

TC Document

I. Basic Information for TC

▪ Country/Region:	COLOMBIA
▪ TC Name:	Support Colombia's energy transition
▪ TC Number:	CO-T1663
▪ Team Leader/Members:	Planas Marti, Maria Alexandra (INE/ENE) Team Leader; Irigoyen, Jose Luis (INE/ENE) Alternate Team Leader; Ana Macias (INE/ENE); Crausaz Sarzosa, Ernesto Patricio (VPC/FMP); Giraldo Ayala, Andrea Marcela (CAN/CCO); Loana Vega (INE/ENE); Matas Trillo, Rafael (INO/IEEN); Mejia, Alvaro (INE/ENE); Navacerrada Busquets, Pablo (INE/ENE); Nicolas Tulande (INE/ENE); Saldana Galvez, Jorge Hernan (CAN/CPE); Sara Vila Saintetienne (LEG/SGO) Team Leader; Irigoyen, Jose Luis (INE/ENE) Alternate Team Leader; Ana Macias (INE/ENE); Crausaz Sarzosa, Ernesto Patricio (VPC/FMP); Giraldo Ayala, Andrea Marcela (CAN/CCO); Loana Vega (INE/ENE); Matas Trillo, Rafael (INO/IEEN); Mejia, Alvaro (INE/ENE); Navacerrada Busquets, Pablo (INE/ENE); Nicolas Tulande (INE/ENE); Saldana Galvez, Jorge Hernan (CAN/CPE); Sara Vila Saintetienne (LEG/SGO)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	01 Apr 2022.
▪ Beneficiary:	Ministerio de Minas y Energia
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	United Kingdom Sustainable Infrastructure Program(SIP)
▪ IDB Funding Requested:	US\$1,900,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	24 Months
▪ Required start date:	October 15th 2022
▪ Types of consultants:	Firms, Individuals Consultants
▪ Prepared by Unit:	INE/ENE-Energy
▪ Unit of Disbursement Responsibility:	CAN/CCO-Country Office Colombia
▪ TC included in Country Strategy (y/n):	Y
▪ TC included in CPD (y/n):	N
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Institutional capacity and rule of law; Environmental sustainability

II. Objectives and Justification of the TC

- 2.1 The objective of this Technical Cooperation (TC) is to support and provide technical assistance to the Government of Colombia (GoC) to achieve economic growth with a transition to a Net Zero economy while closing the gap in public services, particularly in the energy sector. The TC will also contribute to a strong, green, and inclusive economic recovery after the COVID-19 pandemic. The technical assistance will provide the instruments for public institutions to adapt themselves to changes that the energy transition is creating in the sector.

- 2.2 Colombia's commitment to the Paris Agreement under the revised National Determined Contributions (NDC) aims to reduce GHG by 51% with respect to the business-as-usual scenario in 2030. Colombia's NDC is considered one of the most ambitious in Latin America and the Caribbean (LAC) and is closely aligned with the country's objective of achieving carbon neutrality by 2050. In this regard, the energy sector is at the forefront of implementing a comprehensive climate change management plan, by reducing an equivalent of 11.2 million tons of carbon dioxide (CO₂) by 2030.
- 2.3 Colombia has made a significant effort to decarbonize its energy sector by introducing some critical legislation and regulation to promote the introduction of Non-Conventional Renewable Energy (NCRE) in the National Interconnected System and the Non-interconnected areas. These include 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), Law 2099 of 2021 that promotes the Energy transition, CONPES 4075 of 2022, which is the energy transition policy, and associated resolutions that establish the framework for the introduction of large-scale NCRE.
- 2.4 The GoC has set an ambitious goal to increase NCRE installed capacity from less than 1% in 2018 to more than 16% by 2025 (equivalent to 2,400 MW). In 2019 and 2021, 2,084 MW of NCRE were awarded through auctions.
- 2.5 The Inter-American Development Bank (IDB) in conjunction with the United Kingdom Sustainable Infrastructure Program (UKSIP), has supported the GoC to promote sustainable low-carbon infrastructure through the execution of the TC ATN/PI- 17372-CO. That TC aimed to strengthen the GoC institutional, technical, and regulatory capabilities to ensure smooth adoption of large-scale Non-Conventional Renewable Energy in their electricity generation matrix.
- 2.6 As a result, this UKSIP support was critical to strengthening Colombia's institutional, technical, and regulatory framework to ensure smooth adoption of large-scale NCRE in their electricity generation matrix. In 2019 and 2020, this TC financed technical support to design Renewable Energy Auctions focused on two key elements: (i) Risk allocation and (ii) Project finance. The IDB also financed the Energy Transformation Mission conducted in 2019-2020, with the participation of more than 30 national and international experts, which provided specific recommendations for the modernization of the energy sector. Although the current system has operated successfully for over 25 years, technological changes, the emergence of new business opportunities, and new users' needs required a comprehensive review. Mission's recommendations are being implemented, including a review of the competition rules of the electricity market, the introduction of new technologies such as hydrogen and geothermal, decentralization and digitalization incentives, and the institutional framework.
- 2.7 To continue with this support, a High-Level Dialogue on June 9th, 2021, was an important milestone in developing a new UKSIP technical assistance for Colombia. The GoC, represented by the National Planning Department (DNP); the International Cooperation Agency (APC); Ministry of Energy (ME); Ministry of Transport (MT); Financial Superintendence (SFC); and the Ministry of Environment (MADS), discussed with representatives from the IDB group, and UK Government (Department for Business, Energy and Industrial Strategy – BEIS and the UK Embassy in Colombia) the strategic areas of intervention. The participants agreed that Clean Energy will be

