

TC Document

I. Basic Information for TC

▪ Country/Region:	Colombia
▪ TC Name:	Support preparation of the Operation CO-L1161 to structure a financing strategy for leveraging private investment in electricity generating systems in Non-Interconnected Zones (ZNIs)
▪ TC Number:	CO-T1402
▪ Team Leader/Members:	Maria Netto, IFD/CMF, Team Leader; Javier Cuervo, INE/ENE, Alternate Team Leader; Jose Juan Gomes, Gloria Lugo, Maria Margarita Cabrera, and Annabella Gaggero, IFD/CMF; Alvaro Concha, CMF/CCO; Claudio Alatorre and Veronica Valencia, INE/CCS; Leopoldo Montañez, INE/ENE; and Monica Lugo, LEG/SGO.
▪ Indicate if: Operational Support, Client Support, or Research & Dissemination	Operational Support
▪ If Operational Support TC, give number and name of Operation Supported by the TC:	CO-L1161 - Financing to leverage private invest in renewable energy in non-interconnected zones (ZNIs)
▪ Date of TC Abstract authorization:	N/A
▪ Beneficiary (countries or entities which are the recipient of the technical assistance):	Bancóldex, Colombia
▪ Executing Agency and contact name:	IDB (IFD/CMF)
▪ Donors providing funding:	Clean Technology Fund (CTF)
▪ IDB Funding Requested:	US\$200,000 from the Clean Technology Fund
▪ Local counterpart funding, if any:	US\$40,000 in kind resources from Bancóldex
▪ Disbursement period (which includes Execution period):	12 months
▪ Required start date:	15 July 2015
▪ Types of consultants:	Individuals and companies
▪ Prepared by Unit:	IFD/CMF and INE/ENE
▪ Unit of Disbursement Responsibility:	IFD/CMF
▪ TC Included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ GCI-9 Sector Priority:	The TC is closely related to two institutional priorities of the IDB under the GCI-9: (i) Institutions for growth/social welfare; and (ii) Protecting the Environment and Responding to Climate Change

II. Description of the Associated Loan/Guarantee

- 2.1 This Technical Cooperation (TC)'s objective is to support the preparation of the program CO-L1161,¹ aimed at supporting Colombia's efforts to stimulate Local Financial Institutions (LFIs) through new financial business models of private investment to finance investments in Renewable Energy (RE) as an alternative source of energy generation in Non-Interconnected Zones (*Zonas no Interconectadas*, or ZNIs), to be funded by the Clean Technology Fund (CTF).

III. Objectives and Justification of the TC

- 3.1 ZNIs -target of program CO-L1161- represent two-thirds of Colombia's territory, in which approximately 1,830,000 people live in 1,565 villages or towns, and only 34% enjoy access to electrical energy supply. Over 96% of the 165 MW installed electrical capacity in the ZNIs is provided by internal combustion engines that use diesel fuel.²
- 3.2 Electricity generation costs in these areas are high (above US\$0.60/kWh) and greater than the costs of available RE technologies in Colombia: small hydropower, solar PV in a hybrid system with diesel generators, biomass and wind power.³
- 3.3 The provision of electricity is currently heavily subsidized, and tariffs, subsidy conditions and regulatory provisions available need to be considered when assessing costs and opportunities of investing in renewable energy technologies, also considering initial capital costs.
- 3.4 The Colombian government has the ambition to increase RE generation in the ZNIs to a market share of 30% by 2020, which equals to a need for investments of the order of US\$240 million.⁴
- 3.5 The Colombian regulation provides already for private firms or energy enterprises to be able to scale up part of these needed investments via a Build, Operate, Maintain, and Transfer (BOMT) scheme,⁵ in which, during the period of the contract, they are paid the equivalent of the cost of production using diesel which they are replacing. Once the contract expires, the project becomes the property of the State, which can continue to exploit the facility itself, or sign a new Operation and Maintenance (O&M) contract with the operator.
- 3.6 The Colombian government has had a long history of private sector participation in infrastructure and public services. Law 1505 (*Asociaciones Público Privadas - PPP*⁶) establishes the framework that is used to regulate this kind of contracts. There are several projects already carried out under this kind of concessional agreements. Examples include a water treatment plant (Cucuta), a waste management plant (Bogota), and a tram investment (Bogota). There is a public registry of projects managed by DNP, which currently has around 350 projects. To date, the government has ruled 2 exclusive service areas (ESA) in the Concession model for the ZNI (San Andrés and Amazonas), with a general consensus of

¹ Letter of request from Bancóldex and letter of non-objection by the government have been received.

² [UPME, 2014. "Plan indicativo de cobertura de Energía Eléctrica"](#)

³ [UPME, 2014. "Acciones y retos para la energización de las ZNI en Colombia"](#)

⁴ UPME 2010. "Colombian Electricity Expansion Plan 2010-2024".

