.

Sin otro particular se despide,

MIGUEL GÓMEZ COREA
GERENTE GENERAL

COOPEGUANACASTE R L
OFICINA CENTRAL, SANTA CRUZ, GTE
GERENCIA GENERAL

CC:
Dr. Edgar E. Gutiérrez Espeleta, Ministro (MINAE)
Ing. Irene Cañas Díaz, Viceministra de Energía (MINAE)
Ing. Laura Lizano Ramón, Directora Sectorial de Energía (DSE)
Sr. Ruben Muñoz Robles, Director DCI (MINAE)
Consecutivo

Tel: (506) 2681-4700 · Fax: (506) 2680 0606 · Apdo: 11-5150, Santa Cruz, Guanacaste.

**Banco Centroamericano de Integración Económica**
Gerencia de País-Costa Rica

BCIE

April, 06 2017
**GERCR-156/2017**

Mrs Brennan Van Dyke
GEF Executive Coordinator
**Deputy Director, Office for Operations**
**UN Environment**
Nairobi Kenya

Subject:

Dear Mrs. Van Dyke,

I have the pleasure of writing to you to confirm the intention of the Central American Bank for Economic Integration (CABEI) to support the project titled "Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica", subject to the required approval process by CABEI's internal structure.

CABEI is a multilateral bank for Central America development, founded on December 13th, 1960, by the Republics of Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica. Since then, Belize, Panama and the Dominican Republic have received the status of non-founding, beneficiary countries. As of today, non-regional countries have joined CABEI thereby strengthening its capital base: The Republic of China (Taiwan), the Republic of Mexico, the Republic of Argentina, the Republic of Colombia and Spain. CABEI's mission is to promote the economic integration and the balanced economic and social development of its founding member countries, attending and aligning itself with the interests of all its member countries. CABEI supports public and private development projects that generate jobs and contribute to improve its member countries productivity and competitiveness, as well as contribute to increase Region's human development indicators. During the past 56 years, CABEI's support to the Region has resulted in approvals greater than US$30.9 billion and disbursements by more than US$26.2 billion.

Derived from CABEI's mission and vision, CABEI 2015-2019 Institutional Strategy focuses on sustainable competitiveness and targets the Bank's contributions at the strategic axes of social development, competitiveness and regional integration with a transversal axis of Environmental Sustainability. In this sense, CABEI's has defined Energy as one of its focus areas supporting initiatives for power generation with renewable sources, biofuels from sources that do not jeopardize food security, transmission and distribution lines projects including rural electrification, efficiency energy projects and structural efficiency of its member's energy matrices.

Since CABEI's establishment until June 2016, CABEI has participated in more than 220 energy projects with total investment approvals of US$5.3 billion, in which 68% (US$3.6 billion) have been disbursed to renewable energy and 20% (US$1.1 billion) to energy infrastructure. The current

energy portfolio is US$1.6 billion distributed in 39 projects. Within this figure, a total of US$220 million is committed with IFIs, whose purpose is to finance projects in the energy sector in Central America, contributing to channel external cooperation funds, increasing credit growth for small and medium enterprises as well as the capitalization of these institutions leading to the expansion of the regional financial system.

Also, CABEI has vast experience implementing small programs in renewable energy and energy efficiency, such as Accelerating Renewable Energy Investments through CABEI in Central America (ARECA) and Green MSME's Initiative (IMV).

In line with this commitment, CABEI is willing to provide support to MINAE under the future three year GEF-U4E project ("Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica"), once CABEI has finished the internal approval process necessary for all operations, in a positive manner.

CABEI intends to keep making available intermediated credit for energy efficient appliances amongst other technologies and Renewable Energy and Energy Efficiency financing, over the three-year project timeframe notably through the revolving loan funds.

CABEI strongly supports this important initiative of the Government of Costa Rica, the GEF and United Nations Environment Programme – United for Efficiency (U4E) and is pleased to be part of it.

