

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**COLOMBIA**

**RENEWABLE ENERGY FINANCING PROGRAM FOR THE  
NON INTERCONNECTED ZONES**

**(CO-L1161)**

**LOAN PROPOSAL**

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<b>ABBREVIATIONS</b>	
Bancóldex	<i>Banco de Comercio Exterior de Colombia</i>
BOMT	Build, Operate, Maintain and Transfer
CAPEX	Capital Expenditures
CCLIP	Conditional Credit Line for Investment Projects
CO <sub>2</sub> e	Carbon Dioxide Equivalent
CONPES	National Council for Economic and Social Policy
CR	Credit Regulations
CREG	Regulatory Commission for Energy and Gas
CTF	Clean Technology Fund
DANE	National Administrative Department of Statistics
DNP	National Planning Department
EA	Executing Agency
ESMR	Environmental and Social Management Report
ESMS	Environmental and Social Management System
ESS	Environmental and Social Strategy
FAER	Rural Electrification Fund
FAZNI	Fund for Financial Support for Energy Access in the ZNIs
GCI-9	Ninth General Increase in the Resources of the Inter-American Development Bank
GHG	Greenhouse Gases
IDB	Inter-American Development Bank
IDEAM	Colombian Hydrology, Meteorology and Environmental Studies Institute
IFIs	Intermediary Financial Institutions
IPSE	Institute for the Planning and Promotion of Energy Solutions in ZNIs
kW	Kilowatts
MME	Ministry of Mines and Energy
MW	Megawatts
NPV	Net Present Value
OPEX	Operating Expenses
PCR	Project Completion Report
PERS	<i>Planes de Energización Rural Sostenible</i> [Sustainable Rural Electrification Plans]
PIEC	Indicative Plan for the Expansion of Electricity Coverage 2013-2017
PPP	Public Private Partnership
RE	Renewable Energy
SHP	Small Hydroelectric Plants
SIN	<i>Sistema Interconectado Nacional</i> [National Interconnected System]
SPF	Safeguard Policy Filter

<b>ABBREVIATIONS</b>	
SSPD	Superintendency of Public Utilities
TC	Technical Cooperation
UPME	Planning Unit on Energy and Mining
US\$	Dollars of the United States of America
ZNI	<i>Zonas No Interconectadas</i> [Non Interconnected Zones]

**PROJECT SUMMARY**  
**COLOMBIA**  
**RENEWABLE ENERGY FINANCING PROGRAM FOR THE NON INTERCONNECTED ZONES**  
**(CO-L1161)**

Financial Terms and Conditions				
<b>Borrower:</b> Banco de Comercio Exterior de Colombia S.A. (Bancóldex)			<b>Amortization Period:</b>	20 years
<b>Guarantor:</b> Republic of Colombia			<b>Disbursement Period:</b>	5 years
<b>Executing Agency:</b> Bancóldex			<b>Grace Period:</b>	10.5 years
<b>Source<sup>(a)</sup></b>	<b>Amount (US\$)</b>	<b>%</b>	<b>MDB Administration Fee (single payment):</b>	0.45%
<b>Clean Technology Fund (CTF):<sup>(b)</sup></b>	9.265 million	100	<b>Interest Rate:</b>	0.75% Fixed
<b>Total:</b>	9.265 million	100	<b>Currency of Approval:</b>	US Dollars
Project at a Glance				
<b>Project Objective/Description:</b> The goal of the program is to promote and increase private investments in Renewable Energy (RE) generation in the <i>Zonas No Interconectadas</i> [Non Interconnected Zones] (ZNIs) and isolated localities while reducing Greenhouse Gas (GHG) emissions. This would be achieved by providing long term financing with adequate conditions to private investors.				
<b>Special Contractual Clauses prior to the first disbursement:</b> As a condition prior to first disbursement, the executing agency should provide evidence, to the Bank's satisfaction, that the program's Credit Regulations (CR) have been approved and have entered into effect in accordance with the terms and conditions previously agreed upon with the Bank (see ¶3.4).				
<b>Exceptions to Bank Policies:</b> The Republic of Colombia will only guarantee all financial obligations; therefore it is proposed that a partial waiver to the Bank's policy on Guarantees required from the Borrower (OP-303) be approved by the Board of Executive Directors (see ¶3.1).				
Strategic Alignment				
<b>Challenges<sup>(c)</sup>:</b>	SI <input checked="" type="checkbox"/>	PI <input checked="" type="checkbox"/>	EI <input type="checkbox"/>	
<b>Cross-Cutting Themes<sup>(d)</sup>:</b>	GD <input type="checkbox"/>	CC <input checked="" type="checkbox"/>	IC <input type="checkbox"/>	

<sup>(a)</sup> These resources will be complemented by additional funding from loan 2949/OC-CO (see ¶1.32).

<sup>(b)</sup> See GN-2571, Proposal for the establishment of the Clean Technology Fund (CTF) in the Inter-American Development Bank.

<sup>(c)</sup> SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

<sup>(d)</sup> GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

## I. DESCRIPTION AND RESULTS MONITORING

### A. Background, Problem Addressed, Justification

- 1.1 **Characteristics of Colombia's Zonas No Interconectadas [Non Interconnected Zones] (ZNIs).** While Colombia has a high average electricity coverage index (96.1%),<sup>1</sup> it has about 60% of its territory not interconnected to the electricity grid, with about 1.8 million inhabitants relying on limited dispersed energy services generated mainly with diesel technology (96.3% of generation, see [Map 1](#)) resulting in about 375,650 tons of CO<sub>2</sub>e emissions a year,<sup>2</sup> which represents about 0,16 % of the total national greenhouse gas (GHG) emissions.<sup>3</sup>
- 1.2 The ZNIs<sup>4</sup> comprise more than 1,565 localities, most in rural areas (89%), with a majority low income population. The energy service provided in the ZNIs varies from one locality to another.<sup>5</sup> As shown in Table 1, while most users have access to 24hour energy (53.4%), a large number of users (in 45% of localities) have coverage limited to only a few hours a day (average of 6 hours). In addition, only 34% of population of the ZNIs has access to electricity services<sup>6</sup> (see [Map 2](#)).

**Table 1. Number of users and localities by energy service time in the ZNIs**

Service Time	Localities		Users	
	Quantity	Participation	Quantity	Participation
6 hr	652	45.0%	19,123	9.5%
8 hr	564	38.9%	48,190	23.9%
10 hr	120	8.3%	23,683	11.7%
24 hr	105	7.2%	107,829	53.4%
Not defined	7	6.0%	2,917	1.4%
<b>Total</b>	<b>1,448</b>	<b>100.0%</b>	<b>201,742</b>	<b>100.0%</b>

Source: Institute for the Planning and Promotion of Energy Solutions in ZNIs (IPSE), Database 2015.

- 1.3 Energy consumers in the ZNIs are classified as residential, official, commercial, industrial and other. Residential users are further classified by the National Administrative Department of Statistics (DANE) into six socio-economic strata,<sup>7</sup> based on the physical conditions of households and their productive capacity. Strata 1, 2 and 3 correspond to users with lower incomes and 5 and 6 with higher incomes. In the ZNIs, 84% of energy users are from stratum 1, accounting for

<sup>1</sup> Planning Unit on Mining and Energy (UPME). [Indicative Plan for the Expansion of Electricity Coverage 2013- 2017](#) (PIEC).

<sup>2</sup> Institute for the Planning and Promotion of Energy Solutions in ZNIs (IPSE), Database 2015.

<sup>3</sup> According to the Colombian Hydrology, Meteorology and Environmental Studies Institute (IDEAM) and the [Third National Communication on Climate Change](#), the total GHG emissions of Colombia in 2010 were 224 million tCO<sub>2</sub>e.

<sup>4</sup> ZNIs are zones defined in accordance with Article 1 of Law 855 of 2003. In addition to the ZNIs, there are localities that, while located in areas mapped by the government as connected to the *Sistema Interconectado Nacional* [National Interconnected System] (SIN), do not have access because of specific location or size.

<sup>5</sup> The electricity generating capacity in the ZNIs is distributed among 373 facilities, serving 1,448 locations: 5 department capitals, 39 municipal capitals and 1,404 minor localities. See Regulatory Commission for Energy and Gas (CREG) (2014). [Propuesta para remunerar el servicio de energía eléctrica en las áreas de servicio exclusivo de las ZNI](#).

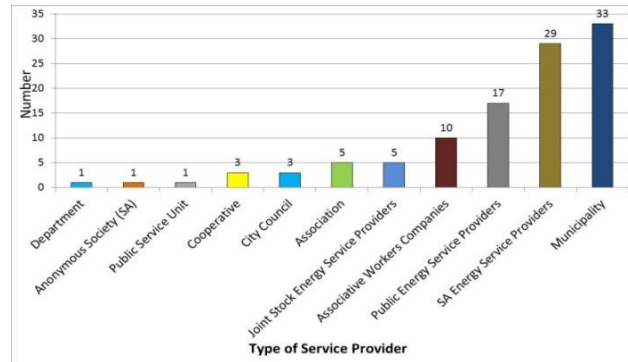
<sup>6</sup> According to the PIEC, 0.49 million households do not have access to any electricity services.

<sup>7</sup> DANE, [Estratificación socioeconómica para servicios públicos domiciliarios](#).

62% of the energy consumption in 2014; users from strata 4 to 6 (making up only 1.1% of users) consumed 4.3% of the energy generated in 2014.<sup>8</sup>

- 1.4 The Colombian Government estimates that it is not economically feasible to connect at least 28% of energy users in the ZNIs to the *Sistema Interconectado Nacional* [National Interconnected System] (SIN), given the large geographic extent of the area, and the dispersion<sup>9</sup> and small size of communities in the ZNIs.<sup>10</sup> Initiatives to improve the quality of services provided in these areas -increasing energy coverage and promoting increased penetration of Renewable Energy (RE) sources- would still need to rely on mini-grid electricity generation or individual solutions. In addition to the localities in the ZNIs, there are a number of other localities and users that, while classified by the Colombian Government as interconnected to the grid, are currently not interconnected and might still rely on mini-grids as their size and location do not make it economically feasible to connect them.<sup>11</sup> The government estimates that ensuring 24-hour access to energy to all the population living in the ZNIs would cost about US\$1.217 billion, of which about 44% would be for investments in connecting localities to the SIN and the other 56% for investment in mini-grids in localities that could not be interconnected.<sup>12</sup>
- 1.5 The electricity service in ZNIs is provided by 94 registered operators,<sup>13</sup> half of which are limited liability companies with private or mixed capital, and the other half are public entities (see Figure 1 below). The size and formal nature of operators vary depending on the locality, with the 37 largest operators providing about 60% of the energy services to about 70% of energy users.<sup>14</sup> The same operators may generate, distribute and commercialize electricity.<sup>15</sup>

**Figure 1. Distribution of operators depending of their constitution**



Source: Superintendency of Public Utilities (SSPD), Database 2015.

