



REI - Renewable Energy Integration Program

PROJECT TITLE: SUPPORT TO GREEN HYDROGEN PROJECTS

COUNTRY: COLOMBIA

MDB: INTER-AMERICAN DEVELOPMENT BANK

Cover Page for Project/Program Approval Request^[a]

Country/Region	Colombia	CIF Project ID#	Auto Generated by CCH
Project/Program Title (same as in CCH)	Support to Green Hydrogen Projects CO-T1731		
Type of CIF Investment:	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private		
Is this a private sector program composed of sub-projects?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Sector	<input type="checkbox"/> Energy System Infrastructure <input checked="" type="checkbox"/> Enabling Environment <input type="checkbox"/> Renewable Energy		
Technology	<input type="checkbox"/> Transmission infrastructure <input type="checkbox"/> Distribution infrastructure <input type="checkbox"/> Advanced Metering Infrastructure <input type="checkbox"/> Smart grids <input type="checkbox"/> Demand-Side Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Policy Dialogue <input type="checkbox"/> Cookstoves <input type="checkbox"/> Energy storage <input type="checkbox"/> Geothermal <input checked="" type="checkbox"/> Green Hydrogen <input type="checkbox"/> Hydropower <input type="checkbox"/> Mixed RE <input type="checkbox"/> Multiple <input type="checkbox"/> Solar <input checked="" type="checkbox"/> Vehicle technologies <input type="checkbox"/> Waste to Energy <input type="checkbox"/> Wind		
Project Lifetime (MDB board approval to project closure)	24 months		
Is this a private sector program composed of sub-projects?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Financial Products, Terms and Amounts (same as CCH)			
Financial Product	USD (million)	EUR (million)^[b]	
Grant	2	NA	
MPIS	.1	NA	
Public sector loan – Senior loan	NA	NA	
First loss guarantee	NA	NA	
Second loss guarantee	NA	NA	
Equity	NA	NA	
Senior loan	NA	NA	
Senior loan in local currency hedged	NA	NA	
Senior loan in local currency unhedged (EXCEPTIONAL REQUEST)	NA	NA	
Subordinated debt/loan/ mezzanine instrument with income participation	NA	NA	

Subordinated debt/loan / mezzanine instrument with income participation local currency unhedged (EXCEPTIONAL REQUEST)	NA	NA
Subordinated debt/loan /mezzanine instrument with convertible features	NA	NA
'Convertible/contingent recovery' grant/loan/guarantee (loans convertible to grants or vice versa)	NA	NA
Convertible Loans (convertible to equity only)	NA	NA
For loans and guarantees – is this a revolving structure? ^[1] <input type="checkbox"/> Yes <input type="checkbox"/> No	NA	NA
Specify local currency type here	NA	NA
Other (please specify)	NA	NA
Total		
CIF Financial Terms and Conditions Policy	Link Is this request in accordance with the CIF Financial Terms and Conditions Policy? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, please specify detailed information under the justification section)	
Justification (exceptional request)		
NA		
Implementing MDB(s)		
MDB Headquarters-Focal Point:	Gloria Visconti and Mariel Juarez	
MDB Task Team Leader (TTL):	Alexandra Planas	
National Implementing Agency:		
Country Focal Point/s	IADB will be the executing agency and Fenoge the beneficiary entity	
Brief Description of Project/Program (including objectives and expected outcomes) ^[c]		

¹ With a revolving structure, after the loan or guarantee matures, instead of returning the funds to the Trustee, the funds are redeployed as a new loan or guarantee.

The Trust Fund Committee (TFC) of the CIF's Strategic Climate Fund has endorsed Colombia's Renewable Energy Integration (REI) Investment Plan (IP) on February 2nd, 2023. The IP will help to introduce renewable energy sources into the country's power generation system. Colombia will be able to access US\$70 million of concessional funds under this plan, which includes a US\$2 million grant for providing technical assistance to the Colombian government. This assistance will help in the implementation of Colombia's Hydrogen Roadmap by promoting technical knowledge and supporting the preparation of pre-feasibility and feasibility studies of promising clean and green hydrogen projects.

This technical cooperation (TC) is aligned with Component 2 of the CIF REI Investment Plan approved for Colombia. The initiative, known as the "+H2 COLOMBIA Initiative," was launched by the Ministry of Mines and Energy and the Non-Conventional Energies and Energy Efficiency Fund (FENOGE) at the beginning of 2022. The initiative aims to encourage and promote knowledge and applications of hydrogen throughout its value chain in Colombia. It will support pre-investment studies for the production, storage, and distribution of green hydrogen and its derivatives as a source of energy for mobility and/or industrial end uses.