Yours sincerely,

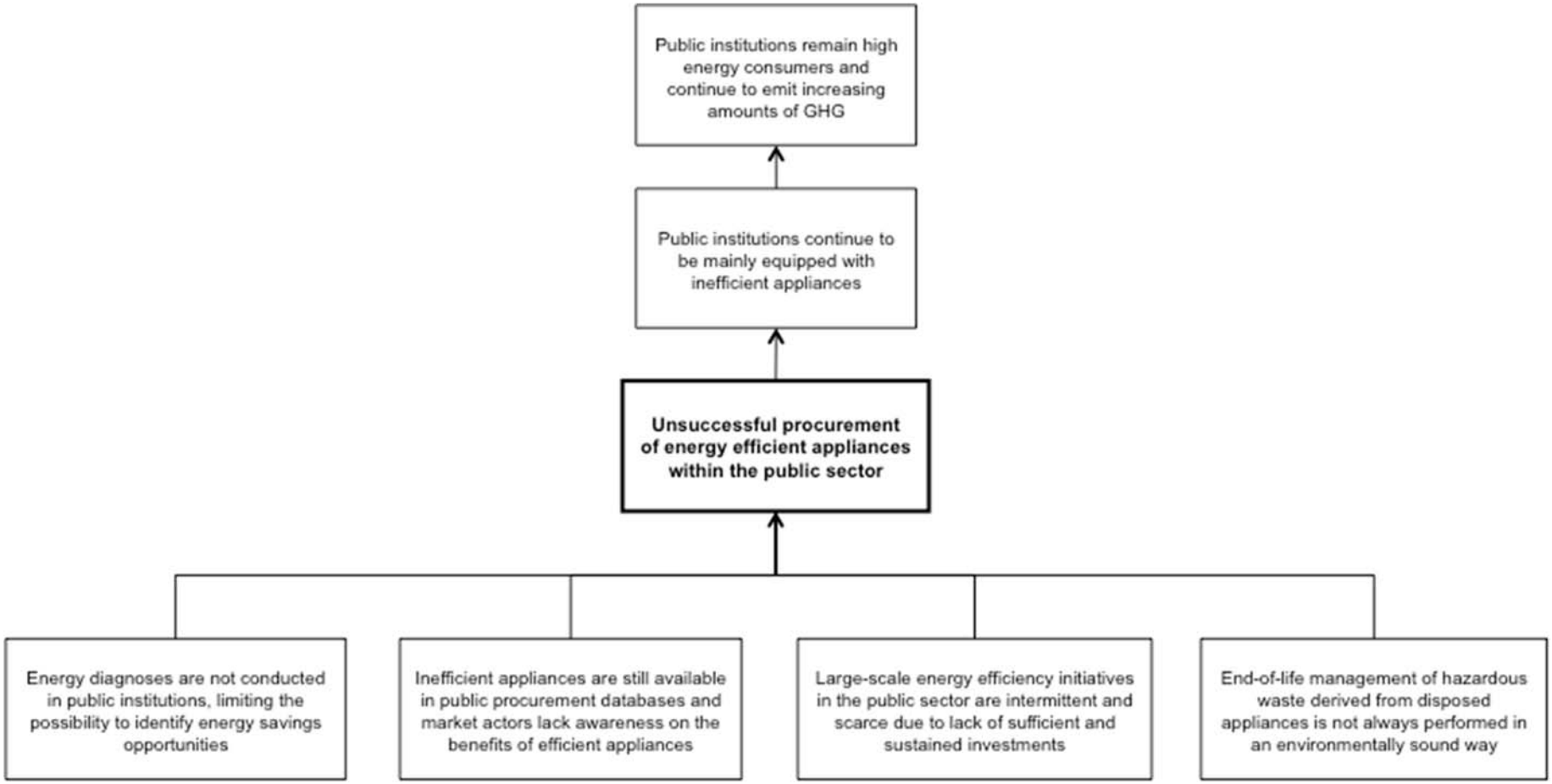
BANCO CENTROAMERICANO DE INTEGRACION ECONOMICA
GERENCIA DE PAIS
COSTA RICA

Mauricio Chacón Romero
CABEI – Costa Rica

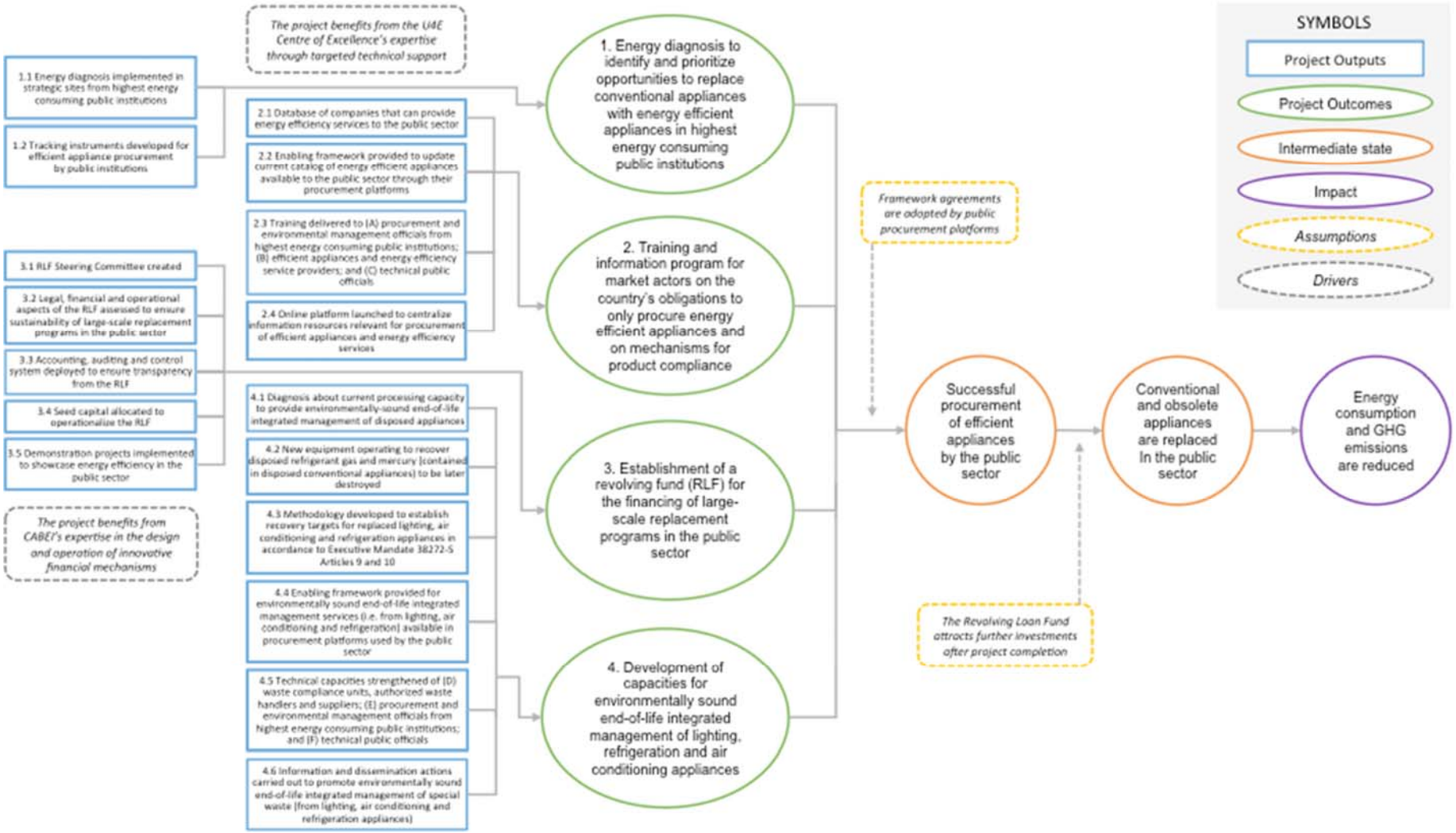
Cc: Erik Solheim, Executive Director, UN Environment
Ligia Noronha, Director, UN Environment – Economy Division
Mark Radka, Chief, UN Environment – Energy, Climate, and Technology Branch
Irene Cañas Díaz, Vice-minister of Energy
Laura Lizano Román, DSE Director