<sup>8</sup> Superintendency of Public Utilities (SSPD), Database 2014.

<sup>9</sup> The population density of the ZNIs is 3,02 inhabitants per Km<sup>2</sup>.

<sup>10</sup> PIEC, op. cit.

<sup>11</sup> According to IPSE (2015), in addition to the localities classified by the government as ZNIs, about 534 (49,649 users) are classified as connected to the SIN but only the municipality capital has access to the grid.

<sup>12</sup> PIEC, op. cit.

<sup>13</sup> 94 of the 114 operators registered in the SSPD are enrolled in the Regulatory Commission of Energy and Gas (CREG).

<sup>14</sup> See [Analysis of Credit Demand for Investment in Renewable Projects In ZNIs](#).

<sup>15</sup> Article 74 of Law 143 of 1994.



- 1.6 Currently, delivery of electricity services in the ZNIs is based on a subsidized business model.<sup>16</sup> In most cases, operators depend on subsidies that cover the difference between the lower tariffs charged to strata 1 to 3 end users in the ZNIs and the tariff paid by end users of the same strata (socio-economic conditions and productive activity) in the SIN. Investments in generation, maintenance and distribution are often not commercially viable, with subsidies covering 30% to 80% of costs. These subsidies to strata 1 to 3, both in the ZNIs and SIN, cost the government an estimated US\$381 million<sup>17</sup> in 2008-2012.<sup>18</sup>
- 1.7 **Energy generation technologies used in the ZNIs.** Energy generation in the ZNIs relies mainly on diesel technologies (96%), followed by Small Hydroelectric Plants (SHPs) (2.8%), hybrid and photovoltaic systems, wind power and biomass.
- 1.8 Diesel energy installed capacity is of around 261.6 MW. The size and efficiency of the plants vary greatly, from about 1,075 plants of 100 kW or lower capacity (generating around 50 MW/h/year or less), to about 25 plants of more than 2 MW capacity (generating about 700 MW/h/year or more).<sup>19</sup> Four departments of Colombia (San Andres, Chocó, Nariño and Amazonas) account for 69.5% of the total operative capacity. In 2014, the total consumption of diesel was about 36.9 million gallons with emissions of 375,650 tons of CO<sub>2</sub>e.<sup>20</sup>
- 1.9 The costs of electricity services in the ZNIs are very high compared to the costs in the SIN (around US\$0.26 kW/h compared to US\$0.11 kW/h), mainly due to high Operating Expenses (OPEX) for energy generation resulting from the costs of fuel transportation (about 70% of diesel generation costs).<sup>21</sup>

**Table 2. Energy Service Costs in the ZNI and SIN**

<b>ZNI Average Unit Cost (\$/kWh)</b>	<b>0.26</b>
<b>Generation Costs (\$/kWh)</b>	0.22
<b>Distribution Costs (\$/kWh)</b>	0.02
<b>Commercialization Costs (\$/kWh)</b>	0.02
<b>Average Tariffs SIN (\$/kWh)</b>	<b>0</b>
<b>Stratum 1</b>	0.05
<b>Stratum 2</b>	0.06
<b>Stratum 3</b>	0.10
<b>Stratum 4</b>	0.12
<b>Stratum 5 y 6</b>	0.15
<b>Industrial and Commercial</b>	0.15

Sources: SSPD database, 2104 and tariffs from *Empresas Públicas de Medellín* in January 2014.

<sup>16</sup> The CREG determines costs of service delivery for the operators, taking into account specific localities, energy losses, capacity and availability of installed plants, energy demand, and minimum costs to cover customer needs.

<sup>17</sup> Ministry of Mines and Energy (MME) (2015). [Boletín Estadístico de Minas y Energía 2008-2012](#).

<sup>18</sup> MME (2015), op. cit.

<sup>19</sup> IPSE, Database, 2015.

<sup>20</sup> Data estimated based on databases from CREG, IPSE and SSPD.

<sup>21</sup> UPME.

- 1.10 As mentioned in ¶1.6, the high costs of generation are met largely through subsidies. Historically, subsidization has provided diesel generation with a comparative advantage over renewable sources of energy given that it covers the OPEX. While OPEX was much higher for diesel than for alternative RE technologies available,<sup>22</sup> the Capital Expenses (CAPEX) of diesel generation are much lower and require lower payback periods (about 2.5 years).
- 1.11 While the CAPEX for diesel generation requires an investment payback period of around 2.5 years, the CAPEX for RE alternatives in the ZNIs implies an investment payback period between 5 years (small hydropower, biomass) and 8 years (hybrid and solar) and would require financing with adequate grace and maturity periods and an interest rate lower than the internal rate of return of these projects.

**Table 3. Comparison of OPEX and CAPEX for diesel and alternative REs in the ZNIs**

Technologies	CAPEX (US\$/kW)	OPEX (US\$/kWh)
Diesel*	530	0.220
Hybrid Diesel + Photovoltaic	3,291	0.200
Photovoltaic	3,192	0.024
SHPs	3,448	0.021
Biomass	2,906	0.068

Source: IDB estimations of average expenses based on data from the Planning Unit on Mining and Energy (UPME), IPSE and exiting projects in the ZNIs.

\* The costs of diesel CAPEX are currently mostly covered by government support and OPEX from tariff and subsidy schemes.

- 1.12 **Renewable energy potential.** There is vast potential for expanded use of RE in the ZNIs. Existing analysis from the Planning Unit on Energy and Mining (UPME)<sup>23</sup> identifies high potential for increasing energy generation with hybrid and photovoltaic power generation<sup>24</sup> and with biomass<sup>25</sup> in most localities in the ZNIs; high potential for wind power generation<sup>26</sup> in La Guajira and San Andres; and for SHP<sup>27</sup> generation in the Andean Amazon Piedmont and in the Pacific region, close to mountainous areas.
- 1.13 The Colombian Government estimates that if the necessary incentives are put in place, investments in RE could rise to a 30% share of energy generation in the ZNIs by 2020.<sup>28</sup> The new development plan of the Colombian Government aims to increase installed capacity of RE in the ZNIs by 9 MW and by an additional 4 MW of hybrid generation by 2018.<sup>29</sup> In this context, a number of Colombian departments in the ZNIs are developing 15-year rural sustainable energization plans.<sup>30</sup> These plans identify specific opportunities for renewable energy capacity

<sup>22</sup> UPME (2012). [Acciones y retos para la energización de las ZNI en el país.](#)

<sup>23</sup> UPME (2012). Acciones y retos para la energización de las ZNI en el país.

<sup>24</sup> UPME-IDEAM (2005). [Atlas de Radiación Solar de Colombia.](#)

<sup>25</sup> UPME-IDEAM-COLCIENCIA-UIS (2010). *Atlas del Potencial Energético de la Biomasa Residual en Colombia.*

<sup>26</sup> UPME-IDEAM (2006). [Atlas de Viento y de Energía Eólica de Colombia.](#)

<sup>27</sup> UPME. [Mapa de Recursos Energéticos Renovables. Mapa de Potencial Hídrico.](#)

<sup>28</sup> MME (2010). [Programa de Uso Racional y Eficiente de Energía y Fuentes No Convencionales.](#)

<sup>29</sup> National Planning Department (DNP) (2014). [Bases del Plan Nacional de Desarrollo 2014-2018.](#)

<sup>30</sup> UPME (2015). [Planes de Energización Rural Sostenible](#) (PERS).

and investments. Two departments (Nariño and La Guajira) have already submitted plans, while several others (Tolima, Chocó and Cundinamarca) are in the process. Already, these plans indicate about 26 projects in renewable technologies with a potential US\$9 million in investments.

- 1.14 Addressing government goals of increasing the share of RE in the ZNIs, the Ministry of Mines and Energy (MME) through the Regulatory Commission for Energy and Gas (CREG) is developing a resolution to propose a new tariff scheme, remuneration and investment requirements in the ZNIs, granting future RE investments conditions similar to those currently granted to diesel generation.<sup>31</sup> Following directives from the MME as laid out in Decree 1623 of 2015, this new tariff methodology, expected to be approved before the end of 2015, should make RE investments in the ZNIs more attractive by compensating the difference in subsidies covering OPEX between diesel and renewable energy.
- 1.15 An [Analysis of Credit Demand for Investment in Renewable Projects In ZNIs](#) undertaken in preparation of this program<sup>32</sup> shows that there would be need for financing to cover investments of at least US\$241 million by 2040 (or US\$28 million between 2016 and 2020 under the current regulatory framework), averaging US\$2.3 million per project, replacing up to 75.8 MW of diesel generation with RE, made up of around 30% hybrid solar-diesel, 30% solar, 20% SHP and 20% biomass generation. The analysis also confirmed, through surveys and interviews with operators and technology providers, that the lack of long-term credit in adequate conditions to cover CAPEX is the most important barrier to investments in RE in ZNIs.
- 1.16 **Private sector investments in RE generation in the ZNIs.** A large part of the investments undertaken to install energy generation in the ZNIs are public. Private sector investment in mini-grids using RE generation in the ZNIs is very low (9.4% of total investments in energy generation in the ZNIs).<sup>33</sup>
- 1.17 To increase private sector investments in the ZNIs,<sup>34</sup> the Colombian Government has developed regulations<sup>35</sup> allowing establishment of concessions for generation, distribution and commercialization of electricity in exclusive service areas in the ZNIs. The government delegated responsibility to the MME to develop these concessions,<sup>36</sup> which aim to increase energy service coverage in the ZNIs as well as improve the quality of services provided (i.e. number of hours of energy available), that should benefit from specific tariff and contractual conditions.<sup>37</sup> Two such exclusive service areas are already operating in the

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<sup>31</sup> CREG's Resolution 004 of 2014. See also Analysis of Demand for Credit, op. cit.