a key pillar to continue the development of the energy transition strategy and to promote the economic recovery after the COVID19.

- 2.8 The energy transition includes the expansion of NCRE and new energy efficiency technologies. However, it is important to develop the regulatory framework to scale up these new technologies, such as Peer to peer (P2P), smart metering, low-carbon distributed systems, decentralization, digitalization, and electricity management demand.
- 2.9 To continue contributing to the implementation of the energy transition, this TC will support four components: (i) the implementation of key activities prioritized in the Roadmap for the implementation of the Energy Transformation Mission; (ii) developing the regulatory structure for distributed electricity generation; (iii) supporting the design of low-carbon energy generation and GHG reduction strategies; and (iv) promotion of Energy Efficiency.
- 2.10 **Strategic Alignment.** This TC is consistent with the Bank's Institutional Strategy 2020–2023 (AB-3190-2) and is aligned with the development challenge of productivity and innovation, and the cross-cutting theme of: (i) climate change and environmental sustainability, by the promotion of NCRE in the Colombian electricity matrix, distributed electricity generation systems, and energy efficiency systems aimed to reduce GHG emissions; and (ii) Institutional capacity and rule of law, by providing technical support through the development of critical recommendations on policy instruments to implement the energy transformation mission roadmap. The TC is also consistent with (i) the Energy Sector Framework document (GN- 2830- 8) and the Climate Change Sector Framework (GN-2835-8) on sustainability and renewable energies, and (ii) the objective of the UKSIP to support countries in LAC to deliver their NDCs to the Paris Agreement. The TC is in line with the IDB Group Country Strategy with Colombia 2019-2022 (GN- 2972) in the strategic area such as: (i) increasing economic productivity, and (ii) climate change through cost reduction, competitiveness improvement of energy transition projects and reducing the gap of the woman in the energy sector.

III. Description components and budget

- 3.1 **Component I: Implementation of the Energy Transformation Mission roadmap (USD 600,000).** Support the implementation of the Energy Transformation Mission roadmap by providing technical support through the development of critical recommendations on policy instruments to ensure the expansion of renewables and energy efficiency technologies, such as Peer to peer (P2P) technologies, smart metering, low carbon distributed systems, decentralization, digitalization, and electricity management demand.
- 3.2 **Component II: Development of the regulatory structure for distributed electricity generation (USD 300,000).** Support activities to develop the regulatory structure for distributed electricity generation, which is one of the Roadmap's priority, and provide quality energy access on off-grid areas where electricity is mainly produced with diesel plants. Specifically, the following activities are included: (i) support the development of small-scale self-generation based on NCRE by identifying the associated barriers to the development of those solutions on off grid areas; (ii) development of a methodology to calculate the hosting capacity for Distributed Generation (DG) and small scale self-generation installations based on sola PVs (AGPE), this methodology will indicate the parts of the grid where DG and AGPE can

be install without jeopardizing the operation of the network, taking into account the levels of voltage, frequency, reactive power and other technical parameters.