## ANNEX M - PROBLEM TREE AND THEORY OF CHANGE

*Problem Tree:*



*Theory of Change:*



## ANNEX N - ENVIRONMENTAL AND SOCIAL SAFEGUARDS CHECKLIST

| | | | |
|---|---|---|---|
| ***Project Title:*** | Development of a market for energy efficient lighting, air conditioners and refrigerators in Costa Rica | | |
| ***GEF project ID and UNEP ID/IMIS Number*** | 9283 | ***Version of checklist*** | **2** |
| ***Project status (preparation, implementation, MTE/MTR, TE)*** | ***Preparation*** | ***Date of this version:*** | ***21/04/2017*** |
| ***Checklist prepared by (Name, Title, and Institution)*** | ***Geordie Colville, GEF Portfolio Manager, UN Environment*** | | |

*In completing the checklist both short- and long-term impact shall be considered.*

***Section A: Project location:***
If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | *Yes/No/N.A.* | *Comment/explanation* |
|---|---|---|
| - Is the project area in or close to - | | |
| - densely populated area | Yes | |
| - cultural heritage site | No | |
| - protected area | No | |
| - wetland | No | |
| - mangrove | No | |
| - estuarine | No | |
| - buffer zone of protected area | No | |
| - special area for protection of biodiversity | No | |
| - Will project require temporary or permanent support facilities? | No | |
| *If the project is anticipated to impact any of the above areas an Environmental Survey will be needed to determine if the project is in conflict with the protection of the area or if it will cause significant disturbance to the area.* | | |

***Section B: Environmental impacts, i.e.***
If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | *Yes/No/N.A.* | *Comment/explanation* |
|---|---|---|
| - Are ecosystems related to project fragile or degraded? | No | |
| - Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure? | No | |
| - Will project cause impairment of ecological opportunities? | No | |
| - Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters) | No | |
| - Will project cause air, soil or water pollution? | No | The project aims to reduce GHG emission. The project also seeks to recover mercury and refrigerant gas from replaced appliances. |
| - Will project cause soil erosion and siltation? | No | |

| | *Yes/No/N.A.* | *Comment/explanation* |
|---|---|---|
| - Will project cause increased waste production? | Yes | The project aims to replace conventional and obsolete lighting, air conditioning and refrigeration appliances. At a macro-scale, project will strengthen national capacities for environmentally sound end-of-life of replaced appliances. At a micro-scale, the project will have a plan for any waste produced from the replacement of conventional appliances.<br>The activities under project Component 4, entitled "*Development of capacities for environmentally sound end-of-life integrated management of lighting, refrigeration and air conditioning appliances"* will be fully dedicated to sound management of disposed appliances. Refer to the detailed description of Component 4 in section "*A.1.3) The alternative scenario*".<br>The authorized waste handlers that are described in the paragraphs on existing policies and strategies to promote environmentally sound waste management (refer to section "*A.1.2) The baseline scenario and any associated baseline projects*") will be the ones handling the waste produced as a result of the project. |
| - Will project cause Hazardous Waste production? | Yes | Fluorescent lights contain small levels of mercury. Refrigerators and air conditioners contain refrigerant gas. As part of Component 4, the project will strengthen national capacities to recover mercury and refrigerant gas from disposed fluorescent lamps and refrigerators or air conditioners (respectively) by acquiring required specialized equipment. Refer to the detailed description of Component 4 in section "*A.1.3) The alternative scenario*".<br>As explained above, the authorized waste handlers described in section "*A.1.2) The baseline scenario and any associated baseline projects*" will be handling the hazardous waste produced as a result of the project. |
| - Will project cause threat to local ecosystems due to invasive species? | No | |
| - Will project cause Greenhouse Gas Emissions? | No | The project aims to reduce GHG emissions. |
| - Other environmental issues, e.g. noise and traffic | No | |
| *Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.* | | |