<sup>32</sup> The demand analysis was made considering operators and technology providers who were identified as having credit history, of private or mixed capital, operating in localities with more than 10 hours energy generation and having interest in investing in RE in the ZNIs.

<sup>33</sup> This percentage is the relation between private and public investments in the infrastructure of ZNIs during the period 2010-2013 (calculated based on data from FAZNI, 2015).

<sup>34</sup> Document [CONPES 3108](#), April 2001.

<sup>35</sup> Article 40 of Law 142 of 1994 and Law 143 of 1994.

<sup>36</sup> Article 65 of Law 1151 from 2007.

<sup>37</sup> CREG, Resolutions 095 of 2008 and 027 of 2014. See also [Analysis of the Colombian Framework for Concessions in the ZNIs](#).

departments of San Andres, Providencia and Santa Catalina, and Amazonas<sup>38</sup> for a period of twenty years. These two initial exclusive areas have so far provided incentives for investments, raising renewable energy sources to at least 10% of energy generation capacity through investments in wind power and waste-to-energy projects in San Andres and Providencia, and in hybrid and solar power in Amazonas. In addition to initial infrastructure investments, the concessionaires are expected to renew investments every five years. The MME plans to expand the exclusive areas to other departments of the ZNIs,<sup>39</sup> in particular in the region of the Pacific Coast, as part of the [Indicative Plan for the Expansion of Electricity Coverage 2013- 2017](#) (PIEC).

- 1.18 In addition to the concessions, private investment in energy generation can come from an existing energy generation operator, as long as its service contract with an energy distributor and local authorities provides for the necessary incentives to repay the investments through tariffs<sup>40</sup> and related subsidies. Energy technology providers may participate in such investments if they choose to generate energy in the ZNIs or to join with existing operators. Colombia has recently developed a Public-Private Partnership (PPP) law<sup>41</sup> that enables private investors to propose new public service investments to the government. The PPP law would still need adjusted decrees to apply to the ZNIs.<sup>42</sup>
- 1.19 As mentioned in ¶1.10 and ¶1.11 above, the CAPEX and payback periods for investing in RE in Colombia are relatively high and require financing at appropriate terms and maturities. Currently, the local Colombian financial system does not offer investment finance at maturities greater than five years.<sup>43</sup> Specifically: (i) for bank liabilities, average maturity is less than one year; and (ii) for bank assets, the average maturity of local currency loans for productive investments is around two years.<sup>44</sup> In addition, Intermediary Financial institutions (IFIs) lack capacity to market, analyze and structure RE deals, are uncertain about their returns and losses, and often require guarantees of debt repayment.<sup>45</sup>
- 1.20 **Government initiatives and regulatory framework.** Initiatives to promote concessions and private investments in the ZNIs and to create more attractive tariff conditions are part of a broader ongoing effort by the Colombian Government to increase energy access in the ZNIs, reduce operational costs, and promote cleaner energy generation. The institutional framework for the

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<sup>38</sup> UPME-PIEC (2010). [Desarrollo de Esquemas de Gestión para ZNI](#).

<sup>39</sup> MME's Decree 1623 of 2015 establishes policy directives for increased access within the SIN and the ZNIs mandating that expanded access in ZNIs should be achieved through energy solutions provided by qualified network operators or business associations such as those set out as exclusive service areas.

<sup>40</sup> Article 10 of Law 142 of 1994 and Law 143 of 1994 provide for the liberty of private companies to invest and provide public utilities if they meet local law requirements. See also Analysis of the Colombian Framework for Concessions, op. cit.

<sup>41</sup> DNP (2013). [Asociaciones Público Privadas en Infraestructura en Colombia](#).

<sup>42</sup> See Analysis of the Colombian Framework for Concessions, op. cit.

<sup>43</sup> IDB (2015). [Colombia's Financial Sector Assessment](#).

<sup>44</sup> According to data from the financial system and information from Bancóldex.

<sup>45</sup> Three commercial banks (representing 5.5% of Colombia's financial intermediation) and another four leasing companies would be interested in providing credit for renewable energy investments in the ZNIs if they could raise financing on adequate terms and conditions and if the contractual conditions and business models would ensure credit repayment. See Analysis of Demand for Credit, op. cit.

provision of energy services to the ZNIs in Colombia is mainly provided by the Constitution and Laws 142 and 143 of 1994. The sector is governed at the policy level by the MME and the Institute for the Planning and Promotion of Energy Solutions in ZNIs (IPSE). The MME is in charge of policy formulation, the definition and application of subsidies, and overall coordination of government entities and their relationship with public utilities and private companies. The MME has the technical support of the UPME, which formulates the indicative planning to achieve near universal electricity access for interconnected areas and 75.5% coverage for ZNIs by 2019 (up from a baseline of 95.1% and 45.5%, respectively in 2010).<sup>46</sup> UPME also actively promotes awareness and knowledge of non-conventional renewable energy.

- 1.21 IPSE's objectives are to identify, promote, develop and implement energy solutions via organizational arrangements to bring electricity to the ZNIs efficiently and sustainably. Toward this end, IPSE carries out the directives of MME by working closely with public service providers in the ZNIs. IPSE also facilitates the use of two dedicated funds,<sup>47</sup> the Financial Support Fund for ZNIs (FAZNI) and a Rural Electrification Fund (FAER), to provide technical cooperation and finance the expansion of new generation infrastructure, particularly for the population in the ZNIs that have no access to energy. These funds have supported most of the generating capacity in ZNIs and connections to the SIN, allocating US\$100 million a year to these activities.<sup>48</sup>
- 1.22 In addition to the concession regulations and CREG resolutions mentioned before, the government has adopted Law 1715 of 2014 which regulates the integration of non-conventional RE to the national system. This law defines a legal framework and instruments to promote non-conventional RE, under which a number of additional incentives for RE investments are currently being developed (such as specific tax exemptions). Finally, MME Decree 1623 of 2015 establishes policy directives to increase access within the SIN and the ZNIs mandating that expanded access in ZNIs should be done by energy solutions provided by qualified network operators or business associations.
- 1.23 **Problem to be addressed by the program.** As explained in ¶1.12, the ZNIs provide large potential for replacement of diesel generation by RE and hence GHG reductions.<sup>49</sup> In spite of government initiatives, most of the installed energy generation capacity in the ZNIs remains based on diesel. While some of the business models to promote private sector engagement in investing in the ZNIs, such as the exclusive service areas, are promising, private sector investments in the ZNIs, particularly in RE generation, are still low. This has to do with the differences on cash flow profiles between diesel and renewable technologies and the financing conditions available in the Colombian markets. Diesel has much lower CAPEX than a corresponding RE. At the same time, the former presents

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<sup>46</sup> PIEC, op. cit.

<sup>47</sup> Funded with resources from a fee on the power generated as well as power transmitted.

<sup>48</sup> Other types are municipal utilities, electric companies, user associations, mixed ownership companies, cooperatives, states.

<sup>49</sup> If the Colombian Government plans to increase the RE share to 30% in the ZNIs over the next 25 years were attained, about 3.48 million tons of CO<sub>2e</sub> emission reductions could be achieved. See Analysis of Demand for Credit, op. cit. and [Program Fit with CTF Investment Criteria](#).

- much higher OPEX than the latter.<sup>50</sup> If the financial market offered reasonable funding opportunities for long term projects, operators could be induced to switch from low upfront investment diesel into high RE investments. However, current conditions do not provide medium and long term financing at reasonable rates. This, added to the still incipient regulatory environment for private sector investments in RE in ZNIs, explains in large part operators' preference for diesel solutions. This problem is aggravated by the lack of familiarity with investments in RE technologies and potential contractual arrangements that could ensure financial return from RE solutions by the IFIs and the operators.
- 1.24 **Program justification.** The proposed program will provide Bancóldex, Colombia's second tier public bank in charge of supporting entrepreneurial development, with additional long term finance<sup>51</sup> to enhance access to long term finance by private sector investors in terms and conditions needed to cover CAPEX and payback requirements of RE projects in the ZNIs through on-lending to IFIs that should in turn provide sub-loans in adequate terms to these investors.
- 1.25 As mentioned in ¶1.20 to 1.22, the government is currently focusing on optimizing the structure of tariffs and subsidies to also address more fairly the treatment of OPEX for different technologies. While the proposed program would mainly address barriers relating to the investments in CAPEX and would not have the regulatory changes as a condition, the successful implementation of these changes will have an important impact on the replicability and scalability of the program.
- 1.26 Given its size, this program is intended to promote a pilot financing model that could be further replicated in the ZNIs. In order to ensure replication potential and higher environmental benefits, the program will focus on providing access to long term finance to energy generation operators and technology providers<sup>52</sup> that already have a credit history and experience with mini-grids and investments in areas not interconnected with the grid<sup>53</sup> (see also [Program Fit with CTF Investment Criteria](#)). Furthermore, it is expected that eligible projects would mainly replace both installed and projected increases in diesel capacity<sup>54</sup> in areas with the highest concentration of users; and that the financing of RE<sup>55</sup> mini-grids would focus on technologies with the highest potential for replication (i.e, hybrid

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<sup>50</sup> As mentioned in ¶1.14, the new tariff methodology to be applied by CREG to the ZNIs should make RE projects more attractive as they would benefit from similar conditions as those offered to diesel projects. The main difference with regards to costs would however still be CAPEX. See: Analysis of Demand for Credit, op. cit.; and UPME, 2014, [Acciones y retos para la energización de las ZNI en Colombia](#).

<sup>51</sup> More than two years.

<sup>52</sup> Technology providers that would, in addition to providing the technology, be investing and generating energy or participating directly in arrangements to generate energy (for more details on arrangements with technology providers see also Analysis of the Colombian Framework for Concessions, op. cit.).

<sup>53</sup> An analysis of demand has identified 37 operators in the ZNIs and another 15 technology providers that would be investing in energy generation that would be eligible and interested in obtaining credit to invest in renewable energy in the ZNIs and in isolated localities classified as being part of the SIN but without access to the grid. See Analysis of Demand for Credit, op. cit.

<sup>54</sup> The project will focus on areas which already have at least 10 hours energy service available. It will consider installed diesel capacity and projected capacity in accordance with the PIEC.