⁵ [Law 1715, May 2014 "Integración de las energías renovables no convencionales al sistema energético nacional"](#)

⁶ [DNP.2013 Asociaciones Publico Privadas - PPP](#)

improvement in providing service: quality and delivery⁷. However, mechanisms to improve private investment for RE still need to be demonstrated.

- 3.7 The Colombian Government has a number of ongoing capacity development and regulatory initiatives underway to promote greater access to RE in ZNIs. In particular, the government has set up, under the auspices of the Ministry of Mines and Energy (MME), the Institute for Energy Solutions Planning (IPSE) (*Instituto de Planificación de Soluciones Energéticas*) to manage the development of infrastructure and service provision in the ZNIs. Furthermore, the Mining and Energy Planning Unit (UPME) within the MME has been actively promoting awareness and knowledge regarding RE opportunities in the ZNIs.
- 3.8 At present, however, there is still a low level of private sector investments, with all investments in power generation in the ZNIs made either by the government or by operating companies using dedicated funds provided by the Financial Support Fund for ZNI Energy (FAZNI) and the Electrification Rural Fund (FAER). The government pays the electricity generation subsidies by paying the operating costs, which include the fuel and the generating plants' O&M.
- 3.9 Therefore, a close work with national authorities is a key element to achieve an integral solution for the promotion of private investments in renewable energies in ZNIs. As per example, it is still necessary that the regulatory commission for energy and gas (CREG) publishes the resolution by which it will establish the new generation tariff by renewable generation.
- 3.10 Through the creation of a Bancóldex's dedicated second tier financing mechanism, the operation CO-L1161 would support higher participation, finance and investments from local financial institutions, private firms and energy service providers in RE generating plants via BOMT RE generation.
- 3.11 It is necessary to demonstrate to the private sector, financial institutions and technology solution providers that electricity generating systems in Non-Interconnected Zones can be structured under Public-Private Partnerships. The objective to have a pilot is to demonstrate and create a momentum that attracts other potential actors that can generate a consistent pipeline of projects.
- 3.12 The main objective of this TC is to support the design of the key components of the operation CO-L1161 by addressing informational and technical barriers and other real or perceived risks that have prevented the supply and the demand for financing for private investments in RE in the ZNI. In particular it will support the design of: (i) specific eligibility criteria, modalities and characteristics of the financing line; (ii) specific institutional and legal requirements to ensure the support and participation of key partners (e.g. LFI, private firms, energy companies, insurance companies, etc.) in the implementation of the financing line; (iii) an appropriate understanding of the regulatory framework and (iv) methodological approaches and protocols to monitor results/benefits of the financing line (i.e. reduction of energy use and GHG emission reductions).
- 3.13 The technical cooperation is aligned with the IDB Country Strategy for Colombia 2010-14. In particular, it seeks to support the promotion of lines of credit and developing financial products and nonfinancial products through second-tier banks (e.g. Bancóldex) (see paragraph 3.11 of the Strategy.) The TC focuses on an area that continues to be a priority for the country and is part of the strategic policy

⁷ [UPME.2010. PIEC. Annex I. Development of management schemes for ZNI.](#)

dialogue between the Bank and the Government of Colombia. The TC will also result in further dialogue and knowledge support on energy efficiency issues (see paragraph 3.42 of the Country Strategy).

3.14 This TC is also consistent with lending target for climate change, renewable energy and environmental sustainability of the Bank's Ninth General Capital Increase (GCI-9), as well as with the IDB's priorities set in its Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy, approved in March 2011 (see paragraphs 1.3, 2.9 and 3.14 of document GN-2609-1). The TC is also aligned with the sector priority of institutions for growth and social welfare, which identifies improving innovation and productivity as a major area where the Bank can help the region overcome the challenges that hinder growth and social welfare.

IV. Description of activities/components and budget

4.1 The TC proposes to support the preparation of the operation through three main components, including:

4.2 **Component 1.** Development of specific operational instruments, mechanisms and systems required to operationalize the financing strategy and reassure relevant market players that the risks they are taking are acceptable. This component will include the definition of different elements needed to correctly address specific financial and non-financial requirements, reflect specific local financing conditions confronted by Bancóldex and its first-tier clients, and address technical barriers and lack of knowledge confronted by local financial intermediaries and beneficiary firms in order to gain access to credit for the promotion of RE as source of power generation in NZI projects. Among the issues that would be addressed through this component, the most important ones are the following:

- Market size and key characteristics (including barriers, segmentation, opportunities).
- Technology analysis (cost-benefit analysis, key characteristics, supplier assessment) in at least four technologies (e.g., small-scale hydro plants, hybrid solar power generation, biomass, wind energy).
- Analysis of the different actors in the public and private market: public and private companies, technology suppliers, contractors responsible for the operation and maintenance, and asset management.
- Financing requirements, conditions and characteristics, key funding providers. (e.g. interest rates, grace periods, payback periods, guarantees, insurance products, etc.), taking into account the costs of implementation of the line and the different sources of reimbursable and non-reimbursable funds available (CTF, FAZNI, FAER and IDB/Bancóldex funding);
- Identification of existing initiatives and public efforts, including the country-specific legal and institutional framework, with which the program should be aligned to demonstrate its value added and the way it complements the other financing mechanisms set up by the government rather than crowd them out.
- Legal and contractual concessions analysis. This activity seeks to identify what is required to develop a model of a standard contract/agreement between the service provider and the municipality, concession or operator. That includes: (i) analyze and determine legal and institutional requirements, capabilities and qualification of potential concessionaries or operators in the ZNIs to assure the sustainability of the strategy designed under this program; (ii) describe the types

- of contracts that have been signed between the MME, IPSE or departments or municipalities and private companies, and contracts between the departments or municipalities or IPSE and contractors. In particular analyze the contractual provisions governing the purchase / sale of power between private companies or contractors and the national, regional and local authorities (municipalities or associations); (iii) examine the different institutional regimes operating in ZNIs, explaining how they work in areas with concessions (designated areas), areas where the service is provided by a municipality, and other type of areas that may exist; (iv) review CAPEX and OPEX analyses made by various consultancies contracted by CREG and establish whether these are in line with the current conditions of technology and the market and whether the proposed remuneration is attractive to a private investor; (v) analyze the technical and financial capacities of current service providers and establish whether they have the capacity to participate in an investment scheme to promote RE in ZNI.
- Design of the financial and non-financial mechanisms, namely: (i) risk mitigation mechanisms (guarantee, insurance) or incentives (“pays as you go”, leasing models) for the financing line; (ii) technical support and support for identification of a pipeline of bankable projects (i.e. support for the development of alternative business models, such as alternative energy payment channels, standard contracts, quality control of projects and providers, capacity development of LFI, etc.).

4.3 Consultants will be hired to undertake the necessary analyses and prepare the various technical materials contemplated in ¶4.2. Given the high level of technical detail and broad spectrum of issues to be covered by the work of the consultants, peer review will be required to provide a third party assessment of criteria and requirements proposed and to undertake quality control of the technical materials prepared. The consultants will be required to travel as needed to present results of studies as well as to undertake any survey that may be required.

4.4 **Component 2.** The aim of this component is to create the enabling environment for RE in ZNIs by supporting the government in its regulatory framework and suggesting the appropriate policies. Some of the activities of this component are the following:

- Describe the current energy tariff structure (each component of the tariff formula) and subsidy schemes for ZNI, including all resolutions and decrees proposing amendments to the regulatory framework for the provision of the service, and all modifications of the components of the tariff structure that have been published by national authorities for stakeholder consultation.
- Analyze the current legal and regulatory regime for the provision of electricity service in ZNI, currently in charge of departments, municipalities, the private sector (contractors), concessions, and exclusive areas, among others. Indicate the functions of the various national authorities involved in the provision of electricity in ZNIs, such as MME, CREG, UPME, and IPSE.
- Analyze the main legal and regulatory barriers that may be preventing the private sector from providing electricity in the ZNIs, identifying specifically what aspects and which national or regional authorities should take action to adjust the regulatory and legal frameworks. This analysis must differentiate ZNI areas (accessible areas or areas without any coverage, and characteristics of each of them).

- Examine the institutional and regulatory implications of promoting a technology replacement in ZNIs where current power supply is based on diesel. Describe the implications for the fuel supplier, the technology supplier, the service provider, local governments, and national authorities.
- 4.5 **Component 3.** Development of methodological approaches and protocols to monitor results and benefits of the financing strategy, including:
- Proposal of specific methods to collect, sample and maintain data relevant for assessing the impact of estimate each financing strategy (e.g. investments, GHG reductions) within the Bancóldex system.
 - Electronic/banking system/registry to ensure continuous monitoring and indexing of information related to investments, technology, project performance, and emission reductions of each project supported.
 - Training and support to ensure continuous data gathering and maintenance.
- 4.6 **Component 4.** Design of the activities to promote and structure the demand for finance by bankable projects and to address non-financial barriers. Specific results of the activities supported under this component are:
- A detailed design of the organization, strategy and action plan required for the implementation of the program; coordination and dissemination efforts with relevant market players (including relevant public authorities, LFIs, technology providers, energy service providers, and provide sector investors).
 - A detailed promotion strategy to promote outputs and disseminate knowledge of the above components and activities to key market participants (including LFIs, private investors, and energy service providers).
- 4.7 Individual consultants will be hired to support the activities stipulated in components 2, 3 and 4. The consultants will support Bancóldex with the specific technical capacity and with the coordination of the activities during the conceptualization of the program. Also, they will support the design of risk transfer mechanisms, the program’s promotion strategy, the program’s impact evaluation methodology, and the coordination and dissemination efforts with relevant market players. The execution of these components will also entail the cost of organizing events needed to consult with relevant market players (such as technology providers and potential clients) on the specific requirements and conditions of the financing strategy.