***Section C: Social impacts***

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | *Yes/No/N.A.* | *Comment/explanation* |
|---|---|---|
| - Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people? | Yes | |
| - Are property rights on resources such as land tenure recognized by the existing laws in affected countries? | N/A | |
| - Will the project cause social problems and conflicts related to land tenure and access to resources? | No | |

| | *Yes/No/N.A.* | *Comment/explanation* |
|---|---|---|
| - Does the project incorporate measures to allow affected stakeholders' information and consultation? | Yes | The project will provide information through:<br>– Trainings to relevant stakeholders<br>– An online platform to centralize and update information inputs related to public procurement<br>– Information and dissemination actions to promote environmentally-sound end-of-life management of disposed lighting products and appliances<br>Outreach to the civil society will be undertaken through social media under Output 4.6. |
| - Will the project affect the state of the targeted country's (-ies') institutional context? | Yes | It aims to accelerate improvements in energy efficiency under Costa Rica's public procurement programs. |
| - Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)? | No | |
| - Will the project cause technology or land use modification that may change present social and economic activities? | No | The project strengthens technical capacities of local lighting products and appliance providers (i.e. importers, distributors, retailers) to shift towards energy efficient technologies. |
| - Will the project cause dislocation or involuntary resettlement of people? | No | |
| - Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and possible overloading of social infrastructure? | No | |
| - Will the project cause increased local or regional unemployment? | No | |
| - Does the project include measures to avoid forced or child labour? | N/A | |
| - Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project? | Yes | The project will strengthen national capacities to recover mercury from disposed fluorescent lamps by acquiring specialized equipment. |
| - Will the project cause impairment of recreational opportunities? | No | |
| - Will the project cause impairment of indigenous people's livelihoods or belief systems? | No | |
| - Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups? | No | |
| - Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage? | No | |
| - Does the project include measures to avoid corruption? | No | |
| *Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.* | | |

***Section D: Other considerations***

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

| | *Yes/No/N.A.* | *Comment/explanation* |
|---|---|---|
| - Does national regulation in affected country (-ies) require EIA and/or ESIA for this type of activity? | No | |
| - Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country (-ies)? | N/A | |

| | *Yes/No/N.A.* | *Comment/explanation* |
|---|---|---|
| - Is the project addressing issues, which are already addressed by other alternative approaches and projects? | No | |
| - Will the project components generate or contribute to cumulative or long-term environmental or social impacts? | Yes | The project aims to set a precedent in terms of energy efficiency by establishing a systematic mechanism for large-scale replacement of conventional appliances with efficient appliances, starting with public sector procurement with the ambition to engage the private sector in the near future. Environmentally end-of-life integrated management of replaced appliances will also be strengthened to mitigate impact of the waste that could be generated. The country will also benefit from an overall reduction in energy consumption through the modernization of appliances hence reducing the stress on the energy system and incurring in the avoidance of GHG emissions. |
| - Is it possible to isolate the impact from this project to monitor E&S impact? | Yes | The project will develop a monitoring and tracking tool as par of Output 1.2. Energy savings and GHG emissions reductions from the demonstration projects and from the future replacement programs funded by the RLF will be monitored. The same applies to the refrigerant gas and mercury that will be recovered from disposed appliances. |

## ANNEX O – DESCRIPTION OF THE REVOLVING FUND GOVERNANCE STRUCTURE AND INVESTMENT CRITERIA

The Central American Bank of Economic Integration (CABEI) has experience in raising and providing energy related finance. However the design of a sustainable revolving loan fund for energy efficiency in the public sector differs from infrastructure based project finance investment such as finance for renewable energy projects or asset based finance such as for industrial energy efficiency projects. The energy efficiency loan fund for the project will build upon the framework of existing energy financing experience from CABEI with a specific loan fund designed to enable sustainable large scale investment in energy efficient products in the public sector of Costa Rica.