The aim of this TC is to accelerate Colombia's clean energy transition by supporting the development of green hydrogen projects that contribute to the decarbonization of difficult-to-electrify sectors. The specific objective includes supporting the development of at least five pre-feasibility/feasibility studies for Green Hydrogen pilot projects. Indirectly, this program aims to build technical capabilities in the private, financial, and public sectors related to the green hydrogen industry thanks to the support of the pilot projects and through knowledge dissemination activities.

Private, public, or private-public-owned companies interested in developing GH2 projects are eligible for funds under this program. As per the guidelines of the program, beneficiaries will need to contribute at least 10% of the cost of the studies. Selected projects must demonstrate a clear commitment by the developer to implement the project if the pre-feasibility/feasibility studies demonstrate its potential for development. Hence, the developer must provide at least 10% of the cost of the studies, and the project should have the potential to be replicated or expanded beyond the pilot phase. Eligible projects for CIF-REI financing should only be those related to green hydrogen for the transport or industrial sectors.

Expected outcomes:

- 5 pre-feasibility and/or feasibility studies completed for GH2 pilot projects.
60 people (of which at least 50% should be women) trained in clean energy, hydrogen production and conversion.

Consistency with investment criteria

Potential for transformational change

<p>Relevance (strategic alignment)</p>	<p>Developing the green hydrogen sector in Colombia is a priority to achieve decarbonization of sectors where electrification is challenging, especially in transport and industry.</p> <p>The country's Hydrogen Roadmap, launched in 2021 and supported by the Bank, identified the need to work on 28 actions, some of them: i) the mitigation of technical risks by implementing pilot projects, ii) technical training for technical workers, and iii) international cooperation activities.</p> <p>The use of grant resources for the execution of pre-investment studies shall reduce the risk for first developers and help properly structure financeable projects.</p>
<p>Systemic change</p>	<p>Implementing this TC will facilitate knowledge transfer, capacity building among the local community, and dissemination through socialization and experience-sharing events by FENOGÉ and IDB.</p>
<p>Speed</p>	<p>This technical assistance aims to accelerate and ensure the readiness and viability of pilot projects within the green hydrogen value chain in the country. The support provided will encourage companies to participate in the development of pre-investment studies, as it will cover a portion of the expenses required for the projects to achieve technical, social, environmental, and financial viability. Without these funds, companies would either take longer to complete the necessary studies or would be less motivated to participate. Since these studies can be costly, financial assistance will help to expedite the process and encourage more companies to get involved.</p>
<p>Scale</p>	<p>The country has set an ambitious goal to achieve up to 3 GW of electrolysis installed capacity by 2030 as stated in its roadmap. It is estimated that implementing this roadmap will attract investments worth \$2,500 to \$5,500 million dollars between 2020 and 2030. Additionally, it will help to prevent the emission of 2.5 to 3 MTons of greenhouse gases during the same period.</p> <p>This TC aims to enhance the feasibility of pilot projects that will build the country's capacity in the public, private, and financial sectors. This will further promote the next stage of green hydrogen projects and help achieve the country's goals.</p>

Adaptive sustainability	Similarly, developing human skills and knowledge in the areas of new technologies, such as electrolysis and energy storage systems, will act as a catalyst for the progressive growth of knowledge levels and quantities required to meet the scale of transformation that the country's energy transition will progressively need.
Potential for GHG emissions reduction/avoidance	NA
Potential to significantly contribute to the principles of just transition	Component II of this TC (capacity building and knowledge dissemination) will result in an increased number of people trained on clean energy, hydrogen production and conversion, hydrogen technologies, storage, sustainability and financial market opportunities.
Financial effectiveness	The TC contributes to leveraging a part of the costs necessary to advance the package of pre-feasibility/feasibility studies that must be carried out by the companies that will build and develop the green hydrogen pilot projects. It is estimated that companies must comply with a minimum of 10% of the costs of their pre-feasibility study packages. However, it is quite likely that this percentage will be exceeded.
Value for Money	NA
Mobilization Potential	NA
Implementation potential	<p>At the request of the MEM, the TC will be carried out by the IDB through its Energy Division. This is to facilitate the coordination of multiple private and public sector actors involved in its implementation and to benefit from the Bank's expertise in executing H2V (Hydrogen to Vehicles) studies and projects.</p> <p>The IDB Energy Division and the Bank's Representation in Colombia will maintain a constant dialogue with all relevant actors for the execution of this TC, including the MEM and FENOGE. To ensure a constant and effective dialogue, a working group consisting of representatives from relevant public entities will be established. The working group will provide technical support during the monitoring of activities of the contracted consulting firms, who will be working with resources allocated for this TC.</p>
Gender equality and social inclusion impact	The TA seeks to build women's technical and leadership capabilities in sectors related to the hydrogen industry; promote female economic and social opportunities and create safer working environments for women at all levels.