<sup>55</sup> Renewable energy is defined in accordance with definitions from Law 1715 of 2014.

solar-diesel,<sup>56</sup> solar, SHP and biomass).<sup>57</sup> The specific conditions and operational guidelines of the program, described in detail in the [Credit Regulations](#) were designed based on the analysis of demand for credit conducted for the program (see ¶1.15).

- 1.27 To the extent that the program would result in increased investments in RE in the ZNIs, it would demonstrate that: (i) improving access to long-term finance at adequate terms and conditions stimulates private sector investments in RE; and (ii) investments in RE result in enhanced energy services in the ZNIs (increase in hours of electricity provided), which could in turn encourage operators to invest further in these types of technologies.
- 1.28 The program also would be expected to promote replicability and sustainability by reducing the perception of risk of IFIs investing in RE in the ZNIs and promoting that these institutions finance more RE projects over time. The fact that the program will be intermediated by Bancóldex, a second tier development bank, would ensure that the program's resources will be made available to most IFIs, which should promote higher capillarity and efficient allocation of resources.
- 1.29 In addition to providing financial conditions for IFIs and private sector firms to invest in RE minigrids, the replication of the program will also be ensured by supporting the promotion of technical cooperation activities to promote that private investors and IFIs have less perception of risks in these investments and apply a business model with guaranteed financial returns. For this purpose the program will be complemented with a separate Technical Cooperation (TC) project presented jointly with this program to the CTF.<sup>58</sup> In particular, this TC would support: (i) identification and promotion of business and contractual models that could ensure payments for the energy generated are sufficient to promote return on investments and address eventual investment risks; (ii) capacity building efforts with the IFIs and the program beneficiaries around opportunities relating to eligible RE technologies; (iii) monitoring and evaluation of the program results and impacts; and (iv) ensuring that any environmental and social risks associated with financed activities are addressed.
- 1.30 According to the analysis of demand for credit, the program would be expected to finance about 12 projects with a capacity of around 732 kW each, totaling an installed RE capacity of 8.79 MW. This in turn should result in emission reductions of about 42,074 tons of CO<sub>2</sub>e per year, or about 1,068,460 tons of CO<sub>2</sub>e over the lifetime of the projects (around 25 years).
- 1.31 Considering that the investments would be carried-out mostly by operators and technology providers that are medium enterprises, the rationale for the intervention follows from the link between the availability of external financing<sup>59</sup>

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<sup>56</sup> Eligible hybrid projects will be financed in accordance with the Bank's [Liquid and Gaseous Fossil Fuel Power Plant Guidelines](#) (GN-2685) and will not increase diesel installed capacity.

<sup>57</sup> Eligible biomass projects will be limited to biomass from agricultural waste.

<sup>58</sup> Mitigation of Greenhouse Gas Emissions through Renewable Energy Projects in Non-Interconnected Zones (ZNIs) (ATN/TC-15364-CO) for US\$500,000 submitted along with the proposed program to the CTF for approval.

<sup>59</sup> As opposed to internally generated funds by a firm.

and investment. This link is discussed in the Support to SMEs and Financial Access/Supervision Sector Framework Document (GN-2768-3),<sup>60</sup> where the importance of the availability of financing for investment is discussed. However, the link between the provisions of loanable funds to be intermediated to medium enterprises becomes more relevant given the nature of the sector under consideration. In effect, the seminal work of Rajan and Zingales (1998),<sup>61</sup> established that sectors structurally more dependent on external financing benefit relatively more from increases in available credit; moreover, as noted by Rajan and Zingales (and confirmed by following papers replicating their methodology) the industrial sectors related to industrial machinery rank among the most highly structurally dependent on external financing. As explored in Brunnschweiler (2010),<sup>62</sup> there is an intrinsic link between the level of investments in renewable energy and the availability of financing. A number of case studies<sup>63</sup> of RE mini-grid generation in isolated communities have also shown that RE mini-grids can provide cost-competitive forms of electrification (per unit, calculated over the system's lifetime) with enhanced energy services (i.e. higher number of hours of energy service provided) and GHG emission reductions. Finally, the provision of long term financing to IFIs through second tier banks has also led to an increase in the terms and maturities offered by the local financial markets allowing the scale up of private investments in technology innovation, as shown in other IDB Global Credit Loans with Bancóldex (see [Results of Impact Evaluations of Operations by Bancóldex](#)).

- 1.32 The need to expand the supply of longer term finance for private investments in RE is justified by diagnoses of and resulting lessons learned from the work undertaken by the Bank's Energy Division in collaboration with the Government of Colombia to support access to energy and water and sanitation infrastructure (projects CO-L1156 and CO-T1408,) identifying interest in access to financing from potential operators and technology providers and showing the need to promote energy generation solutions including combination of mini-grids and access to the grid, as in the case of Colombia's Pacific Area (as part of the

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<sup>60</sup> The link between external financing and investment is part of the causal link between external financing and productivity (although it should be clear that here we are not arguing the financing-productivity but financing-investment link).

<sup>61</sup> Rajan, R. G. & Zingales, L. Financial Dependence and Growth The American Economic Review, American Economic Association, 1998, 88, pp. 559-586.

<sup>62</sup> Brunnschweiler, Christa N. Finance for renewable energy: an empirical analysis of developing and transition economies. *Environment and Development Economics* 15.03 (2010): 241-274. The relevance of the argument is put forward when the study concludes that energy firms in less developed economies are largely dependent on external financing to realize new projects; in turn, external financing in these countries relies on the banking sector, as stock markets and venture capitalism are not well enough established to provide large-scale funding. However, the underdevelopment of the banking sector, in addition to specific renewable energy-sector problems such as high up-front and information costs and long lead times, hamper the emergence of RE entrepreneurs. It should be clear that these conclusions are largely supported by the data in Brunnschweiler (2010): financial intermediation, in particular commercial banking, has a significant positive effect on the amount of RE produced, and the impact is especially large when we consider non-hydropower RE such as wind, solar, geothermal and biomass.

<sup>63</sup> See [Léna, G., 2013. Rural Electrification with PV hybrid Systems: Overview and recommendations for further development. IEA International Energy Agency.](#) OFID, 2014. The mini-grid option: Lessons learned and factors of success. Vienna: Sustainable Energy For All. [Solar-diesel Hybrid Options for the Peruvian Amazon. Lessons Learned from Padre Cocha](#), ESMAP 2007. A New Scheme for the Promotion of Renewable Energies in Developing Countries. Case study Ecuador. EU Commission PV Technology Platform, 2008.



current government initiative [Plan Todos Somos Pazcífico](#)) and San Andres and Providencia (see project CO-L1119 and TC ATN/TC-14531-CO). The program will also consider lessons learned in effectively intermediating financing to promote private investments in technology innovation and productivity from several previous loan operations with Bancóldex (2080/OC-CO, 2193/OC-CO, and 2949/OC-CO)<sup>64</sup>, including the importance to promote credit demand and support structuring a pipeline of bankable projects to ensure effective program execution (2983/TC-CO, 3003/TC-CO). The program will, also integrate ongoing initiatives with Bancóldex, including loan 2949/OC-CO, and three TCs to support Bancóldex in developing and implementing environmental and social strategies and promoting dedicated financing lines for energy efficiency and sustainable business (ATN/SU-12012-CO, ATN/OC-12210-CO and ATN/OC-12718-RG). Lastly, the program will also be coordinated with other current Bank initiatives to promote grid electrification (project CO-L1119) and renewable energy (TC ATN/TC-14531-CO) in Colombia, in particular with the project Comprehensive Intervention Plan for the Pacific Region of Colombia (CO-L1156 and CO-T1408).

- 1.33 The program is also aligned with a series of initiatives and policies from the Colombian Government. In particular, it will support commitments under the [National Development Plan 2014-2018](#) to: (i) consolidate national coverage, by providing 24-hour service in the larger municipalities and localities of the ZNIs; (ii) boost schemes for power generation from non-conventional sources of energy and hybrid systems; and (iii) implement economically efficient electricity generation systems in ZNIs and in areas of difficult access, according to the [Plan of Electrification of Non Interconnected Zones](#). In addition, Article 178 of the National Development Plan creates an independent fund for the Pacific Region.<sup>65</sup> The program is aligned with this government initiative to increase access to energy, water and sanitation infrastructure in the Pacific area of Colombia, and should complement current efforts by the Bank's Energy and Water and Sanitation Divisions.
- 1.34 **The Country Sector Strategy.** In addition to being aligned to the National Development Plan of Colombia, the program is aligned with the IDB Country Strategy with Colombia (2015-2018) (GN-2832), as it supports financing to the private sector (see ¶4.9); and access to energy services (see ¶4.51 and ¶4.52).
- 1.35 **Strategic alignment.** The program is consistent with the Update to the Institutional Strategy (UIS) 2010-2020 (GN-2788-5) and is aligned with the development challenges of: (i) social inclusion and equality, directly, given that the program is supporting the development and provision of sustainable energy services in areas not interconnected to the grid;<sup>66</sup> and (ii) productivity and innovation, directly, by promoting and supporting the use of modern, efficient, and sustainable technologies for energy generation. The program is also aligned with the cross-cutting theme of climate change and environmental sustainability,

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<sup>64</sup> See [Results of Impact Evaluations of Operations by Bancóldex](#).

<sup>65</sup> See [Fondo para el Desarrollo del Plan Todos Somos Pazcífico](#).

<sup>66</sup> Also, as mentioned in ¶1.4 most of the population (84%) in the ZNIs belongs to stratum 1. The program's expected results of better energy services and an increase of hours of energy available in the ZNIs is likely to improve local living conditions (see also ¶1.35 and [Program Fit with CTF Investment Criteria](#)).

through the use of CRF indicators, given the expected reduction in GHG emissions in ZNIs by the use of RE generation. Further, the program is consistent with Bank's priorities as set out in its Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy (see ¶1.3, ¶2.9 and ¶3.14 of GN-2609-1). The program is also aligned with the SME and Financial Access/Supervision Sector Framework Document (GN-2768-3)<sup>67</sup>, the Sustainable Infrastructure for Competitiveness and Inclusive Growth Strategy (GN-2710-5) and the Institutions for Growth and Social Welfare Strategy (document GN-2587-2).

