**Market Study For The Characterization And Prioritization Of The Economic Sectors With Greatest Potential For Energy Efficiency Interventions In Colombia**

**Terms of Reference**

**I. BACKGROUND**

The Objective of the Colombian Sustainable Energy Finance (C-SEF) Program is to promote the development of the market for financing Energy Efficiency and Clean Energy (EECE) in Colombia, supporting and addressing market barriers for Financing Institutions on a programmatic basis. The C-SEF is consistent with Colombia’s Investment Plan, which was ratified by the Committee of the Clean Technology Fund (CTF) on March 15, 2010, and details the use of the amounts allocated in the Investment Plan for each multilateral bank. The Program is designed and implemented together with the International Finance Corporation (IFC).

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 EECE projects, in particular, the Energy Service Companies (ESCOs); (ii) the scarcity of information on new technology options; (iii) the limited knowledge on the economic benefits of EERE projects; and (iv) the absence of financial institutions promoting investments in this area.

In particular, a reference market for Energy Services Companies (ESCOs) is not yet developed in Colombia[[1]](#footnote-1). 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.

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 should form the basis of, further activities, projects or investments aimed at fostering energy efficiency and ESCO models in the country. 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 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.[[2]](#footnote-2)

**II. OBJECTIVES**

The objective of this consultancy will be to identify and prioritize the 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 should be ranked according to parameters agreed with the supervision team of this consultancy, including, but not necessarily limited to:

1. The potential for energy savings (KWh/year) and emission reductions (CO2e t/year); and
2. 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.

This study 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 (see above for details), Hotels and Hospitals will not be covered by this TOR.

**III. CHARACTERISTICS OF THE ASSIGNMENT**

* **Type of consultancy:** Provision of consulting servicesby a consulting firm or consortium with significant expertise in (i) energy efficiency processes and assessments; (ii) market studies and financial analysis; (iii) ESCO models and relative contractual arrangements; (iv) climate change mitigation programs; and (v) energy audits.
* **Start date and duration of the services:** The development of the study will take place in a maximum time of 4 months from the signing of the contract.
* **Place of work:** Colombia. Consultants should use their own worksites, materials, and IT equipment. When interviews or site visits are required the MIF will assist with specific arrangements in consultation.
* **Characteristics of the Consultant**: The team leader for this assignment will have at least 10 years of relevant professional experience in energy efficiency processes and equipment, project development and market analysis. Other team members should include: a professional with experience in energy audits and a professional with experience in market studies. Experience in Colombia is desirable.

**IV. ACTIVITIES**

Building on the lessons learned, the products and the analysis which are already available from past initiatives[[3]](#footnote-3), including those elaborated in the context of the IDB Group operations listed above in this document, the consultant will perform the following specific activities:

**A) Market Analysis**

1. Scoping and assessment of the potential market for energy efficiency services, excluding hotels and hospitals.
   1. Define a methodology for the market assessment, using variables such business size, geographic/climatic region of Colombia o type of technology used;
   2. Estimate the demand-side market size and for the different sectors identified;
   3. 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.
2. Characterization of the most promising sectors identified
   1. Sector growth potential;
   2. Risks from the current energy use patterns;
   3. Sensitivity analysis vis-à-vis variations in energy prices and consumption levels;
   4. Access to credit potential of clients in the selected sectors;
   5. Analysis of barriers to technological upgrades;
   6. 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;
   7. 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.
   8. Pipeline of energy audits (preliminary/advanced/detailed engineering) and cost estimation.
3. Technology characterization for the most promising sectors identified.
   1. Characteristics of the technology intervention (processes)
   2. Typical capital and O&M costs, depreciation, installation and construction time.
   3. Specific technology risks and mitigation strategies.
4. Assessment of the current offer-side of the energy efficiency and ESCO market for the selected most promising sectors.
   1. Identification, mapping and assessment of the existing service providers for energy efficiency services;
   2. Assessment of available financing methods for the service/technology providers;
   3. Identification of barriers to growth and perception of barriers from the offer-side.

**B) Methodology**:

The report outlined above will be prepared through:

1. 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;
2. 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[[4]](#footnote-4); and
3. 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.

**VI. PRODUCTS**

* **Preliminary items:**
  1. A detailed outline describing the scope of the work, including the components described above and the proposed workplan for the on-site assessments (energy audits);
  2. A work schedule defining the time invested in each activity;
* **Report “*Market Analysis: identification and characterization of most promising sectors”:***
  1. A draft report;
  2. A final report incorporating the MIF’s comments;
* **Additional requirements**:
  1. The consultant will prepare the report and any supporting documents in Spanish or English. All documents must be delivered to the MIF in electronic form and follow the MIF’s requirements and template formats.
  2. The MIF reserves the right to publish final reports, under its own name on its website or in print, with or without changes to the content of the document presented by the consultant.

**VII. PAYMENT SCHEDULE**

The payment schedule will be as follows:

* 30% upon the signing of the contract and approval of the work plan;
* 35% upon delivery of the first version of the two reports, and
* 15% upon delivery of the final version of the studies, after inclusion of the comments received by the MIF
* 20% upon the completion of the technical assistance program described in the approved workplan.

**VII. COORDINATION**

Ms. Verónica Valencia Marín (CCS) and Mr. Filippo Berardi (MIF) will be responsible for the supervision of the consultant.

1. Langlois, P., Hansen, S., *World ESCO Outlook*. The Farimont Press, 2012. [↑](#footnote-ref-1)
2. Documents available at www.energiaslimpias.cl [↑](#footnote-ref-2)
3. An indicative, not exhaustive, references list, is provided below:

   [1] UPME. Evaluación del potencial y estructura del mercado de servicios del sector de uso racional y eficiente de energía, Febrero 2002.

   [2] UPME. Determinación del potencial técnico y económico de URE en el subsector industrial de textiles, Septiembre 2002.

   [3] UPME. Determinación de eficiencia energética en el subsector industrial colombiano de hierro, acero y metales no ferrosos, Octubre 2001 (Consultor Hembr Samiguel).

   [4] UPME. Determinación de eficiencia energética en el subsector industrial de ladrillo, vidrio y cerámica, Octubre 2001.

   [5] UPME. Determinación de eficiencia energética en el subsector industrial de pulpa y papel, Octubre 2001 (con el apoyo de UPB).

   [6] Numark Associates, Mitsubisi Research Corporation y Universidad Nacional de Colombia. Sustainable energy and biofuels strategies for Colombia. Preliminary Report, November 2010.

   [7] UPME. Potencial de cogeneración en Colombia, Marzo 1997.

   [8] PNUD / COL / 99G41. COGENERACIÓN PARA EL SECTOR AZUCARERO INTRODUCIENDO Y APLICANDO EL ENFOQUE ESCO, Febrero 2003

   [9] COSENIT. Estrategia de uso racional de energía en el sector industrial colombiano. Informe final, 2005 (para la UPME).

   [10] Fundación Bariloche y BRP Ingenieros. Plan URE y FNCE 2007 – 2025. Informe final, Junio 2007 (para la UPME) [↑](#footnote-ref-3)
4. Relevant organizations include, for example: Asociación Nacional de Empresarios de Colombia (ANDI), Cámara de Comercio de Bogotá’ (CCBO/CAEM), Unidad de Planeación Minero Energética (UPME), Departamento Administrativo Nacional de Estadística (DANE), etc. [↑](#footnote-ref-4)