Inter-American Development Bank

CO-T1344

CLEAN TECHNOLOGY FUND
PROJECT PREPARATION GRANT REQUEST
"DEVELOPMENT OF AN ESCO MARKET AND THE RELATIVE INSURANCE INSTRUMENTS FOR SMES IN THE SERVICE SECTOR"

I. GENERAL INFORMATION

Name of the Trust Fund:	Climate Investment Funds (CIFs) – Clean Technology Fund (CTF)
Amount to be financed:	US$ 200,000
Executing Agency	IDB/MIF
Beneficiary Countries	Colombia
Project team	Filippo Berardi, MIF, Gregory Watson, MIF; Diego Flaiban, SCF; Claudio Alatorre, INE/CCS; Guadalupe Calderon, GCM; Isabel Augé, MIF; Brian Christopher Muraresku, LEG.
Starting Date	July 1, 2013
Ending Date	December 1, 2013

II. BACKGROUND AND JUSTIFICATION

Colombia energy background.

1.0 Based on the official statistics included as part of the latest National Communication on Climate Change (2010)[1], Colombia emitted 180 million tons of carbon dioxide equivalent gasses (Mt CO2e) in 2004, including agriculture (38%), energy (37%), land-use, land-use change and forestry – LULUCF (14%), waste (6%), and industrial processes (5%). In terms of energy sector emissions, Colombia ranked 48th in the world and fifth in Latin America in 2005, with 56 Mt (or 31% of total emissions) from fossil-fuel combustion, and a further 10 Mt from fugitive emissions and biomass combustion. The country's annual per capita GHG emissions from the energy sector in 2008 was 1.51 t CO2e.

1.1 In 2007, Colombia's energy mix was based on oil (42%), hydropower (31%), natural gas (19%) and coal (8%). The final energy consumption was divided as follows: transport (39%), industries (27%), households (22%), agriculture and mining (5%), and the commercial and public sector (5%). The remaining 2% is made up by the construction sector and other unidentified uses.

[1] http://unfccc.int/resource/docs/natc/colnc2exsume.pdf

1.2 Colombia has a rich endowment of energy sources. The natural gas reserves in 2008 were more than seven tera cubic feet (of which 60% were proven reserves), which may last another 20 years at the current rate of utilization. Similarly, Colombia has seven billion tons in coal reserves, which at current rates of use would last 100 years. Oil reserves are more limited and may not be enough to allow for self-reliance, even in the short-term.

1.3 Colombia's electricity sector is relatively clean in terms of emissions, as approximately two-thirds of the electricity in the country is generated based on hydropower. Despite the sector's low average emission factor, a reduction in the total amount of energy demanded from the existing system (through efficiency measures, or through the generation of electricity from renewable energy sources) can have a significant emission reduction impact because the last marginal units of power utilized are often fossil fuel based and thus have the highest emission factor[2].

1.4 Barriers to energy efficiency investments.

1.5 The main challenges that energy efficiency measures face in Colombia are: (i) the lack of financial and market services to support stakeholders in the development of Energy Efficiency and Clean Energy (EECE) projects and, in particular, to support Energy Service Companies (ESCOs); (ii) the scarcity of information on new technology options; (iii) the limited knowledge on the economic benefits of EECE projects; and (iv) the lack of interest from local financial institutions (FIs) to act as promoters of investments in EECE, mostly due to the fact that EECE require project financing models that are different from asset-based landing local FIs are normally operating within. Moreover, the collateral value recognized to EECE is normally low, which represent another barrier for the traditional lending practices of national FIs.

1.6 In particular, a reference market for Energy Services Companies (ESCOs) is not yet developed in Colombia[3]. Energy service providers in Colombia include energy marketers, power generators, power distributors, equipment suppliers and vendors, engineering and consulting firms performing energy audits, universities performing consulting services and applied research, and financial institutions. However, only a small number of privately owned companies are operating under the ESCO model executing energy efficiency projects utilizing energy performance contracts (EPC) in Colombia. It is fundamental to address the barriers listed above if the true potential to realizing the existing energy savings and emission reductions opportunities is to be unlocked.