- 1.36 The program is also aligned with the IDB Public Utilities Policy (GN-2716-6). As explained in detail in [Program Alignment with IDB Public Utilities Policy](#), the program: (i) has financial sustainability, since it will be operated through a second tier credit line for which IFIs will require that sub-projects are financially viable, which in turn also rely on a set of regulations on tariffs that ensure investments' returns; (ii) has economic sustainability, as shown in detail in the economic analysis of the program; (iii) is aimed to increase access to energy and aligned with the PIEC; (iv) is aimed to enhance quality of energy services and relies on a set of regulations and institutions that ensure that the energy generated would be serviced in an efficient and transparent manner; and (v) as shown in the Environmental and Social Management Report (ESMR), is expected to have small environmental and social impacts and will have a dedicated strategy to manage environmental and social risks.
- 1.37 **Gender and Diversity.** As mentioned in ¶1.3, most energy users in the ZNIs are from strata 1 to 3, made up of low income populations. Within the ZNIs in Colombia, the percentage of unsatisfied basic needs is 71%, whereas for the rest of the country it is 28%.<sup>68</sup> The ZNIs present high levels of diversity, with approximately 840,000 indigenous people of different ethnic groups<sup>69</sup> and 950,000 Afro-Colombians.<sup>70</sup> Most of the local communities rely on family and small businesses with women playing an important role.<sup>71</sup> Improved access to better energy services (i.e. increased installed capacity with more reliable services from RE) is expected to enhance the living conditions and gender equality of populations residing in the ZNIs.<sup>72,73</sup>

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<sup>67</sup> See in particular ¶1.23, ¶1.26 and ¶1.30.

<sup>68</sup> [E.E. Gaona n, C.L.Trujillo,J.A.Guacaneme. 2015. Rural microgrids and its potential application in Colombia](#)

<sup>69</sup> Distributed in the regions of Vaupés, Guainía, Amazonas, Vichada, Putumayo, Guajira, Cauca and Chocó.

<sup>70</sup> Distributed in the regions of Chocó, Archipelago of San Andrés, Providencia and Santa Catalina, Valle, Bolívar and Cauca.

<sup>71</sup> DANE. [Censo General 2005](#).

<sup>72</sup> According to the census of 2005 (DANE), about 50% of the population of the ZNI is composed by women. The International Network on Gender and Sustainable Energy has shown there is a number of gender related benefits from improving energy services quality and access in isolated communities, such as improved women living conditions because of access to appliances and improved health conditions, as well as women empowerment by providing more time and access to knowledge. See: Cecelski E. 2000. Enabling equitable access to rural electrification: current thinking and major activities in energy, poverty and gender. Proc. Brainstorming on Poverty Alleviation Women, Jan. 26–27, Washington, DC, World Bank. <http://www.energja.org> and Richter M, Meunier B. 1997. Accelerating Rural Electrification in Inner Mongolia with the Use of Wind and Solar Energy. Eschborn, Ger.: GTZ

<sup>73</sup> United Nations, [Millennium Development Goals and Beyond 2015](#).

## B. Objective, Components and Cost

- 1.38 **Objective.** The goal of the program is to promote and increase private investments in RE generation in the ZNIs and isolated localities<sup>74</sup> while reducing GHG emissions. This would be achieved by providing long term financing with adequate conditions to private investors.
- 1.39 **Program beneficiaries,** as referred to in ¶1.26, will be private sector operators<sup>75</sup> offering and managing public electricity services and renewable technology providers who already have a credit history and experience with mini-grids and investments in areas not interconnected to the grid.<sup>76</sup>
- 1.40 **Eligible projects,** as referred to in ¶1.26 and ¶1.31, eligible projects will include investments in RE<sup>77</sup> mini-grids with technologies such as hybrid solar-diesel,<sup>78</sup> solar, SHP and biomass<sup>79</sup> that would fulfill the environmental and social safeguards arrangements for the program as described in the [Credit Regulations](#).
- 1.41 **Single component.** The program's only component will be a US\$9.265 million long-term funding to Bancóldex, Colombia's public bank in charge of supporting entrepreneurial development, for on-lending to eligible first tier local financial institutions (IFIs) to provide sub-loans at adequate terms and maturity for the investment needs of eligible private sector firms interested in undertaking RE investment projects in the ZNIs (see [Program Operative Flow](#)).
- 1.42 Following the Clean Technology Fund (CTF) requirements for co-financing, the single component for the financing of individual RE projects funded with the proposed program resources will be complemented with resources (of up to US\$10 million) from an existing IDB loan with Bancóldex (2949/OC-CO).<sup>80</sup>
- 1.43 The program will be further complemented with a non-reimbursable TC from the CTF for US\$500,000 (ATN/TC-15364-CO - Mitigation Emissions of Greenhouse Gases by Renewable Energy Projects in ZNIs) to be presented jointly with the loan proposal to the CTF. As mentioned in ¶1.27 above, the TC will support the promotion of business and contractual arrangements that can ensure replication of the program, and support its overall execution, promotion, monitoring and evaluation, and social and environmental risk management.

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<sup>74</sup> As mentioned in 1.4, in addition to the ZNIs, there are, about 534 localities with 49,649 users that are not connected to the grid in municipalities that are classified as connected to the grid, but where only the municipal capital has access to the grid, IPSE of 2015.

<sup>75</sup> As mentioned in ¶1.31, most of the operators and technology providers identified are medium size enterprises. In accordance with Colombian law, medium enterprises are those with 51 to 200 employees and total assets of 5.001 to 15.000 legal minimum salaries.

<sup>76</sup> Areas with at least already 10 hours energy generation (considering installed diesel capacity and planned capacity according to the PIEC).

<sup>77</sup> Renewable energy is defined in accordance with definitions from law 1715 of 2014.

<sup>78</sup> Eligible hybrid projects will be financed in accordance with IDB's [Liquid and Gaseous Fossil Fuel Power Plant Guidelines](#) (GN-2685) and will not increase diesel installed capacity.

<sup>79</sup> Eligible biomass projects will be limited to biomass from agricultural waste.

<sup>80</sup> Loan 2949/OC-CO's objectives of providing medium and long term financing for investment projects are aligned with those of the proposed program. The US\$10 million allocated from this loan for co-financing will correspond to RE investment projects.

## C. Key Results Indicators

- 1.44 **Expected impacts of the program** are a reduction in GHG emissions in the ZNIs through the use of RE generation. Its intermediate outcomes are: (i) additional investment leveraged by the program beneficiaries; (ii) GHG emissions reduced by projects financed by the program; (iii) improved average hours of electricity provided to localities by RE projects; and (iv) greater renewable energy generation by program beneficiary firms compared to non-beneficiaries. The output is the amount CTF funds allocated to eligible projects (see Annex II, Results Matrix).
- 1.45 **Economic Analysis.** The [Cost Benefit Analysis](#) (CBA) is based on a comparison between the projected RE investments and the current diesel generation in the ZNIs. Based on this comparison, the CBA computes the expected additional savings from investing in RE with lower operation and management costs, and the expected value of reduced CO<sub>2</sub> emissions from RE plants. The central result indicates an expected Net Present Value (NPV) for the program of US\$32.87 million. The sensitivity analysis performed on key variables (participation of different types of renewable energies, increase in investment and operation and management costs) indicates that the program's NPV remains positive for a wide range of scenarios, based on a discount rate of 12%.

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing Instrument

- 2.1 **Origin and use of resources.** The proposed program will consist of a Global Credit Loan to be funded with US\$9.265 million from the Clean Technology Fund (CTF). The financing of individual RE investment projects from program resources will be complemented by the financing of innovation and mitigation of environmental impacts projects to be funded with resources (for up to US\$10 million) from IDB loan 2949/OC-CO, where Bancóldex is also the borrower and Executing Agency (EA).<sup>81</sup> Finally, the proposed program will also be complemented with a TC project (ATN/TC-15364-CO) funded with non-reimbursable CTF resources.
- 2.2 Program resources will allow Bancóldex to provide rediscount financing to eligible IFIs<sup>82</sup> which will in turn be able to provide sub-loans on adequate terms to eligible RE projects. The program's conditions will be set out in the CR.

### B. Environmental and Social Safeguard Risks

- 2.3 Based on Directive B.13 of the Environment and Safeguards Compliance Policy (OP-703), this operation is classified as a financial intermediary and as such is not categorized according to its potential environment and social impacts and

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<sup>81</sup> Loan 2949/OC-CO for US\$200 million (recently approved under CCLIP CO-X1007) seeks to strengthen the competitiveness of eligible firms through the financing of investment projects for: (i) innovation and technological development; and (ii) mitigation of environmental impacts.

<sup>82</sup> See [Colombia's Financial Sector Assessment](#).

risks. Because of the proposed concentration in small-scale off-grid RE, there is the potential for minor to moderate risks. These relate to small-scale construction, land use change, occupational health and safety, and GHG emission leakage. Bancóldex will apply an existing Environmental and Social Management System (ESMS) to identify, analyze, manage and monitor potential risks. The ESMS will be enhanced to address particular environmental and social risks in the context of these sub-loans.

- 2.4 In the context of this operation, the Bank will require Bancóldex, through the CR, to: (i) screen against the IDB's List of Excluded Activities for Non-Sovereign Guaranteed operations; (ii) comply with applicable Colombian environmental, social, health and safety, and labor regulatory requirements; (iii) develop, with IDB support, and apply a sector-specific checklist, and require a management plan in instances of high risk; (iv) implement a disposal protocol to avoid GHG emissions leakage; (v) exclude Category A sub-projects; and (vi) present an annual environmental and social compliance report, among others. Please refer to the [Environmental and Social Management Report \(ESMR\)](#) for additional information and requirements.

**C. Fiduciary Risk**

- 2.5 Fiduciary risks in financial and procurement management are low (see Annex III).

**D. Other Key Issues and Risks**

- 2.6 While there is sufficient demand for financing by private firms to invest in RE under this program (see [Analysis of Demand](#)), if the government's efforts to provide further incentives for private investments referred to in ¶1.20 to ¶1.22 were delayed, the replication potential of the program could be impacted, as this could reduce the attractiveness for operators to invest in RE in the ZNIs. To address this risk, the program will be developed in coordination with relevant national authorities, in particular the MME, CREG, IPSE and UPME. The replication of the program's pilot model could also be smaller than expected because of lack of knowledge of service providers in ZNIs or other potential private investors of the costs and returns of RE technologies. In order to ensure replicability and long term sustainability of the pilot model proposed by the program, it will be complemented by a TC operation (ATN/TC-15364-CO) to support knowledge gaps from firms and IFIs and promote contractual arrangements and other good practices to structure demand for credit with a pipeline of bankable projects.

