

TC ABSTRACT

I. Basic Project Data

▪ Country/Region:	COLOMBIA/CAN - Andean Group
▪ TC Name:	Strengthening Colombian Institutional Capacity to integrate large scale non-conventional renewable energy.
▪ TC Number:	CO-T1501
▪ Team Leader/Members:	PLANAS MARTI, MARIA ALEXANDRA (INE/ENE) Team Leader; CARDENAS VALERO, JUAN CARLOS (INE/ENE); GIRALDO AYALA, ANDREA MARCELA (CAN/CCO); SUBER, STEPHANIE ANNE (INE/ENE); SEMINARIO, ANA CECILIA (ITE/ITE); MUSLIN, ELEE ISMAEL (INO/NFP); STREATFEILD, DAISY MARGARET JANE (CSD/CCS)
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	14 Nov 2018
▪ Beneficiary:	Ministerio de Minas y Energía de Colombia
▪ Executing Agency:	INTER-AMERICAN DEVELOPMENT BANK
▪ IDB funding requested:	\$ 1,000,000.00
▪ Local counterpart funding:	\$ 0.00
▪ Disbursement period:	36 months
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	Energy
▪ Unit of Disbursement Responsibility:	Country Office Colombia
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation ; Institutional capacity and rule of law; Environmental sustainability

II. Objective and Justification

- 2.1 The objective of the proposed Technical Cooperation is to support the Government of Colombia strengthen its institutional, technical and regulatory capabilities to ensure a smooth adoption of large scale Non-Conventional Renewable Energy in their electricity generation matrix. The Government has announced their intention of incorporating 1,500 MW of NCRE by the end 2022 from approximately 100 MW at present and requires important support and advice to adequately incorporate the new generation into their system and to ensure that the institutional and regulatory are in place. Per request of Colombian Government, this TC will be executed by the Bank.
- 2.2 Colombia has an installed capacity of 16,779 MW of which 69.6% are hydro and 29.4% thermal. Non-Conventional Energy Resources (NCER) represent less than 1% of the installed capacity on the interconnected system. The reliability of the system on hydrogeneration makes it highly vulnerable to extreme weather events such as the Niño . During periods of low hydrology, the risk of power supply shortages is significant with the associated impact to the country's economy as it must rely on expensive thermal generation .
- 2.3 In addition to the large hydropower potential, the country is endowed with abundant clean energy resources including wind, solar, geothermal and biomass that are mostly untapped and could be countercyclical to rain patterns. The risk of electricity shortages and the higher costs of electricity due to the reliance on thermal generation can be mitigated with the installation of NCRE. This would also bring important climate

change benefits by reducing emissions of CO₂ from the thermal plants, contributing to the country's Nationally Determined Contributions (NDCs), and enhancing the resilience of the system.

- 2.4 In recent years, the Government has introduced some important pieces of legislation and regulation that aim to promote the introduction of NCRE such as the Renewable Energy Law (Law 1715 of 2014 that promotes the development of NCRE and energy efficiency), Decree 0570 of March 2018 (providing policy guidelines for the long term contracting of NCRE) and associated resolutions (Resolution 40791 and 40795) that provide the guidelines for renewable energy auctions and announce the first renewable energy auction to be held at the beginning of 2019. Moreover, earlier this year, UPME completed the procurement of the construction and operation of a 500kV transmission line connecting La Guajira region, which it will allow the development of large wind projects.
- 2.5 Despite those positive signals, important institutional, regulatory, implementation, and risk mitigation barriers remain and if not properly addressed could hinder the development of NCRE. Suboptimal regulations for the auction market create important uncertainties. Therefore, it is important to strengthen the institutional and regulatory capabilities of the energy sector to ensure an optimal development of the NCRE in the country.