<p>Development impact potential</p>	<p>The Bank anticipates that the technical capacity built through the studies of the TC will create opportunities for technical capacity building in the government, local industries, and the financial sector. This, in turn, will build public confidence in clean hydrogen projects and increase future market demand for this product and its derivatives. The TC will also support knowledge sharing and dissemination activities, including a gender perspective, and build capacities to promote gender equality.</p>
<p>Social Inclusion and Stakeholder Engagement</p>	
<p>As requested by FENOGE, who will be the beneficiary entity, the IDB will be responsible for the execution of this TC to facilitate its development. The Bank will provide support and its experience in the design and development of this type of initiative, as well as in the bidding and coordination processes with the various actors involved. A working group will be established to coordinate the execution of the components of this TC and to ensure dialogue with other interested public and private actors.</p>	
<p>Gender Considerations</p>	

Gender Analysis

(Please insert the text from the project document on the analysis of gaps in access to services, markets and jobs by women in relation to the project sectors)

In Colombia, unemployment rate has been higher for women than for men and the covid-19 pandemic widened these gaps. At the end of 2020, unemployment rate reached 18.7% for women and 10.2% for men. A major contributing factor for women's low participation in the labor market is the disproportionate responsibility they have for household tasks and care work. When women do participate in the workforce, their jobs tend to be of low quality and poorly paid.

Female labor force participation in the mining, electricity, and oil and gas industries is much lower than in the case of men. A recent study (BID, 2021) shows that 73% of people employed in these sectors are men and only 27% are women. Additionally, women participation is lower in managerial positions (20.2%) than administrative and operational levels (41%). The same trend is found in terms of training activities in the above-mentioned sectors: 44.6% of women employed in administrative and operational levels participate in trainings compared to 18.3% of those employed in high level managerial positions. Currently, there are no specific statistics available related to gender gaps in the hydrogen industry in Colombia since it's a new industry in the country.

Unconscious and institutional biases exist in Colombia, especially in male dominated sectors, which affect women in accessing to leadership positions and sustain their work confidence and effectiveness.

Once the feasibility studies are completed and the loan component is implemented, an analysis of gender gaps in women's access to services, markets, and jobs in the hydrogen industry will be developed at the project level under this TC. Meanwhile, this TC will include activities that promote gender equality in the energy sector, taking into account overall data related to gender gaps. The activities are summarized below.

<p>Gender Activities (Please insert the text describing gender-specific activities included in the project)</p>	<p>This TA project will help FENOGE to strengthen its gender and diversity inclusion institutional policy by incorporating specific measures such as preventing sexual and workplace harassment, providing inclusive workspaces, closing recruitment gaps, promoting mentorship opportunities, and encouraging women's active involvement in decision-making processes, among others. A dissemination strategy about clean energy, green hydrogen and the relevance of integrating gender and diversity (including people with disabilities, afro descendants, indigenous people and LGBTQ+) aspects in clean energy projects will also be developed. The effectiveness of the dissemination strategy in integrating gender and diversity aspects when submitting proposals to FENOGE will be monitored, and the indicator to assess this effectiveness will be formulated as part of the strategy design.</p> <p>This TA will also promote women's professional development and leadership by providing training activities to enhance women's technical knowledge on clean energy, hydrogen production and conversion, storage, sustainability, and financial market opportunities. These courses will also include a module about the inclusion of the gender and diversity approach in energy projects and workplaces.</p>
<p>Gender Indicators (Please insert the text on selected gender specific indicators, including annual targets. from the Project Log Frame that the project is committing to report on)</p>	<p>Number of people (including women and people with disabilities) trained on clean energy, hydrogen production and conversion, storage, sustainability, and financial market opportunities.</p> <p>Target: 60 (50% women)</p> <p>Dissemination strategy on green hydrogen and the relevance of integrating gender and diversity aspects in clean energy projects developed.</p> <p>Target: 1</p>
<p>Expected Results (M&R)</p>	