### III. IMPLEMENTATION AND MANAGEMENT PLAN

#### A. Summary of Implementation Arrangements

- 3.1 The borrower and Executing Agency (EA) will be Bancóldex. The Republic of Colombia, as guarantor, will only guarantee all the financial obligations<sup>83</sup> derived from the loan contract to be entered into between the borrower and the Bank. Pursuant to OP-303 Guarantees from Borrowers, a joint and several guarantee (financial and performance obligations) from the governments is required, therefore it is proposed that a partial waiver to the Bank's policy on guarantees be granted. Bancóldex has the necessary fiduciary and operational capacity for the successful execution of the program, as it is governed by the Financial System Act and is subject to oversight and monitoring by the Superintendency of Finance. Also, it operates as a second-tier bank that uses a network of IFIs. Bancóldex has a long track record of implementing IDB operations, and the government has chosen it as one of the entities that will support its GHG emissions reduction efforts. Bancóldex is a solvent institution with exemplary risk management practices (see [Institutional presentation of Bancóldex](#) and [Bancóldex Credit Risk Management System](#)).
- 3.2 **Execution and Administration.** Bancóldex will implement the program under its current organizational structure, and will be responsible, among others, for supervising the adequate use of program financial resources and of the timely provision of human and technical resources necessary for implementation.
- 3.3 As mentioned in ¶2.6 the execution of the program will be carried out in close consultation with national authorities. The program's promotion will be undertaken in consultation with MME, IPSE and UPME to ensure that: (i) it complements PIEC planned activities; (ii) it takes into account opportunities identified under the *Planes de Energización Rural Sostenible* (PERS); and (iii) the financing complements government funds to increase access to energy (FAZNI) and to the SIN (FAER). Bancóldex will also maintain continuous follow up with MME, National Planning Department (DNP) and the CREG to ensure it takes into account any developments relating to expansion of service exclusive areas as well as the detailed development of regulations relating to energy tariffs in the ZNIs.
- 3.4 **As a condition prior to first disbursement, the EA should provide evidence, to the Bank's satisfaction, that the program's Credit Regulations (CR) have been approved and have entered into effect in accordance with the terms and conditions previously agreed upon with the Bank.**
- 3.5 The provisions governing program execution will be established in the CR, all in accordance with Bancóldex and Bank policies, Colombian laws, and practices in Colombia's financial industry. The CR will, among others: (i) reflect program

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<sup>83</sup> In accordance with the provisions set forth in Decree No. 2681 and in Article 40 of Law 80, the Republic of Colombia can only guarantee the financial obligations derived from loan contracts. Recently, this practice has been carried out for loans 2768/OC-CO, 2983/TC-CO, 3003/TC-CO and 2949/OC-CO.

characteristics; (ii) stipulate the conditions for the eligibility of participating IFI, sub-borrowers and sub-projects; and (iii) require the Bank's written no objection for future modifications.

- 3.6 IFIs subject to oversight and monitoring by the Superintendency of Finance may be eligible to participate in the program. Among other things, they will be responsible for: (i) evaluating sub-borrower's risk and making lending decisions in line with the CR and Bancóldex's operating regulations; and (ii) assuming responsibility vis-à-vis Bancóldex for the servicing and repayment of sub-loans, regardless of whether sub-borrowers meet their obligations.
- 3.7 **Disbursement.** The disbursement period of the program is five years. Modifications of such disbursement period shall be subject to the Republic of Colombia, as guarantor no objection. The Bank will disburse resources of the program using primarily the disbursement method of reimbursement. Disbursement requests by the EA must be accompanied by the list of eligible loans in accordance with the conditions established in the CR. The EA will receive the loan proceeds in US dollars in a single designated account and disbursements will correspond to already committed sub-loans.
- 3.8 Loan proceeds shall be committed by Bancóldex in favor of the sub-borrowers within a period of four years from the date of effectiveness of the loan contract. Additionally it shall be understood that the resources are committed from the date of effectiveness of the respective agreements between Bancóldex, the eligible IFIs and the eligible sub-borrowers. The EA shall use the proceeds of recoveries of sub-loans accumulated in excess of the amounts needed to service the loan, only for granting new eligible sub-loans. Fulfilled a period of five years from the original disbursement period and its extensions, the Bank and the borrower may agree other uses for such recoveries, provided that such use is compatible with the general objectives of the program.
- 3.9 **Financial statements.** The execution of resources and the eligibility of program expenditures will be audited annually by an independent auditing firm acceptable to the Bank, which will be contracted by Bancóldex, and which may be the same firm that audits the financial statements of Bancóldex (see Annex III).
- 3.10 **Procurement.** No procurement actions or consultant services are contemplated for the proposed loan. Sub-borrowers will use market procurement practices.

## **B. Summary of Arrangements for Monitoring Results**

- 3.11 **Reports.** The program will apply the standard procedures established by the Bank for monitoring and evaluation of investment operations, but will also be consistent with reporting obligations to the CTF.
- 3.12 The program will be monitored through annual reports prepared by the EA and presented to the Bank within 60 days after the end of each year of the program's implementation, measuring progress on the results indicators (Annex II), and on the fulfillment of the eligibility criteria at project and program levels.

- 3.13 **Evaluation.** The evaluation will be undertaken through an ex post cost benefit analysis (see [Monitoring and Evaluation Arrangements](#)). The borrower, in collaboration with the Bank, will conduct a midterm evaluation to identify potential areas for improvement in the operation, once 50% of the program funds allocated to eligible beneficiaries is committed. The evaluation will assess progress in accomplishing program objectives and outcomes based on the Results Matrix (Annex II) in order to identify any corrective action required. The borrower will provide the information necessary for the Bank to conduct a Project Completion Report (PCR), to be carried out six months after the last disbursement. Periodical monitoring meetings will also be scheduled.
- 3.14 **Information.** Bancóldex will compile and maintain all information, indicators and parameters, including all documentation required to prepare the PCR and any ex post assessment the Bank or the CTF may wish to conduct.



Development Effectiveness Matrix			
Summary			
<b>I. Strategic Alignment</b>			
<b>1. IDB Strategic Development Objectives</b>		Aligned	
Development Challenges & Cross-cutting Themes	<ul style="list-style-type: none"> <li>-Social Inclusion and Equality</li> <li>-Productivity and Innovation</li> <li>-Climate Change and Environmental Sustainability</li> </ul>		
Regional Context Indicators	-Greenhouse gas emissions (kg of CO <sub>2</sub> e per \$1 GDP (PPP))		
Country Development Results Indicators	<ul style="list-style-type: none"> <li>-Reduction of emissions with support of IDBG financing (annual million tons CO<sub>2</sub>e)</li> <li>-Micro / small / medium enterprises financed (#)</li> <li>-Installed power generation from renewable energy sources (%)</li> </ul>		
<b>2. Country Strategy Development Objectives</b>		Aligned	
Country Strategy Results Matrix	GN-2832	(i) Spur innovation and development in business and agriculture; and (ii) increase equitable access to quality basic services.	
Country Program Results Matrix		Document under revision.	
Relevance of this project to country development challenges (if not aligned to country strategy or country program)			
<b>II. Development Outcomes - Evaluability</b>			
	Evaluable	Weight	Maximum Score
	8.3		10
<b>3. Evidence-based Assessment &amp; Solution</b>			
3.1 Program Diagnosis	8.4	33.33%	10
3.2 Proposed Interventions or Solutions	3.0		
3.3 Results Matrix Quality	2.4		
3.3 Results Matrix Quality	3.0		
<b>4. Ex ante Economic Analysis</b>			
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis	10.0	33.33%	10
4.2 Identified and Quantified Benefits	4.0		
4.3 Identified and Quantified Costs	1.5		
4.4 Reasonable Assumptions	1.5		
4.5 Sensitivity Analysis	1.5		
<b>5. Monitoring and Evaluation</b>			
5.1 Monitoring Mechanisms	8.0	33.33%	10
5.2 Evaluation Plan	2.5		
5.2 Evaluation Plan	5.5		
<b>III. Risks &amp; Mitigation Monitoring Matrix</b>			
Overall risks rate = magnitude of risks*likelihood		Medium	
Identified risks have been rated for magnitude and likelihood		Yes	
Mitigation measures have been identified for major risks		Yes	
Mitigation measures have indicators for tracking their implementation		Yes	
Environmental & social risk classification		B.13	
<b>IV. IDB's Role - Additionality</b>			
The project relies on the use of country systems			
	Fiduciary (VPC/FMP Criteria)		
	Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
	Gender Equality	Yes	According to the census of 2005 (DANE), about 50% of the population of the ZNIs is composed by women. Most of the local communities rely in family and small business with an important role played by women. The International Network on Gender and Sustainable Energy has shown there is a number of gender related benefits from improving energy services quality and access in isolated communities, such as improved health conditions, improved living conditions for those women who are in charge of domestic work because of access to appliances and as well as women empowerment by providing more time and access to knowledge.
	Labor		
	Environment	Yes	In addition to the reduction of GHG emissions, the program is expected to result in a number of other environmental co-benefits: 1) elimination of risk of oil leakages and spills during transport of diesel to remote areas and operation of generators; 2) elimination of local air emissions such as particulates, NO <sub>x</sub> , SO <sub>x</sub> ; 3) in case of waste-to-energy biomass projects, significant gains in terms of correct waste disposal, reducing soil, surface and ground water pollution (especially from animal manure); 4) in case of solar projects, significant reduction in noise.
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project		Yes	Bancoldex has benefited from a number of TCs to support its capacity to develop and implement environmental and social strategies and promote dedicated financing lines for energy efficiency and sustainable business (ATN/SU-12012-CO; ATN/OC-12210-CO and ATN/OC-12718-RO). The proposed Program will benefit from an Environmental and Social Risk Management System developed through these TCs, as well as from institutional and human resource capacity that was developed in Bancoldex from the TCs. In addition the TCs have also helped Bancoldex to develop systems to track and monitor beneficiary projects and these systems will also serve as basis to develop further the system for the monitoring of the Program results.
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

Note: (\*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

The operation has a single component to be financed with USD 10MM from the Clean Technology Fund (CTF) and co-financing of up to USD 10MM from an existing loan with Bancoldex (2949/OC-CO). The goal of the program is to promote and increase private investments in renewable energy (RE) generation in the Non Interconnected Zones (ZNIs) and isolated localities while reducing Greenhouse Gas (GHG) emissions. This would be achieved by providing long term financing with adequate conditions to private investors. The problem diagnosis identifies that, due to the lack of long-term financing, operators are constrained to invest in diesel technologies over RE, because of the lower investment costs of this technology in spite of higher operating costs relative to RE. The vertical logic suggests that providing more adequate loan terms would facilitate RE investments, resulting in reduced GHG emissions. The operation will take place in geographic areas of Colombia with high levels of poverty.

