

Ecopetrol S.A.

2024 CDP Corporate Questionnaire 2024

Word version

Important: this export excludes unanswered questions

This document is an export of your organization's CDP questionnaire response. It contains all data points for questions that are answered or in progress. There may be questions or data points that you have been requested to provide, which are missing from this document because they are currently unanswered. Please note that it is your responsibility to verify that your questionnaire response is complete prior to submission. CDP will not be liable for any failure to do so.

[Terms of disclosure for corporate questionnaire 2024 - CDP](#)

Contents

C1. Introduction	9
(1.1) In which language are you submitting your response?	9
(1.2) Select the currency used for all financial information disclosed throughout your response.	9
(1.3) Provide an overview and introduction to your organization.	9
(1.4) State the end date of the year for which you are reporting data. For emissions data, indicate whether you will be providing emissions data for past reporting years.	10
(1.4.1) What is your organization's annual revenue for the reporting period?	11
(1.5) Provide details on your reporting boundary.	11
(1.6) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?	12
(1.7) Select the countries/areas in which you operate.	14
(1.19) In which part of the oil and gas value chain does your organization operate?	14
(1.24) Has your organization mapped its value chain?	15
(1.24.1) Have you mapped where in your direct operations or elsewhere in your value chain plastics are produced, commercialized, used, and/or disposed of?	16
C2. Identification, assessment, and management of dependencies, impacts, risks, and opportunities	17
(2.1) How does your organization define short-, medium-, and long-term time horizons in relation to the identification, assessment, and management of your environmental dependencies, impacts, risks, and opportunities?	17
(2.2) Does your organization have a process for identifying, assessing, and managing environmental dependencies and/or impacts?	18
(2.2.1) Does your organization have a process for identifying, assessing, and managing environmental risks and/or opportunities?	19
(2.2.2) Provide details of your organization's process for identifying, assessing, and managing environmental dependencies, impacts, risks, and/or opportunities.	19
(2.2.7) Are the interconnections between environmental dependencies, impacts, risks and/or opportunities assessed?	28
(2.3) Have you identified priority locations across your value chain?	28
(2.4) How does your organization define substantive effects on your organization?	29
(2.5) Does your organization identify and classify potential water pollutants associated with its activities that could have a detrimental impact on water ecosystems or human health?	32
(2.5.1) Describe how your organization minimizes the adverse impacts of potential water pollutants on water ecosystems or human health associated with your activities.	32
C3. Disclosure of risks and opportunities	34
(3.1) Have you identified any environmental risks which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?	34

(3.1.1) Provide details of the environmental risks identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future. 36

(3.1.2) Provide the amount and proportion of your financial metrics from the reporting year that are vulnerable to the substantive effects of environmental risks..... 45

(3.2) Within each river basin, how many facilities are exposed to substantive effects of water-related risks, and what percentage of your total number of facilities does this represent? .. 47

(3.3) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?..... 48

(3.5) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)? 49

(3.5.1) Select the carbon pricing regulation(s) which impact your operations..... 49

(3.5.3) Complete the following table for each of the tax systems you are regulated by..... 49

(3.5.4) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by? 50

(3.6) Have you identified any environmental opportunities which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?..... 50

(3.6.1) Provide details of the environmental opportunities identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future..... 51

(3.6.2) Provide the amount and proportion of your financial metrics in the reporting year that are aligned with the substantive effects of environmental opportunities. 89

C4. Governance..... 91

(4.1) Does your organization have a board of directors or an equivalent governing body? 91

(4.1.1) Is there board-level oversight of environmental issues within your organization?..... 92

(4.1.2) Identify the positions (do not include any names) of the individuals or committees on the board with accountability for environmental issues and provide details of the board’s oversight of environmental issues..... 92

(4.2) Does your organization’s board have competency on environmental issues?..... 97

(4.3) Is there management-level responsibility for environmental issues within your organization? 98