Indicative Results Matrix

	Unit	Baseline		Year 1		Expected Completion Date	Data Source
		Value	Year	Planned	Actual		
Component 1: Market assessment and financing line designed	#	0	2015	1		11/01/2015	IDB Systems
Component 2: Legal and institutional arrangement developed	#	0	2015	1		11/01/2015	IDB Systems
Component 2: Regulatory Framework developed	#	0	2015	1		11/01/2015	IDB Systems
Component 3: Protocol and verification methodology designed and operational.	#	0	2015	1		12/01/2015	IDB Systems
Component 3: Clients and technology providers that engage in the program	#	0	2015	8		01/01/2016	IDB Systems & Survey

- 4.8 The total amount of this operation is US\$240,000, with US\$200,000 from CTF resources and US\$40,000 of in-kind counterpart resources from Bancóldex.

Indicative Budget

Activity/ Component	Description	IDB/CTF Funding	Counterpart Funding*	Total Funding
Component 1: Operational instruments to promote the lending program	Technical studies on technologies, financing conditions and legal and institutional arrangements	50,000	10,000	60,000
	Proposal of financial and non-financial mechanism	20,000	5,000	25,000
Component 2: Regulatory framework	Regulatory framework	40,000		40,000
Component 3: Methodology to monitor and assess impacts and benefits	Methodology development	35,000	5,000	40,000
	Electronic / information system requirements	30,000	10,000	40,000
	Dissemination and promotion plan and execution mechanism for CO-L1161	25,000	5,000	30,000
TOTAL		200,000	40,000	240,000

* In-kind resources from Bancóldex: Counterpart resources will consist on staff time, facilities for the development of planned promotional workshops and events, and office space for the consultants supporting the design of the different products envisioned under this TC.

- 4.9 The administrative and technical supervision of the proposed technical assistance program will be under the responsibility of IFD/CMF and ENE/CCO. The team will conduct a Project Completion Report (PCR), to be carried out 6 months after the end of the execution period.
- 4.10 The funding for this operation will be used to hire the services of experts to implement components 1-4 above; to pay for logistics and travel costs. Any contracting will be undertaken following the current Bank's policies and procedures. The contracting of individual consultants will be done following the policies of the Human Resources Department of the Bank.

V. Executing agency and execution structure

- 5.1 It is appropriate for the IDB to directly execute this TC since it should focus on a number of highly complex technical inputs which would feed into specific project preparation requirements from both the IDB and the CTF. The beneficiary and the Bank agree that the execution by the IDB would enhance the quality control of the studies and methodologies to be developed and would improve the efficiency and velocity in the execution of the technical cooperation and the design of the operation.
- 5.2 IDB execution would be carried out in accordance with GN-2629-1 and its Appendix 10. The Bank will contract individual consultants, consulting firms and non-consulting services in accordance with its current procurement policies and

procedures.⁸ A request from the beneficiary for the IDB to execute this TC is enclosed.

VI. Major issues

- 6.1 Given the technical complexity of the work proposed in this TC, there is a risk of not obtaining good quality results if the work carried out by consultants is not properly monitored. For this reason, peer reviewers will be asked to review the products developed. In addition, part of the project resources would be allocated to: (i) enhance the capacity of Bancóldex; and (ii) perform consultations with technical providers and potential clients before the final design/consultancy products are finalized, in order to ensure that they reflect concerns from key stakeholders and are of high quality (components 1, 2, 3, and 4).

VII. Exceptions to Bank policy

- 7.1 No exceptions to Bank policy are envisioned.

VIII. Environmental and Social Strategy

- 8.1 Based on the Environmental and Social Safeguard Filter, the proposed technical assistance has been classified as Category C. No potential negative environmental or social impacts of the TC were identified and therefore no mitigation strategy is required to address any impact.

Annexes (in Spanish) available on request:

- Annex I. Letters of Request and Non-Objection
Annex II. Terms of Reference
Annex III. Procurement Plan

⁸ The following procedures shall apply: (a) Individual Consultants – Human Resources procedures (AM-650) (b) Consulting Firms –the Policies for the Selection and Contracting of Consultants financed by the IDB (GN-2350-9) using e-Sourcing (c) Non-consulting Services –Corporate Procurement Policy and procedures (GN-2303-20)