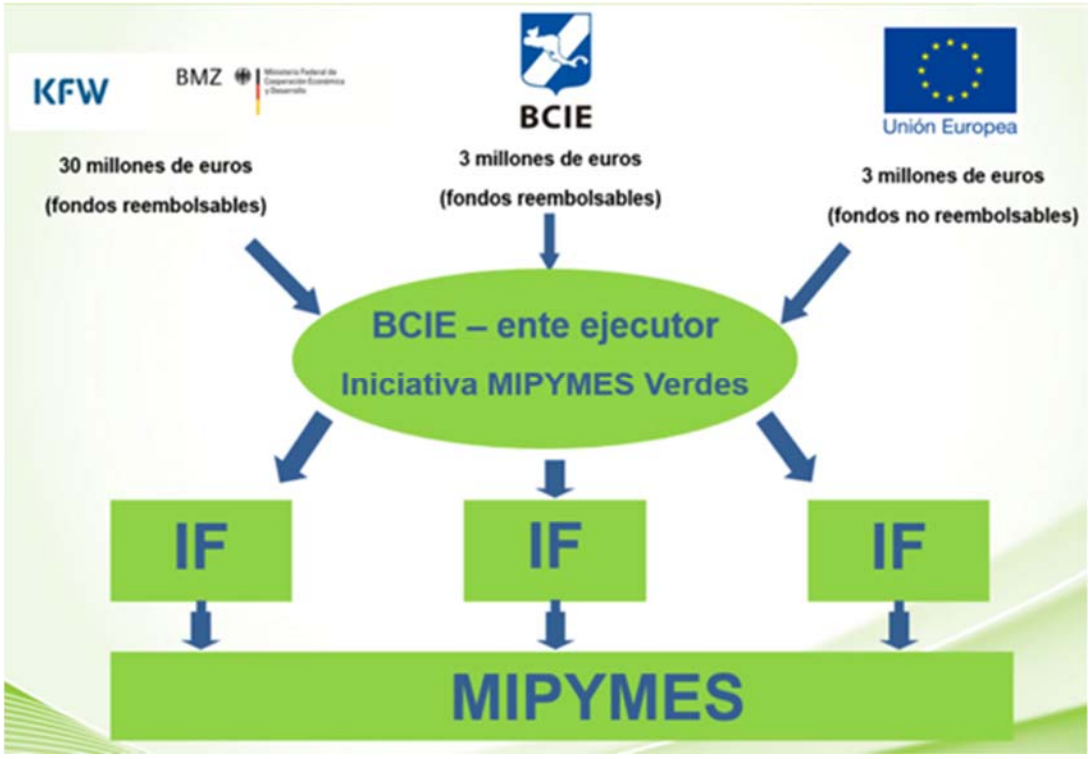
A summary of the structure and investment criteria of one of the energy financing facilities currently available from CABEI (Iniciativa MIPYMES Verdes) is included below. This is an example of the type of existing finance facility that will be examined during the project for suitable resource elements in the design and establishment of the revolving fund under Component 3 of the GEF Project. This type of existing fund is included for review since investments for efficient lighting, refrigeration and air conditioning were eligible under Iniciativa MIPYMES Verdes for medium and small enterprises.

**Description of Iniciativa MIPYMES Verdes (Green Micro, Small and Medium Enterprises Initiative)**

| | |
|---|---|
| ***Implementation period:*** | 2010 to 2016. Currently (in 2017), closing operation of first phase of implementation and structuration of second phase of implementation. |
| ***Financier*** | KfW Development Bank and European Union trough the Latin American Investment Facility (LAIF) |
| ***Objective*** | Support Micro, Small and Medium Enterprises from Central America by providing reimbursable and non-reimbursable funding focused on deployment of small projects related to energy efficiency and renewable energy with the aim to contribute to the protection of climate and the environment. |
| ***Beneficiaries*** | Micro, Small and Medium Enterprises (with up to 100 employees), as well as entrepreneurs aiming to developed or improve their productivity and competitiveness |
| ***Budget*** | The initial budget had the following contributions:<br>• EUR 30 million from KfW Development Bank<br>• EUR 3 million from CABEI<br>• EUR 2.85 million in non-reimbursable funding from LAIF<br>By the end of the first stage of implementation:<br>• <u>Reimbursable funding:</u> US$ 51.4 million were disbursed (US$ 30 million across 22 renewable energy projects which accounted for 25.29 MW and 56,747 metric tons of CO2eq avoided and US$ 21.4 million across 46 energy efficiency projects with energy savings of 215,590 KWh and 4,211 metric tons of CO2eq avoided.<br>• <u>Non-reimbursable funding:</u> US$ 3.8 million were disbursed (US$1.5 million for 18 technical assistance for financial intermediation institutions at a regional scale; US$ 1.5 million for 72 energy audits and 27 feasibility studies related to renewable energy; and US$ 866 thousand for 79 events, 139 sponsorships and 52 publications related to energy in the region). |