(4.3.1) Provide the highest senior management-level positions or committees with responsibility for environmental issues (do not include the names of individuals)..... 99

(4.5) Do you provide monetary incentives for the management of environmental issues, including the attainment of targets? 103

(4.5.1) Provide further details on the monetary incentives provided for the management of environmental issues (do not include the names of individuals)..... 105

(4.6) Does your organization have an environmental policy that addresses environmental issues?..... 107

(4.6.1) Provide details of your environmental policies. 107

(4.10) Are you a signatory or member of any environmental collaborative frameworks or initiatives?..... 110

(4.11) In the reporting year, did your organization engage in activities that could directly or indirectly influence policy, law, or regulation that may (positively or negatively) impact the environment?..... 112

(4.11.1) On what policies, laws, or regulations that may (positively or negatively) impact the environment has your organization been engaging directly with policy makers in the reporting year?	114
(4.11.2) Provide details of your indirect engagement on policy, law, or regulation that may (positively or negatively) impact the environment through trade associations or other intermediary organizations or individuals in the reporting year.	122
(4.12) Have you published information about your organization's response to environmental issues for this reporting year in places other than your CDP response?	126
(4.12.1) Provide details on the information published about your organization's response to environmental issues for this reporting year in places other than your CDP response. Please attach the publication.	126

C5. Business strategy 130

(5.1) Does your organization use scenario analysis to identify environmental outcomes?	130
(5.1.1) Provide details of the scenarios used in your organization's scenario analysis.	130
(5.1.2) Provide details of the outcomes of your organization's scenario analysis.....	143
(5.2) Does your organization's strategy include a climate transition plan?	145
(5.3) Have environmental risks and opportunities affected your strategy and/or financial planning?	148
(5.3.1) Describe where and how environmental risks and opportunities have affected your strategy.	149
(5.3.2) Describe where and how environmental risks and opportunities have affected your financial planning.	152
(5.4) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?	153
(5.4.1) Quantify the amount and percentage share of your spending/revenue that is aligned with your organization's climate transition.....	153
(5.5) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?	156
(5.5.7) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.	156
(5.6) Break down, by fossil fuel expansion activity, your organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.....	162
(5.8) Disclose the breakeven price (US\$/BOE) required for cash neutrality during the reporting year, i.e. where cash flow from operations covers CAPEX and dividends paid / share buybacks.....	164
(5.9) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?.....	164
(5.10) Does your organization use an internal price on environmental externalities?.....	165
(5.10.1) Provide details of your organization's internal price on carbon.	165
(5.11) Do you engage with your value chain on environmental issues?	168
(5.11.1) Does your organization assess and classify suppliers according to their dependencies and/or impacts on the environment?.....	169
(5.11.2) Does your organization prioritize which suppliers to engage with on environmental issues?	171

(5.11.5) Do your suppliers have to meet environmental requirements as part of your organization's purchasing process?	172
(5.11.6) Provide details of the environmental requirements that suppliers have to meet as part of your organization's purchasing process, and the compliance measures in place.	173
(5.11.7) Provide further details of your organization's supplier engagement on environmental issues.....	177
(5.11.9) Provide details of any environmental engagement activity with other stakeholders in the value chain.....	180
C6. Environmental Performance - Consolidation Approach.....	186
(6.1) Provide details on your chosen consolidation approach for the calculation of environmental performance data.	186
C7. Environmental performance - Climate Change.....	188
(7.1) Is this your first year of reporting emissions data to CDP?.....	188
(7.1.1) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data? .	188
(7.1.2) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?	188
(7.1.3) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in 7.1.1 and/or 7.1.2?	189
(7.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.....	190
(7.3) Describe your organization's approach to reporting Scope 2 emissions.	190
(7.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?.....	191
(7.4.1) Provide details of the sources of Scope 1, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.....	191
(7.5) Provide your base year and base year emissions.	198
(7.6) What were your organization's gross global Scope 1 emissions in metric tons CO ₂ e?.....	207
(7.7) What were your organization's gross global Scope 2 emissions in metric tons CO ₂ e?.....	208
(7.8) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.	210
(7.8.1) Disclose or restate your Scope 3 emissions data for previous years.....	222
(7.9) Indicate the verification/assurance status that applies to your reported emissions.....	229
(7.9.1) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.....	229
(7.9.2) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.	230
(7.9.3) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.	232
(7.10) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?.....	233
(7.10.1) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year. .	233
(7.10.2) Are your emissions performance calculations in 7.10 and 7.10.1 based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?	240