1.7 Implementation of the Clean Technology Fund Colombia's Investment Plan.

1.8 In the context of the Climate Investment Funds (CIFs), Colombia is one of the countries included in the Clean Technology Fund (CTF). Colombia's Investment Plan (CIP) was ratified by the CTF Committee on March 15, 2010, and identifies the use of the amounts allocated to each multilateral development bank acting as Executing Agency of the CTF. Energy efficiency is one of the two areas of priority

[2] UPME. 2009. *Plan de Expansión de Referencia. Generación y transmisión 2009-2023*. Ministry of Mines and Energy

[3] Langlois, P., Hansen, S., *World ESCO Outlook*. The Farimont Press, 2012.

action identified by the CIP, together with transportation. The Multilateral Investment Fund (MIF) of the IDB Group has been allocated US$3 million in reimbursable and US$0.7 million in non-reimbursable CTF financing for the design and implementation of activities aimed at promoting the use of energy efficient technologies in Colombia, in accordance with the national priorities highlighted in the CIP.

1.9 The MIF intends to administer the allocated Clean Technology Fund resources, plus matching funds, to develop a project to promote the use of energy efficient technologies among SMEs in Colombia. On the supply side, the project will identify and create capacity in specific actors that are well-positioned to offer energy (saving) services to SMEs, promoting the use of performance-guaranteed contracting and Energy Services Companies (ESCOs) models. The identified Energy Service Providers (ESP) and ESCOs will receive training and support to meet the demand for products that can reduce existing energy efficiency gaps in various sectors of the Colombian economy. On the demand side, the project will foster the development of a reference market for ESP and ESCOs, providing technical assistance to a regional Insurance Company for the design of specific risk-mitigation instruments to address the real or perceived performance risks of energy efficient technologies. Finally, the operation will include the set-up of an Energy Efficiency Fund, seeded with CTF resources administered by MIF and IDB (SCF/FMK), plus matching funds, which will be structured to provide access to finance to the ESPs and ESCOs graduating from the technical assistance components of the project.

1.10 Outside the MIF, the IDB provides assistance to a wide variety of public sector actors in the energy and climate arenas. The Bank's energy department supports projects to develop energy production facilities. The Bank's Climate Change and Sustainability Division (INE/CCS) works to improve public sector understanding of climate change, carbon markets, and clean energy and provides advice and assistance to other Bank departments, including the MIF through in-house knowledge and the provision of retainers for outside consultants for specific projects. INE/CCS is the technical focal point for the Colombia Investment Plan under the CTF. The Capital Markets Group (CMF) supports second tier financing, and is already working with Bancoldex, the Colombian national development bank, to develop a financing and risk mitigation scheme for Hotels and Hospitals to access lower-cost financing for EECE projects (CO-T1124) [4].

[4] A number of initiatives have been, or are in the process of being developed in Colombia in the field of energy efficiency by the IDB Group. These operations are relevant to, and will be taken into consideration in the development of this technical cooperation. Representative initiatives include:

- CO-M1038 - Promoting Market Opportunities for Clean Energy and Energy Efficiency: A MIF-funded project executed by the Bogota Chamber of Commerce, implemented between 2009 and 2012 to promote energy efficiency amongst industrial SMEs. The project supported 180 SMEs in the development of energy efficiency good practices, covering some of the most important economic sectors in Colombia, including food and beverages, brick makers, printing services, chemicals and plastics. CO-M1038 also supported a number of existing providers of energy services and consulting firms towards the development of ESCO models for the Colombian market.
- CO-T1309 – Colombia's energy efficiency and renewable energy sector: An IDB Technical Cooperation, designed to provide technical support to the Government of Colombia for the implementation of the

1.11 The MIF has requested the approval of $200,000 preparation grant from the CTF, to be administered by the MIF, to support the development of the operation described in 2.9 above. The technical cooperation financed with this preparation grant will have the objectives described below. There will be no MIF financial contribution to this technical cooperation.

III. OBJECTIVES

3.1 The objective of this technical cooperation is twofold:

a. to hire a consultant to provide technical services for the identification and prioritization of specific sectors, sub-sectors and types of businesses that have the most significant potential to represent the demand-side for a strengthened market for energy service providers in Colombia. Sectors and sub-sectors will be ranked according to parameters agreed with the supervision team of this consultancy, including, but not necessarily limited to (i) the potential for energy savings (KWh/year) and emission reductions (CO2e t/year); and (ii) the estimated implementation and transaction costs (e.g. project assessment) for the typical EE measure/project which would be expected in that (sub-)sector, taking into account, for example, the replication/standardization potential of the specific EE interventions within the sector.

b. to hire a consultant to provide technical and legal backstopping and strategic advice to the MIF and SCF/FMK during the design and structuring phases of the energy efficiency fund to be included in the operation described in 2.9 above.