III. Description of Activities and Outputs

- 3.1 The TC will strengthen the institutional and regulatory capabilities of the energy sector to ensure an optimal development of the NCRE in the country by: (i) financing a study to create a new division/unit in the MME to be exclusively in charge of developing the renewable energy sources in the country; currently, in the MME corporate's structure the same division/unit oversees the policy development for fossil fuels and renewable energy, which could be conflicting for long term energy policies; (ii) promoting distributed generation base on NCRE, by designing regulation that allows the sale of surpluses for small scale self-generation to the system; (iii) designing market regulations and tools to allow a successful integration of variable energy sources to the grid; and (iv) ensuring that local communities' benefit from the NCRE projects developed in their regions, by designing a mechanism that transfer the taxes and royalties paid by the NCRE project owners to the local communities and environmental authorities.
- 3.2 **Component I: Institutional Support for the Development of NCRE** . This component will support the Ministry of Mines and Energy (MME), the National Planning Department, the Energy and Mining Planning Division (UPME), and the FENOGÉ strengthen their capacity to adequately promote and incorporate NCRE in the Colombian Electricity System. Studies and activities to be financed under this component include: (i) design and establishment of a renewable energy Directorate/Unit at the MME and (ii) design of the NCRE economic compensation mechanism.
- 3.3 **Component II: Integrating Variable Renewable Energies to the Colombian Grid.** This component will finance studies and capacity building activities needed to ensure that the planning and technical capabilities of the relevant agencies such as the Power Market Operator (XM), have the tools and skills required to adequately integrate the NCRE, especially large-scale wind and solar projects into the grid.
- 3.4 **Component III: Distributed generation with NCRE** . This activity will finance a study to support the design of regulation that promote distributed generation, especially through NCREs. The studies are necessary to evaluate the possible changes required in the provision of the electricity service by the network operators and the respective

regulation to open this segment of the supply chain to the distributed generation and the development of complementary services and innovation in this field.

IV. Budget

Indicative Budget

Activity/Component	IDB/Fund Funding	Counterpart Funding	Total Funding
Institutional Support for the Development of NCRE	\$ 600,000.00	\$ 0.00	\$ 600,000.00
Integrating Variable Renewable Energies to the Colombian Grid	\$ 150,000.00	\$ 0.00	\$ 150,000.00
Distributed generation with NCRE	\$ 250,000.00	\$ 0.00	\$ 250,000.00

V. Executing Agency and Execution Structure

- 5.1 By request of the Ministry of Energy and Mines and DNP and in accordance with Point D of Annex 10 of GN-2629-1 and Point D of Annex 10 of OP-1155-2, the TC will be executed by the IDB.
- 5.2 The Energy Division (INE/ENE) and the IDB Invest Infrastructure Department staff at IDB Country Office in Colombia (CAN/CCO) will be responsible for its execution. The Bank will contract individual consultants, consulting firms, and non-consulting services in accordance with the Bank's current procurement policies and procedures: (i) the individual consultants will be hired in accordance with the guidelines set out in the AM-650; (ii) the procurement process for consulting firms will follow the Bank Policy for the Selection and Contracting of Consulting Firms for Bank-executed Operational Work (GN-2765-1) and the related Operational Guidelines (OP-1155-4), and (iii) the procurement of non-consultant services will follow the Bank Corporate Procurement Policy (GN-2303-20).
- 5.3 In compliance with the Operational Guidelines for Technical Cooperation Products-Revised version (GN-2629-1), this TC is classified as Client Support. The technical responsibility is in INE/ENE.
- 5.4 The focal points responsible for executing this TC will be the Senior Energy Specialist and the Investment Manager Lead Officer of the IDB Invest based in Bogota, Colombia, with the support of the INE/ENE team and the IDB Invest Infrastructure Department.
- 5.5 The IDB will execute this TC to: (i) avoid lengthy internal budgeting procedures that can jeopardize the achievement of its objectives by delaying the start of the TC execution and consultants' payments, as the TC is not included in the DNP 2018 budget, and (ii) facilitate coordination between the different public-sector entities (DNP, Ministry of Mines and Energy, UPME and Renewable Energy and Energy Efficiency Fund (FENOGE)).

VI. Project Risks and Issues

- 6.1 No major risks are anticipated for the development of the TC. A couple of modest risks have been anticipated, including eventual delays in the development of the studies due to potential difficulties in coordinating the different counterparts involved: DNP, MME, UPME and FENOGE. This risk can be mitigated by involving the counterparts from the beginning of the execution of the TC. The execution from INE/ENE, with the support of specialized consultants, will help to mitigate these potential risks. The draft

of Terms of Reference (ToR) of the key studies to be financed under Component 1 are under preparation by the Government Counterparts and will be ready before funds become available.

VII. Environmental and Social Classification

7.1 The ESG classification for this operation is "undefined".