(7.12) Are carbon dioxide emissions from biogenic carbon relevant to your organization?	240
(7.12.1) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.	240
(7.15) Does your organization break down its Scope 1 emissions by greenhouse gas type?	240
(7.15.1) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used global warming potential (GWP).....	240
(7.15.4) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.....	242
(7.16) Break down your total gross global Scope 1 and 2 emissions by country/area.	246
(7.17) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.....	246
(7.17.1) Break down your total gross global Scope 1 emissions by business division.	247
(7.17.2) Break down your total gross global Scope 1 emissions by business facility.....	247
(7.19) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.	255
(7.20) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.....	255
(7.20.1) Break down your total gross global Scope 2 emissions by business division.	255
(7.20.2) Break down your total gross global Scope 2 emissions by business facility.....	256
(7.21) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.	262
(7.22) Break down your gross Scope 1 and Scope 2 emissions between your consolidated accounting group and other entities included in your response.	263
(7.23) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?	264
(7.23.1) Break down your gross Scope 1 and Scope 2 emissions by subsidiary.....	264
(7.24) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.	266
(7.29) What percentage of your total operational spend in the reporting year was on energy?	266
(7.30) Select which energy-related activities your organization has undertaken.	267
(7.30.1) Report your organization's energy consumption totals (excluding feedstocks) in MWh.....	267
(7.30.6) Select the applications of your organization's consumption of fuel.....	269
(7.30.7) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.	270
(7.30.9) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.....	278
(7.30.14) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in 7.7.	280
(7.30.16) Provide a breakdown by country/area of your electricity/heat/steam/cooling consumption in the reporting year.....	286
(7.38) Disclose your net liquid and gas hydrocarbon production (total of subsidiaries and equity-accounted entities).	287

(7.38.1) Explain which listing requirements or other methodologies you use to report reserves data. If your organization cannot provide data due to legal restrictions on reporting reserves figures in certain countries/areas, please explain this.....	287
(7.38.2) Disclose your estimated total net reserves and resource base (million boe), including the total associated with subsidiaries and equity-accounted entities.	288
(7.38.3) Provide an indicative percentage split for 2P, 3P reserves, and total resource base by hydrocarbon categories.	288
(7.38.4) Provide an indicative percentage split for production, 1P, 2P, 3P reserves, and total resource base by development types.	290
(7.43) Disclose your total refinery throughput capacity in the reporting year in thousand barrels per day.	293
(7.43.1) Disclose feedstocks processed in the reporting year in million barrels per year.....	293
(7.43.2) Are you able to break down your refinery products and net production?.....	294
(7.43.3) Disclose your refinery products and net production in the reporting year in million barrels per year.	294
(7.43.4) Please disclose your petrochemicals production in the reporting year in thousand metric tons.....	299
(7.45) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.....	299
(7.48) Provide the intensity figures for Scope 1 emissions (metric tons CO2e) per unit of hydrocarbon category.....	303
(7.52) Provide any additional climate-related metrics relevant to your business.....	305
(7.53) Did you have an emissions target that was active in the reporting year?.....	313
(7.53.1) Provide details of your absolute emissions targets and progress made against those targets.	313
(7.54) Did you have any other climate-related targets that were active in the reporting year?	317
(7.54.1) Provide details of your targets to increase or maintain low-carbon energy consumption or production.	317
(7.54.2) Provide details of any other climate-related targets, including methane reduction targets.	325
(7.54.3) Provide details of your net-zero target(s).	338
(7.55) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.	342
(7.55.1) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.....	342
(7.55.2) Provide details on the initiatives implemented in the reporting year in the table below.....	343
(7.55.3) What methods do you use to drive investment in emissions reduction activities?.....	348
(7.57) Describe your organization's efforts to reduce methane emissions from your activities.	351
(7.61) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?	352
(7.61.1) Describe the protocol through which methane leak detection and repair or other leak detection methods, are conducted for oil and gas production activities, including predominant frequency of inspections, estimates of assets covered, and methodologies employed.....	352
(7.62) If flaring is relevant to your oil and gas production activities, describe your organization's efforts to reduce flaring, including any flaring reduction targets.....	353