The methodology for the ex ante economic analysis is technically solid. The counterfactual scenario assumes that without the project, diesel would remain the predominant energy generation technology in the ZNIs (though additional scenarios are considered in the sensitivity analysis). The benefits of investments in RE arise from two sources: (1) the reduction in greenhouse gas emissions due to the replacement of diesel; and (2) cost savings due to the lower operation and maintenance costs of RE technologies. The net present value (NPV) of the project is USD 33MM. The NPV remains positive for a number of different scenarios, such as changes in the distribution of RE technologies adopted thanks to the project, cost over-runs, both in capital and operating costs, a decrease in the price of CO<sub>2</sub> emission reductions, different counterfactual scenarios, among others.

The M&E plan provides sufficient means for monitoring the products and results of the project, and for measuring effectiveness. Data on project beneficiaries (about 13 energy operators) will be collected annually. In addition, data for a small sample of control firms will also be collected regularly. The M&E plan proposes to evaluate the ex post effectiveness of the project based on a cost-benefit analysis (CBA) that will replace ex ante assumptions with ex post data. The proposed approach has some limitations: (1) the small sample available will not permit inference tests, and (2) the proposed evaluation is less robust than an experimental or quasi-experimental impact evaluation; nevertheless, the proposed approach is considered adequate given the size and characteristics of this operation.

## RESULTS MATRIX

<b>Project Objective:</b>	The objective of the program is to promote and increase private investments in Renewable Energy (RE) generation in the Non-Interconnected Zones (ZNIs) while reducing Greenhouse Gas (GHG) emissions. This would be achieved by providing long term financing with adequate conditions to private investors.
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### EXPECTED IMPACT

Indicators	Unit	Baseline		Goals		Means of verification	Observations
		Value	Year	Value	Year		
<b>EXPECTED IMPACT</b>							
Greenhouse Gas emissions in ZNIs reduced by the use of RE generation.	Thousands of tCO <sub>2e</sub>	25.05	2016	67.9	2020	Source: IDB estimations based on program report from Bancóldex and ZNI generation coming from IPSE.	It is expected that the program will have a demonstration effect that will further promote RE investments in ZNIs. It is expected that this investments will partially replace current and planned diesel-fueled power generation.  The reductions will be calculated comparing the actual emissions against a scenario without program.

### EXPECTED RESULTS

Expected Results	Unit	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
<b>EXPECTED RESULT</b>									
Renewable energy generation by project beneficiary firms compared to non-beneficiaries.	GWh	9.4	2016	32.2	2018	47.6	2020	Source: Program report from Bancóldex and surveys to non-beneficiaries.	It is expected that the program will increase the RE generation beyond current levels in ZNIs. This indicator measures the difference in generation between beneficiaries and non-beneficiaries.

Expected Results	Unit	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
Average hours of electricity provided to localities served by RE plants.	Number	13	2016	14.4	2018	15.2	2020	Source: Program report from Bancóldex	It is expected that RE generation will provided more stable electricity production, either by replacing diesel generation or by helping overcome fuel shortages. The baseline is the average hours for the beneficiary ZNIs. <sup>1</sup>
Greenhouse Gas emissions reduced by projects financed by the program.	Thousands of tCO <sub>2e</sub>	25.05	2016	52.05	2018	64.9	2020	Source: IDB estimations based on program report from Bancóldex.	This indicator measures the cumulative emissions that are reduced due to the electricity generated by RE sources. <sup>2</sup> The baseline is calculated as the amount of emissions that are reduced by the current RE in ZNIs. The contribution of the program is the difference between the yearly reductions and the baseline. The source for this numbers is the estimations made in the Analysis of Demand included as an annex.

<sup>1</sup> The baseline come from IPSE data reported in the Market Demand Analysis. For the PCR's attribution analysis, the comparison group will consist of non-treated localities. The information will come from IPSE databases that contain information of hours of service for ZNIs localities.

<sup>2</sup> The numbers are calculated against a counterfactual scenario of 100% diesel generation. For the PCR's attribution analysis, the counterfactual will consider RE investments that were made outside the program.

Expected Results	Unit	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
Additional investment leveraged by the program beneficiaries.	US\$ million	0.03	2016	3.5	2018	8.7	2020	Source: Program report Bancóldex	It is expected that the program will leverage an approximate 30% of the total financing from private equity. The indicator measures the cumulative leveraged investment. The baseline of the indicator is calculated as the private equity funds that are required to leverage current RE generation in ZNIs. <sup>3</sup>

### PRODUCTS

Products	Estimated Cost (US\$)	Unit	Baseline	Year 1	Year 2	Year 3	Year 4	Final Goal	Means of verification
<b>Component I: Long-term funding to Bancóldex</b>									
Program funds allocated to eligible beneficiaries.	9.3 million	USD million	0 <sup>4</sup>	2.11	2.11	2.49	2.59	9.3	Source: Program report from Bancóldex

<sup>3</sup> As is explained in the POD and in the Market Demand Study Annex, there exist a market failure that impedes the existence of attractive long term financing for RE in the ZNIs. Therefore, the supplied credit for this type of investment is currently non-existent. The baseline reflects the required leverage needed to finance the current 3.5% of renewable energy in ZNIs.

<sup>4</sup> The baseline value reflects the current inexistence of long term financing for RE generation in the ZNIs. The Demand of Credit Analysis (see annex) conducted interviews with eligible operators and technology providers for the ZNIs that concluded that the inexistence of long term financing was one of the main reasons for the absence of investments in RE.

## FIDUCIARY AGREEMENTS AND REQUIREMENTS

**COUNTRY:** Colombia  
**PROJECT NUMBER:** CO-L1161  
**NAME:** Renewable Energy Financing Program for Noninterconnected Areas  
**BORROWER AND EXECUTING AGENCY:** *Banco de Comercio Exterior de Colombia (Bancóldex)*  
**PREPARED BY:** Mylenna Cárdenas García, Fiduciary Financial Management Specialist  
Gabriele del Monte, Fiduciary Procurement Specialist

### I. EXECUTIVE SUMMARY

- 1.1 Bancóldex is a second-tier financial institution with separate legal status, administrative autonomy, and its own assets, subject to oversight by the Superintendency of Finance, and associated with the Ministry of Trade, Industry, and Tourism (MCIT). It has experience executing Bank-financed programs and has demonstrated its capacity as an Executing Agency (EA) since 2008 through loan 2080/OC-CO for US\$100 million and loan 2193/OC-CO for US\$200 million, financed under the Conditional Credit Line for Investment Projects (CCLIP) approved in 2008 for US\$650 million (CO-X1007). It is currently executing loans 2949/OC-CO for US\$200 million, 2983/TC-CO for US\$10 million, and 3003/TC-CO for US\$40 million. Bancóldex has sufficient capacity for the financial management and administration of this program's resources. The fiduciary risk is low.
- 1.2 Given that Bancóldex is a national, semipublic enterprise and is not included in the General Budget of the Nation, it is not obliged to keep its accounts and perform its budgetary control in the Public Financial Management Systems (SGFP). Bancóldex uses a reliable, integrated system with online accounting, cash management, portfolio, and budget modules.
- 1.3 The amount financed by the Bank in this program is US\$9.265 million. The program does not include financing from other multilaterals, and it has a four-year disbursement period.

### II. THE EXECUTING AGENCY'S FIDUCIARY CONTEXT

- 2.1 Bancóldex uses a reliable, integrated AS-400 accounting system known as the Integrated Financial System (SFI) in which accounting, cash management, portfolio, and budget applications are online. It receives information from investment (Alfyn), T24, disbursement office (Caja), integrated system for

administrative services (SISA), cash management (COBIS), carryover of balances (PBO), and payroll (SRH) applications. It is used to maintain, manage, and monitor independent accounts for recording program resources, thereby facilitating their control and identification.

- 2.2 Bancóldex has well-defined policies, procedures, and processes, which was observed during the supervision of loans in execution, and its quality management system has ISO-9001 certification. Bancóldex's strengths include its qualified personnel, functional information systems, and clear and defined procedures for each of the planned activities. It also has technical personnel who have built up experience and years of service in each of the institution's areas, enabling it to ensure quality in its fiduciary and administrative processes, and responsibility and efficiency in the performance of its tasks.

### **III. FIDUCIARY RISK EVALUATION AND MITIGATION MEASURES**

- 3.1 No fiduciary risks were identified.

### **IV. CONSIDERATIONS FOR THE SPECIAL CONDITIONS OF THE CONTRACTS**

- 4.1 Financial management
- a. Approval and entry into force of the program Credit Regulations under term and conditions previously agreed upon with the Bank will be a condition precedent to the first disbursement of the loan.
  - b. The Bank will disburse the program resources in the form of reimbursements, although another disbursement modality may be used by mutual agreement with the Bank.
  - c. The exchange rate for reimbursement requests will be the rate on the effective date of payment.
  - d. Annual audited financial reports for the program and annual audited financial statements for the borrower will be required.
  - e. The program's fiscal year runs from 1 January to 31 December of each year.

### **V. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION**

- 5.1 A global credit program structure was adopted for procurements under this program. Thus, the lending resources will be disbursed according to the rules established in the program Credit Regulations, in the form of subloans made by private-sector intermediary financial institutions (IFIs). The subborrowers will conduct procurement processes in accordance with private-sector practices.