- 3.3 **Component III: Design of low-carbon energy generation and GHG reduction strategies (USD 800,000).** Since the GoC is committed to the energy transition by reducing GHG and diversifying the energy matrix, this component aims to develop instruments that enable renewable energy project implementation and adjust sector regulations to include new technologies. This component will include: (i) analysis of further long-term non-conventional renewable auction plans to continue the diversification of NCREs with the improvement of low carbon policy incentives; (ii) development of policies and support for green hydrogen and waste to energy (W2E) projects; (iii) support large- and medium-scale renewable energy and energy storage projects (including associated interconnections) and support low carbon regulatory aspects to diversify the generation matrix, through pre-feasibility and/or feasibility studies or pilot energy storage projects; (iv) evaluation of low-carbon infrastructure needed in La Guajira for the development of large-scale non-conventional renewable energies; and (v) design low carbon technical measures and regulations to support innovation, eliminate investment barriers and redesign subsidy schemes to increase coverage.
- 3.4 **Component IV: Promotion of energy efficiency (USD 200,000).** Promote energy efficiency in Colombia by developing further studies and analysis of demand response programs using data from the residential, commercial, and industrial sectors. This data analysis will enable the use of artificial intelligence and neural networks and identify recommendations for technological change toward more efficient and low-carbon technologies.

Indicative Budget

Component	Description	SIP Funding	Total Funding
Component I: Implementation of the Energy Transformation Mission roadmap	Implementation of the energy transformation mission roadmap, by the development of key recommendations on policy instruments.	US\$ 600,000.00	US\$ 600,000.00
Component II: Development of the regulatory structure for distributed electricity generation	Development of regulatory structure of distributed energy generation, through the definition of methodologies to calculate the hosting capacity and an environmental and social guideline of used batteries.	US\$ 300,000.00	US\$ 300,000.00
Component III: Design of low-	Design of low-carbon energy	US\$ 800,000.00	US\$ 800,000.00

carbon energy generation and GHG reduction strategies	generation and GHG reduction strategies, like long-term non-conventional renewable auction plan, pilot projects for green hydrogen, low carbon regulatory aspects to diversity the electricity generation matrix and enabling low carbon technical measures to support innovation,		
Component IV: Promotion of energy efficiency	Promotion of energy efficiency by a demand response analysis in residential, commercial, and industrial sector.	US\$ 200,000.00	US\$ 200,000.00
Total		US\$1,900,000.00	US\$1,900,000.00

3.5 The total cost of this TC will be US\$1,900,000, financed by the Sustainable Infrastructure Program (SIP).

IV. Executing agency and execution structure

- 4.1 The TC will be executed by the IDB, by request of the Ministry of Energy and Mines and the National Planning Department (DNP) and will follow Appendix II (Procurement Criteria by the Bank) of the Operational Guidelines for TC Products (OP-619-4). 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 procurement of crucial studies and consultants' payments, and (ii) to facilitate coordination between the different public-sector entities (DNP, Ministry of Mines and Energy, UPME and Renewable Energy and Energy Efficiency Fund (FENOGE)).
- 4.2 The Energy Division (INE/ENE) will be responsible for its execution, in coordination with the IDB Country Office in Colombia (CAN/CCO). 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- 2765-4) and the related Operational Guidelines (OP-1155-4), and (iii) the procurement of non-consultant services will follow the Bank Corporate Procurement Policy (GN-2303-28).

- 4.3 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.
- 4.4 The focal point designated and sector specialist responsible for executing and supervising this TC will be the Lead Energy Specialist based in Bogota, Colombia, with the support of the Bank Country Office in Colombia (CAN/CCO) and the INE/ENE Team.

V. Major issues

- 5.1 No significant risks are expected during the execution of the TC. One minor risk is identified, related to eventual delays in the development of the studies due to possible difficulties in coordinating the different counterparts involved or the availability of information. The execution of the INE / ENE, with the support of specialized consultants, will help mitigate these potential risks.

VI. Exceptions to Bank policy

- 6.1 No exceptions to the Bank's policies are requested.

VII. Environmental and Social Strategy

- 7.1 This TC will not finance feasibility or pre-feasibility studies of investment projects with associated environmental and social studies; therefore, it falls outside the scope of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes:

[Request from the Client - CO-T1663](#)

[Results Matrix - CO-T1663](#)

[Terms of Reference - CO-T1663](#)

[Procurement Plan - CO-T1663](#)