Project/Program Timeline	
Expected start date of implementation ^[d]	Q1 2024
Expected end date of implementation ^[d]	Q4 2025
Expected lifetime of project results in years (including beyond project closure)	N/A
REI Core Indicators	Project-Defined Indicators/Targets
<i>Please identify which of the indicators below are relevant to the project proposal, list the corresponding project-defined indicator(s), and report all targets, including disaggregated targets. (See the REI Program Monitoring and Reporting Toolkit for additional guidance.)^[e]</i>	
REI 1: GHG emissions reduced or avoided (mt CO ₂ eq)	NA
<i>Direct - Annual</i>	NA
<i>Indirect - Annual</i>	NA
<i>TOTAL - ANNUAL</i>	NA
<i>Direct - Cumulative Lifetime</i>	NA
<i>Indirect - Cumulative Lifetime</i>	NA
<i>TOTAL - CUMULATIVE LIFETIME</i>	NA
REI 2: Installed capacity of variable renewable energy available to the grid (MW)	NA
<i>Direct</i>	NA
<i>Indirect</i>	NA
<i>TOTAL</i>	NA
REI 3: Annual renewable energy output (MWh per year)	NA
<i>Direct</i>	NA
<i>Indirect</i>	NA
<i>TOTAL</i>	NA
REI 4: Increase in available grid services and improvements (#)	NA
<i>Please identify all sub-indicators (add lines if needed)</i>	NA
<i>TOTAL</i>	NA
REI 5: Number of policies, regulations, codes, or standards related to renewable energy integration that have been amended or adopted	2 country-level studies that will help to inform the public policy debate
REI 6: Volume of co-finance leveraged (\$)	<i>Indicator calculated from the co-financing section below</i>
REI 7: Number of women and men, businesses, and community services benefiting from improved access to electricity and/or other modern energy services	NA
<i>Men</i>	NA
<i>Women</i>	NA
<i>Businesses</i>	NA
<i>Women-Owned Businesses</i>	NA
<i>Community Services</i>	NA

<i>TOTAL</i>	NA
REI 8: Reduced total energy system costs (\$ per year)	NA
REI 9: Number of innovative businesses, entrepreneurs, technologies, and other ventures demonstrating a strengthened climate-responsive business model	5 pre-feasibility and/or feasibility studies completed for GH2 pilot projects
<i>Businesses</i>	NA
<i>Entrepreneurs</i>	NA
<i>Technologies</i>	NA
<i>Other Ventures (please specify)</i>	5 Ventures (initiatives driving the innovation of targeted business models – GH2)
GESP 1: Energy rating of storage systems installed (MWh)	NA
GESP 2: Power rating of storage systems installed (MW)	NA
REI Co-Benefit Indicators	Project-Defined Indicators/Targets
<i>Please identify one or more expected co-benefit indicators–i.e., other social, economic, environmental benefits beyond the REI core indicators–that the project will track and report.</i>	
REI Co-Benefit 1: Jobs created – direct or indirect disaggregated by male/female)	NA
<i>Direct – Men</i>	NA
<i>Direct – Women</i>	NA
<i>Indirect – Men</i>	NA
<i>Indirect – Women</i>	NA
<i>TOTAL</i>	NA
REI Co-Benefit 2: Just transition	60 people trained on the technical aspects of clean energy, green hydrogen, and the inclusion of gender and diversity perspective in energy projects (at least 30 should be women)
REI Co-Benefit 3: Policy and planning coherence	NA
Other REI-Co Benefit: <i>(Please specify)</i>	<u>Capacity building:</u> 2 training sessions will be designed and implemented. <u>Gender and diversity:</u> 1 gender and diversity institutional policy strengthened. <u>Enabling environment:</u> 2 conceptual studies will be developed to analyze the country’s potential to produce Sustainable Aviation Fuels (SAF) and Green Hydrogen from Geothermal Energy
REI Optional Indicators	Project-Defined Indicators/Targets
<i>Please specify any optional REI indicators that the project will track (see the REI M&R Toolkit for more information).</i>	NA
Please also submit the full project results framework to the CIF Secretariat upon MDB Board approval of the project.	
Co-financing	

	Please specify as appropriate	Amount (in million USD)
MDB 1		NA
MDB 2 (if any)		NA
Government		NA
Private Sector		1.12
Bilateral		NA
Others (please specify)		NA
Total Co-financing		1.12
CIF Funding		2
Total Financing (Co-financing + CIF Funding)		3.12
Proportion of Total Financing for Adaptation		0%
Proportion of Total Financing for Mitigation^[f]		100%
Expected Date of MDB Approval		
December 2023		

NOTES:

[a] This cover page is to be completed and submitted together with the MDB project/program proposal when requesting funding approval by the Technical Committee/ Sub-Committee

[b] For products denominated in EUR, please also provide USD equivalent in the column to the left

[c] Please provide the information in the cover page or indicate page/section numbers in the accompanying project/program proposal where such information can be found.

[d] Insert "N/A" (not applicable) if dates cannot be determined at the time of submission (e.g., private sector programs)

[e] Insert "N/A" if indicator is not applicable to the project/program.

[f] Per MDBs' own Paris alignment climate finance tracking methodologies

Version: October 2023

CCH – [here](#)

CIF Website – [here](#)

CIF Pipeline Management and Cancellation Policy - [here](#)

CIF Financial Terms and Conditions Policy updated for FY24 - [here](#)

REI Design Document - [here](#)