***Governance structure***

The Figure below, summarizes the governance structure of MIPYMES Verdes:




*Source: CABEI (2015). https://prezi.com/jkyduehouqf8/presentacion-iniciativa-mipymes-verdes-bcie/?webgl=0*

MIPYMES Verdes channeled the funding from the project financiers through CABEI as Executing Agency host of the initiative. CABEI was appointed as Executing Agency of MIPYMES Verdes Initiative and channeled funding from the project financiers through Non-Bank Financial Institutions and Cooperatives to the beneficiaries.

***Investment criteria***

MIYMES Verdes would only finance:

- Micro, Small and Medium Enterprises (with up to 100 employees) from Guatemala, El Salvador, Nicaragua and Costa Rica with investments for up to US$ 5 million.
- Energy efficiency projects with savings potential equal or higher than 15% of total energy consumption billed or renewable project of up to 5 MW.
- Eligibility criteria of projects required a legal assessment from CABEI to verify that potential beneficiary was duly registered. In the case of Non-Bank Financial Institutions, it was required for at least three years of years of existence, operation and credit experience. In the case of Cooperatives, it was required for at least five years of existence, operation and credit experience.
- Potential beneficiaries were asked to provide externally-audited financial statements from the last three years of operation.
- The minimum financial requisites for potential beneficiaries were:

| Type of Institution | Indicator | Parameter |
|---|---|---|
| Non-Bank Financial Institutions | Capital adequacy | Higher or equal to 16.7% |
| | Affected portfolio | Lower or equal to 15.0% |
| | Loss rate | Lower or equal to 10.0% |
| | Financial self-sufficiency | Lower or equal to 80.0% |
| Cooperatives | Solvency | Lower or equal to 100.0% |
| | Arrears | Lower or equal to 10.05% of total active portfolio |
| | Utilities | In the last 2 annual periods |

At the request of the Government of Costa Rica and in agreement with CABEI, the United for Efficiency Centre of Excellence (whose International Financing Partners include Base, GCPF and the Carbon Trust) will conduct a legal feasibility study to assess borrowing capacity from public institutions, review the suitability of existing financial mechanisms available from CABEI from a legal, operational, risk and reporting point of view to determine the best architecture for a new revolving fund to sustainably finance the large-scale replacement of inefficient conventional lighting and appliances in the public sector. Following this analysis, a financial model for the proposed fund (including generation, distribution and pay-back mechanics) will be recommended. The fund's operational procedures (e.g. the review, evaluation and selection of projects) will then be defined and a risk management and reporting plan completed. The definition and development of appropriate accounting, auditing and control system procedures for CABEI to effectively operate the fund will then be competed.

United for Efficiency Partners have proven international experience in the area of sustainable energy efficiency financing mechanisms and have experience in Latin America. These include: the Basel Centre for Sustainable Energy (http://energy-base.org/) , the Carbon Trust (https://latam.carbontrust.com/en/) and GCPF http://www.gcpf.lu/investing-in-renewable-energy-and-energy-efficiency.html. These organizations have international experience in advising and supporting financial institutions in financing and reporting on energy efficiency programmes, including through innovative financing mechanisms for the public sector.

