

ECOPETROL DECARBONIZATION PLAN



Ecopetrol is an integrated oil and gas company that participates in all the hydrocarbon value chain and the largest company in Colombia in terms of revenue, profit, assets and net worth. Ecopetrol plays a meaningful role in the country in terms of Greenhouse Gas (GHG) emissions reductions and therefore has an important responsibility to reduce its environmental footprint. Furthermore, the Company understands the importance of establishing clear and ambitious targets that are consistent with the Paris Agreement, which is why Ecopetrol is progressively setting those targets and raising its ambitions levels.

During 2019, the Company established a target to reduce 20% of its emissions by 2030 considering a Business As Usual scenario, in line with Colombia's Nationally Determined Contribution - NDC.

Ecopetrol has developed a decarbonization action plan with four components: (i) Frequent update of the GHG inventory, (ii) Development and implementation of an emissions reduction portfolio, (iii) Design and implementation of an offset portfolio of nature-based solutions, and (iv) Development of a carbon zero roadmap. For this purpose the Company has a budget of around 400 MUSD for the period 2020-2024.



Frequent update of a GHG inventory.

Since 2009, Ecopetrol has had a GHG inventory (ISO 14064-1 methodology and the GHG Protocol), which was verified by AENOR in 2017. This firm validated the methodology used and recognized that the GHG emissions reported by Ecopetrol is accurate, consistent, transparent, and without noticeable discrepancies.

The current inventory covers scope 1 and 2 emissions but the company is moving forward to generate a scope 3 emissions inventory, which is expected to conclude in 2021.



Design and implementation of an emissions reduction portfolio.



Renewable energy: In 2019, Ecopetrol set a goal of incorporating 300 MWp of unconventional renewable energy sources into its electricity generation matrix, increasing the participation of these sources from 5% in 2019 to 20% in 2022. These renewable energy projects will lead to an expected annual reduction of 165,000 tCO2e/year. In 2019, the Castilla solar park entered into operation, with a capacity of 21 MWp to supply the Castilla field, making it the largest self-generated solar park in Colombia. In 2020, Ecopetrol will start constructing the San Fernando Solar Park with a capacity of 59 MWp.



Routine Gas flaring reduction: The target is to reduce 77% of gas flaring by 2022, which corresponds to a reduction from 45 MPCD to 10 MPCD. At the beginning of 2020 Ecopetrol formalized its endorsement of the "Zero Routine Flaring (ZRF)" initiative, launched in 2015 by the World Bank's Global Gas Flaring Reduction (GGFR) Partnership.



Energy efficiency projects: The target is to increase 2% to 3% in energy efficiency by 2022, which covers all three Company segments: Upstream, Midstream and Downstream.



Reduction of fugitive emissions and venting: Ecopetrol defined a strategy for reducing fugitive and venting emissions, particularly of methane gas (CH4), which has three main actions:

- o Update and adjust GHG inventory, create specific emission factors, and define reduction targets.
- o Incorporate best practices and design criteria to reduce fugitive and venting emissions.

o Implement a Leak Detection and Repair (LDAR) Program.

At the end of 2018, Ecopetrol joined the Climate and Clean Air Coalition (CCAC), an initiative led by the United Nations to reduce methane emissions into the atmosphere, given the significant greenhouse effect of methane. Ecopetrol is one of the ten oil companies in the world that has signed this commitment and will define its own reduction target in line with this initiative and the Oil & Gas Methane Partnership reporting framework.

Ecopetrol's Center for Innovation and Technology (ICP) has developed different projects on advanced fluids and materials, energy efficiency, hydrogen as a source of energy and methane detection and reduction to improve efficiencies in the value chain of the company and reduce its carbon footprint. In the coming years the ICP will also focus on R&D areas such as Carbon Capture, Utilization and Storage - CCUS and gas to liquid to recover remaining gas from flares.

Design and implementation of a nature-based solutions offset portfolio.

Ecopetrol has identified that Nature-Based Solutions (NBS) are an opportunity to strengthen the domestic carbon market, contribute to the conservation and preservation of Colombia's natural capital and improve the conditions of local ecosystems and communities where the company operates.

Therefore, in alliance with The Nature Conservancy (TNC), Ecopetrol is structuring an NBS portfolio, which contemplates primarily three types of investments: (i) purchase of carbon credits of previously screened projects; (ii) projects co-developed by Ecopetrol from the start in alliance with key partners; (iii) ongoing projects that meet a rigorous selection criteria and verification process.

4 Development of a carbon zero roadmap.

During 2020, the Company is defining a carbon neutral roadmap in order to raise its ambition level, which includes key milestones to incorporate climate change criteria into decision-making processes, such as:

Definition and incorporation of GHG related variables for budget allocation (e.g. internal carbon price and carbon intensity sensitivity analysis).

Identification of divestment criteria related to GHG.

Alternatives for climate-related risk coverage.

Alternatives to access to capital for green investments.

OUR RESULTS

Total accumulated reduction of 6,6 million tCO2e between 2010-2019 1,7 million tCO2e emissions reduction verified by Ruby Canyon Engineering

1 million tCO2e emissions registered in the GHG CleanProjects® Registry Castilla, Ecopetrol's first solar park with a capacity of 21 MW