3.2 The market study resulting from the consultancy under 3.1(a) above will provide first-hand information about the market potential for energy efficiency in Colombia and will also inform, *inter alia*, the design of the operation to be developed by IDB/MIF with CTF co-financing, which will look to strengthen the market for energy service providers and ESCOs in Colombia. Considering that fostering EE in hotels and hospitals is already the specific objective of IDB operation CO-T1124, hotels and hospitals will not be covered by this TOR.

IV. DESCRIPTION

Colombian Sustainable Energy Finance Program (C-SEF). The C-SEF, designed and implemented together with the IFC, has the objective of promoting the development of the market for financing energy efficiency and clean energy (EECE) in Colombia, supporting and addressing market barriers for Financing Institutions.

- CO-T1124 – CTF Energy Efficiency Financing Program for the Services Sector: An IDB operation which will provide, inter alia, a concessional line of credit to ESCOs, through Bancoldex, for the development of energy efficiency services in the sectors of Hotels/ Hospitals.
- CH-M1009 - Promotion of Clean Energy Market Opportunities: A MIF-funded project executed in Chile by Fundación Chile and implemented between 2007 and 2011, which developed a domestic market for ESCOs. In the context of this project a number of studies, manuals, and ESCO training tools were created that should inform this new consultancy for Colombia.

4.1 Under the supervision of the team leaders, Filippo Berardi (MIF/ABS), Claudio Alatorre (INE/CCS) and Diego Flaiban (SCF/FMK), in line with the objectives above, the this technical cooperation will have the two components highlighted below. Specific Terms of Reference will be prepared for each one of the two components.

4.2 **COMPONENT 1 (US$130,000)**. This component will finance a **Market Analysis** study guided by the objectives described above in 3.1(a), and will have the scope and methodology described below.

4.3 A) Market analysis outline

i. Scoping and assessment of the potential market for energy efficiency services, (excluding hotels and hospitals)
   - Define a methodology for the market assessment, using variables such business size, geographic/climatic region of Colombia o type of technology used;
   - Estimate the demand-side market size and for the different sectors identified;
   - Ranking of the sectors using parameters such as, volume of potential absolute energy and GHG emissions savings, awareness, technical readiness and willingness of potential clients to adopt more efficient energy-using equipment or processes, financial capabilities and potential to access credit, cost-benefit ration of the interventions.

ii. Characterization of the most promising sectors identified
   - Sector growth potential;
   - Principal risks of investing in the priority sectors;
   - Sensitivity analysis vis-à-vis variations in energy prices and consumption levels;
   - Access to credit potential of clients in the selected sectors;
   - Analysis of barriers to technological upgrades;
   - Definition of sector baseline (average): annual energy costs by typical users and ratios with other business indicators (such as other production costs), with and without the proposed technology upgrades;
   - Based on the analysis performed, a detailed estimation and quantification of the potential for ESCO services in the identified and selected sectors and an assessment of investments and credit requirements.
   - Pipeline of energy audits (preliminary/advanced/detailed engineering) and cost estimation.
   - Identification of areas for technical assistance for demand-side SMEs.

iii. Technology characterization for the most promising sectors identified.
   - Characteristics of the technology intervention (processes)
   - Typical capital and O&M costs, depreciation, installation and construction time.
   - Specific technology risks and mitigation strategies.

iv. Assessment of the current offer-side of the energy efficiency and ESCO market for the selected most promising sectors.
    - Identification, mapping and assessment of the existing service providers for energy efficiency services;
    - Assessment of available financing methods and sources for the service/technology providers;
    - Identification of barriers to growth and perception of barriers from the offer-side.
    - Identification of areas for technical assistance for ESCOs and energy service providers.

v. Formulate recommendations for the development of potential pipeline of energy efficiency projects that could be promoted.

4.4 B) Market analysis methodology

4.5 The report outlined above will be prepared through:

4.6 A preliminary desk-based, thorough review of the available information, including progress reports, results, findings and analysis from the operations listed in the background section of this document, and other relevant initiative implemented in Colombia with the objective of fostering the energy services market in Colombia. This preliminary review will inform the selection of the three most promising sectors, where the energy audits will be performed, as per point c) below;

4.7 A series of workshops (at least 3) to gather first-hand information from relevant stakeholders, including governmental institutions, market actors, industry associations, service providers and research organizations with experience on energy efficiency in Colombia ; and

4.8 At least 6 preliminary on-site energy audits of representative firms operating within the three most promising sectors, as selected after the desk-based analysis in conjunction with the IDB/MIF.