## ANNEX P - ACRONYMS AND ABREVIATIONS

| | |
|---|---|
| **ARESEP** | National Authority for Public Service Regulation |
| **CABEI** | Central America Bank for Economic Integration |
| **CC** | Climate Change |
| **CCM** | Climate Change Mitigation Results Framework (GEF) |
| **CENCE** | Costa Rican National Energy Control Center from ICE |
| **CHEM** | Chemical Mitigation Results Framework (GEF) |
| **CNFL** | National Company of Force and Light |
| **CONACE** | National Commission for Energy Conservation |
| **COOPEALFARO** | Rural Electricification Cooperative of Alfaro Ruiz |
| **COOPEGUANACASTE** | Rural Electricification Cooperative of Guanacaste |
| **COOPELESCA** | Rural Electricification Cooperative of San Carlos |
| **COOPESANTOS** | Rural Electricification Cooperative of Los Santos |
| **D-011** | Executive Mandate 011-MINAE |
| **DCC** | Climate Change Directorate from MINAE |
| **DE** | Energy Directorate from MINAE |
| **DIGECA** | Environmental Quality Management Directorate from MINAE |
| **PWT** | Project Work Team |
| **DSE** | Energy Sector Directorate from MINAE |
| **ECA** | Costa Rican Accreditation Body |
| **EE** | Energy Efficiency |
| **EOU** | Evaluation Office of UNEP |
| **EPR** | Extended Producer Responsibility |
| **ESCO** | Energy Service Company |
| **ESPH** | Public Service Company of Heredia |
| **GEF** | Global Environment Facility |
| **GEFTC** | Global Environment Facility Trust Fund |
| **GELC** | Global Efficient Lighting Centre |
| **GHG** | Greenhouse gas |
| **GW** | Gigawatt |
| **GWh** | Gigawatt-hour |
| **IA** | Implementing Agency |
| **ICE** | Costa Rican Institute of Electricity |
| **IMN** | National Meteorology Institute |
| **INTECO** | Institute of Technical Standards of Costa Rica |
| **IW** | Inception Workshop |
| **JASEC** | Administrative Board of Electrical Services of Cartago |
| **kWh** | kilowatt-hour |
| **LED** | Light Emitting Diode |
| **LEE** | Energy Efficiency Laboratory from ICE |
| **M&E** | Monitoring and Evaluation |

| | |
|---|---|
| **MEPS** | Minimum Energy Performance Standards |
| **MINAE** | Ministry of Energy and Environment |
| **MP** | Mesoamerican Project |
| **MRV** | Monitoring, Reporting and Verification |
| **MSME** | Micro, Small and Medium Enterprises |
| **MTS** | UNEP Medium-Term Strategy |
| **MW** | Megawatt |
| **NAMA** | Nationally Appropriate Mitigation Action |
| **NC** | National Communications |
| **NDC** | Nationally Determined Contribution |
| **NPD** | National Project Director |
| **NLTC** | National Ligthing Test Center |
| **OFP** | GEF Operational Focal Point |
| **PGAI** | Institutional Environmental Management Programs |
| **PM** | Project Manager |
| **PMC** | Project Management Cost |
| **PMU** | Project Implementation Unit |
| **PND** | National Development Plan 2015-2018 |
| **PNE** | Costa Rican National Energy Plan |
| **PPG** | Project Preparation Grant |
| **PSC** | Project Steering Committee |
| **PTR** | Project Terminal Report |
| **PWT** | Project Work Team |
| **RLF** | Revolving loan fund |
| **SICOP** | Integrated Purchase System for Public Institutions |
| **SMART** | Specific, Measurable , Assignable, Realistic and Time-related |
| **SPPEL** | Sustainable Public Procurement and Ecolabelling |
| **$tCO_{2eq}$** | ton of Carbon Dioxide (-equivalent) |
| **TJ** | Terajoule |
| **TM** | UNEP Task Manager |
| **U4E** | United for Efficiency |
| **UNEP** | United Nations Environment Programme |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **USD** | US Dollar |
| **VII PNE** | Seventh National Energy Plan of Costa Rica 2015-2018 |
| **yr** | year |

**ANNEX Q - TABLE OF CONTENT**