Bancóldex will not conduct procurement processes using proceeds from the Bank loan.

**A. Procurement execution**

5.2 In accordance with paragraph 3.12 of document GN-2349-9 of March 2011, Policies for the procurement of works and goods financed by the IDB, procurements in loans to IFIs onlent to sub-borrowers under another loan to finance subprograms may employ current private-sector practices, acceptable to the Bank, for the procurement of related goods and services. Adherence to the principles of quality, economy, efficiency, competition, and transparency is requested for these procurement procedures.

**B. Table of threshold amounts (US\$ thousands)**

5.3 Not applicable.

**C. Main procurements**

5.4 No procurements by the EA are envisaged, given that it operates as a second-tier bank.

**D. Procurement supervision**

5.5 In light of the nature of the operation, procurements will not be subject to review by the Bank.

**E. Special provisions**

5.6 Not applicable.

**F. Records and files**

5.7 The documentation regarding the subloans financed by the operation will be kept by the IFIs that review and approve the loan application. The IFIs therefore assume the entire credit risk and will be solely responsible for the task of portfolio monitoring.

5.8 At Bancóldex, the area responsible for maintaining the program files and records will be the International Banking Office of the Vice Presidency for Finance and Operations. The official disbursement request forms must be used for program report preparation and record-keeping, listing the subloans subject to reimbursement of expenditures.

## **VI. FINANCIAL MANAGEMENT**

**A. Programming and budget**

6.1 Bancóldex is a national, semipublic enterprise and is therefore not included in the General Budget of the Nation, i.e. its expenses are not defrayed with resources from the Public Treasury. Instead, it meets its expenses from the resources

generated by its operations as a credit establishment, and is therefore not subject to budget control within the SGFP. The institution's budget is structured according to the strategic action plan, which is used to plan the course of action on the business fronts for the year, with subsequent definition of investments per line (loan disbursement requirements) and operating expenses. These are met from internally generated cash flows, borrowings, and obligations acquired with financial institutions. It is worth noting that Bancóldex has clear policies for both budget preparation and monitoring, defined in the budget planning and management processes established within the Bancóldex value chain and approved by senior management. The budgets are approved by Bancóldex's Board of Directors for each fiscal year. Business forecasting (COGNOS PLANNING) and expenditure monitoring tools (COGNOS FINANCE) are used to monitor budget management. These tools also allow monitoring of the various investment lines and business units (DWH-Data warehouse). Budget execution is monitored by the Bancóldex president's committees and Board of Directors.

## **B. Accounting and information systems**

6.2 Bancóldex will be responsible for program accounting, which will be on an accrual basis, using a reliable, integrated system with online accounting and cash management applications. In recording its operations and preparing its financial statements, the institution follows the rules prescribed by Colombia's Superintendency of Finance and, for matters not addressed by those rules, Colombia's generally accepted accounting principles (GAAP) established by Decree 2649 of 1993. The program's audited financial statements will be prepared on a cash basis using information generated by the portfolio application, which identifies the loan-financed operations. In addition, Bancóldex has internal accounting policies, which are part of the integrated management system, and uses the financial sector's chart of accounts. This notwithstanding, for the process of convergence with the International Financial Reporting Standards (IFRS), pursuant to Decree 2784 of 2012, issued by the MCIT and Resolution 743 of 2013, issued by the Office of the Comptroller General, Bancóldex belongs to a group of financial institutions with special regimes, whose transition period began on 1 January 2015. Its first comparative financial statements under the new regulatory framework will be issued as of 31 December 2016. It should be noted that although the core of the system will initially follow Colombian GAAP, the systems will be adjusted, so that they can enter full operation in the indicated year with separate accounting based on IFRS.

## **C. Disbursements and cash flow**

6.3 The Bank will disburse the program resources in the form of advance of funds, although another disbursement modality may be used by mutual agreement with the Bank. Disbursement requests must be accompanied by the list of eligible loans according to the conditions established in the program Credit Regulations. Income from the loan is received in a single account corresponding to the recognition of loans previously made. The exchange rate for reimbursement requests will be the rate on the effective date of payment.



#### **D. Internal control and internal audit**

- 6.4 Bancóldex has an internal audit unit that reports functionally to the Audit Committee of its Board of Directors, and administratively to the Office of the President of Bancóldex. The institution has implemented the Standard Model of Internal Control (MECI 1000:2005) for government agencies, based on the global COSO standard, which is aligned and coordinated with the internal control system established by the Superintendency of Finance in its Basic Legal Circular. Bancóldex has a code of good corporate governance, an audit committee made up of three members of the Board of Directors, a policy on controls, a set of audit regulations, an audit manual, and an operations and quality manual. It also applies the standards of the Institute of Internal Auditors (IIA) in the performance of its work and currently has IIA certification. As subject to the oversight and control of the Superintendency of Finance, Bancóldex has the risk management methodologies and manuals required by law (market, liquidity, and operations risk, money laundering and financing of terrorism, as well as information security). Bancóldex's management delivers a report on evaluation management of the internal control system to the Board of Directors and the General Meeting of Shareholders, in compliance with the legal requirement of the Colombian Superintendency of Finance's external circulars 14 and 38 of 2009, incorporated into Title I, Chapter IX, Number 7, of the Basic Legal Circular.
- 6.5 Based on the principles of self-regulation, self-management, self-control, and continuous improvement, Bancóldex conducted an independent evaluation of its internal control system in 2014, yielding a satisfactory result. The institution's strengths include its commitment to maintain and continuously improve its internal control system and its zero tolerance policy for fraud. This demonstrates Bancóldex's responsibility in relation to the plans and directives proposed by the national government with regard to internal control and quality management, supplemented by the institution's risk management systems. Bancóldex has "Guidelines for lending and technical assistance programs with multilaterals and cooperation agencies" to describe the general activities within Bancóldex's lending and technical assistance programs with multilaterals and cooperation agencies, as a funding and/or financing strategy in line with its strategic framework, different credit lines offered, and expected client segments.

#### **E. External control and reports**

- 6.6 The execution of resources and eligibility of program expenditures will be audited annually by an independent, level 1 audit firm acceptable to the Bank, to be engaged by Bancóldex. The program auditor may be the same firm that audits Bancóldex's financial statements and those of the other programs in execution, which would optimize costs and give the firm a comprehensive view to oversee the EA and its program management. The auditor will report on the eligibility of program expenditures and confirm the existence of the promissory notes payable to Bancóldex and that the resources are channeled through the IFIs to the end sub-borrowers under the terms of the program Credit Regulations. Inspection visits will also be made to both the IFIs and the end sub-borrowers. Audit services will be financed with Bancóldex's resources. The audited financial statements for the program will be delivered to the Bank within hundred and

twenty (120) days following the close of the program's fiscal year, during the original disbursement period or its extensions, with the last of these reports to be presented within hundred and twenty (120) days following the closure of fiscal exercise of the year of the last disbursement date, in accordance with the procedures and terms of reference previously agreed upon with the Bank.

- 6.7 The Bank will request the Bancóldex's audited financial statements and supplemental financial information related to them during the program disbursement period, until all program resources have been disbursed. They will be delivered to the Bank within 120 days following the close of the Bancóldex's fiscal year, beginning with the fiscal year in which the program commences execution. The of these reports shall be presented within hundred and twenty (120) days following the closure of fiscal exercise of the year of the last disbursement date.

#### **F. Financial supervision plan**

- 6.8 The financial specialist will conduct at least one onsite review per year, in addition to desk reviews of the audit reports and disbursement requests. The auditor will confirm the existence of the promissory notes payable to Bancóldex, and that the resources are channeled through the IFIs to the end sub-borrowers under the terms of the program Credit Regulations. Inspection visits will also be made to both the IFIs and the end sub-borrowers. Visits for fiduciary supervision in financial management will include verification of the financial and accounting arrangements employed for program administration, tracking of implementation of any recommendations issued by the program's independent auditor, and other tasks.

#### **G. Execution mechanism**

- 6.9 The borrower and EA will be Bancóldex, which will be legally responsible to the Bank for payment of the debt, with the guarantee of the national government, and will conduct the program's technical and financial activities. Bancóldex will onlend the Bank loan proceeds to the IFIs through the usual rediscount facility employed by the institution, or another mechanism agreed upon with the Bank, at a market rate reflecting its financial costs of funds plus a spread to cover its operating costs. Bancóldex will be responsible for identifying and selecting eligible IFIs to participate in the program, as stipulated in the program Credit Regulations and its own policies and processes. The IFIs will freely establish the amount of the subloans, the nature of disbursements, the interest rate and fees, maturities, repayment frequency, and grace periods, based on a credit analysis of the subloans and the program's useful life. Bancóldex will be responsible for financial management.

#### **H. Other financial management agreements and requirements**

- 6.10 There are no agreements in addition to those described above. However, the fiduciary agreements and requirements included in this annex may be altered as the program progresses, based on Bank supervision.

**RENEWABLE ENERGY FINANCING PROGRAM FOR THE NON INTERCONNECTED ZONES**

**CO-L1161**

**CERTIFICATION (FINAL)**

I hereby certify that this operation was approved for financing under the Clean Technology Fund (CTF), through a communication dated November 6, 2015 and signed by Goritza Ninova, ORP/GCM. Also, I certify that resources from said fund are available for up to **US\$9,265,000** per commitment of funds by the CTF Trustee dated November 18, 2015 in order to finance the activities described and budgeted in this document. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

**[Original signed]**

**01/19/2016**

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Sonia M. Rivera  
Chief  
Grants and Cofinancing Management Unit  
ORP/GCM

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Date

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/16

Colombia. Loan \_\_\_/\_\_\_-CO to Banco de Comercio  
Exterior de Colombia S.A. (BANCÓLDEX)  
Renewable Energy Financing Program  
for the Non Interconnected Zones

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, as Administrator of the Clean Technology Fund, hereinafter the "Fund", to enter into such contract or contracts as may be necessary with Banco de Comercio Exterior de Colombia S.A. (BANCÓLDEX), as Borrower, and the Republic of Colombia, as Guarantor, for the purpose of granting the Borrower a financing to cooperate in the execution of a renewable energy financing program for the non interconnected zones. Such financing will be for an amount of up to US\$9,265,000, from the resources of the Fund, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on \_\_\_ \_\_\_\_\_ 2016)