4.9 **COMPONENT 2 (US$70,000).** This component will finance the hiring of a consultant to provide technical support for the **design and structuring phases of the energy efficiency Fund,** in line with the objectives described above in 3.1(b). The consultant will:

i. Provide substantive inputs for the preparation of documents and TORs for the design stage of the MIF/SCF operation

ii. Provide support in analyzing existing and new information on the EE market in Colombia

iii. Provide recommendations on the best design structures for the operation's lending facility (EE fund), based on:
    - Colombian legal and institutional framework
    - Energy supply/demand analysis
    - Key market stakeholders
    - EE market potential
    - Analysis of local available financing
    - Market barrier analysis

- Legal assessment of possible legal and financial structures suitable for the EE Fund

iv. Provide support for the definition of the lending manual, guidelines and eligibility criteria (incl. definition of eligible sectors)

v. Provide support in the definition of the TOR for the fund manager and their team

vi. Provide other general support to the MIF/SCF during the pre-approval stages of the operation, as needed.

V. PROFILE OF THE CONSULTANT

5.1 **Type of consultancy**: Provision of consulting services by a consulting firm or consortium. For **Component 1** (market analysis) the consultant will have significant expertise in (i) energy efficiency processes and assessments; (ii) market studies and financial analysis; (iii) ESCO models and relative contractual arrangements; and (iv) energy audits. For **Component 2** (technical support for the energy efficiency fund) the consultant will have significant experience in (i) energy efficiency processes and assessments; (ii) ESCO models and relative contractual arrangements; (iii) financial and technical assessment of investment opportunities in energy efficiency and/or clean energy; (iv) design of funds or financing facilities in the field of energy efficiency and/or clean energy; and (v) previous experience in fund management for energy efficiency and/or clean energy facilities would be an asset.

5.2 **Team Leader**: The team leader for each of the two components should have at least 10 years of experience working in energy efficiency and ESCO markets, with a track record in leading large consulting projects for donor organizations, preferably in Latin America.

5.3 **Consulting Teams**: The consulting teams for both component 1 and 2 should include at least one member with at least 5 years proven experience in technical aspects of energy efficiency project assessment and development with a background in engineering or relevant technical discipline. In addition, the consulting team for Component 2 will include a business and finance expert with at least 7 to 10 years of proven experience energy efficiency financing and investment.

VI. DURATION

6.1 The execution period for this technical cooperation is of 6 months starting on June 1st, 2013 and ending on November 30th, 2013. The consultant will work from his or her home base, with support from the MIF, INE/CCS and SCF specialists from HQ and Colombia, as needed.

6.2 The selection and contracting of the consultant will be carried out according to the Bank's rules, and following the Terms of Reference here attached.

VII. BUDGET

7.1 The total cost of this technical cooperation is US$ 200,000. This amount includes consultant fees, travel expenses (included in the consultant's fees), funding for workshops with stakeholders, and contingencies. The following table outlines the budget estimates:

Budget	
Expenditures	**Amounts**
Component 1: Market Analysis	US$130,000
Component 2: Technical Support for the EE Fund	US$70,000
Total cost	**US$200,000**

VIII. RESPONSIBILITY OF MIF AND IDB

8.1 MIF and INE/CCS will be responsible for the supervision of the work of the consultants and the approval of payments. The consultants will work under the supervision of Carrie McKellogg, Unit Chief, MIF, (carriem@iadb.org), and in collaboration with team leaders Filippo Berardi, Claudio Alatorre (INE/CCS) and Diego Flaiban (SCF/FMK).

IX. ENVIRONMENTAL AND SOCIAL REVIEW

9.1 It is not anticipated that the activities to be financed will have negative direct social or environmental effects. Based on the aforementioned, and according to the Environment and Safeguards Classification toolkit, the operation has been classified as "C."

X. RECOMMENDATION

10.1 Filippo Berardi, designated team leader for the project of the reference, recommends the approval of this operation and the use of resources from the **CIFs' Clean Technology Fund** totaling up to **US$200,000** in order to finance the corresponding project.

XI. APPROVAL

Nancy Lee
General Manager
Multilateral Investment Fund
MIF

Date