(7.74) Do you classify any of your existing goods and/or services as low-carbon products?	353
(7.74.1) Provide details of your products and/or services that you classify as low-carbon products.	353
(7.79) Has your organization canceled any project-based carbon credits within the reporting year?	358
(7.79.1) Provide details of the project-based carbon credits canceled by your organization in the reporting year.	358
C9. Environmental performance - Water security	386
(9.1) Are there any exclusions from your disclosure of water-related data?	386
(9.1.1) Provide details on these exclusions.	386
(9.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?	387
(9.2.2) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, how do they compare to the previous reporting year, and how are they forecasted to change?	396
(9.2.3) In your oil & gas sector operations, what are the total volumes of water withdrawn, discharged, and consumed (by business division), how do they compare to the previous reporting year, and how are they forecasted to change?	399
(9.2.4) Indicate whether water is withdrawn from areas with water stress, provide the volume, how it compares with the previous reporting year, and how it is forecasted to change... ..	411
(9.2.7) Provide total water withdrawal data by source.....	412
(9.2.8) Provide total water discharge data by destination.....	417
(9.2.9) Within your direct operations, indicate the highest level(s) to which you treat your discharge.	421
(9.2.10) Provide details of your organization's emissions of nitrates, phosphates, pesticides, and other priority substances to water in the reporting year.	426
(9.3) In your direct operations and upstream value chain, what is the number of facilities where you have identified substantive water-related dependencies, impacts, risks, and opportunities?	427
(9.3.1) For each facility referenced in 9.3, provide coordinates, water accounting data, and a comparison with the previous reporting year.	428
(9.3.2) For the facilities in your direct operations referenced in 9.3.1, what proportion of water accounting data has been third party verified?	454
(9.5) Provide a figure for your organization's total water withdrawal efficiency.....	457
(9.11) Do you calculate water intensity for your activities associated with the oil & gas sector?	457
(9.11.1) Provide water intensity information associated with your activities in the oil & gas sector.	457
(9.13) Do any of your products contain substances classified as hazardous by a regulatory authority?	459
(9.13.1) What percentage of your company's revenue is associated with products containing substances classified as hazardous by a regulatory authority?	460
(9.14) Do you classify any of your current products and/or services as low water impact?	460
(9.15) Do you have any water-related targets?.....	461
(9.15.1) Indicate whether you have targets relating to water pollution, water withdrawals, WASH, or other water-related categories.....	461

(9.15.2) Provide details of your water-related targets and the progress made.	462
C10. Environmental performance - Plastics.....	475
(10.1) Do you have plastics-related targets, and if so what type?	475
(10.2) Indicate whether your organization engages in the following activities.....	475
(10.3) Provide the total weight of plastic polymers sold and indicate the raw material content.	478
(10.6) Provide the total weight of waste generated by the plastic you produce, commercialize, use and/or process and indicate the end-of-life management pathways.....	479
C11. Environmental performance - Biodiversity.....	481
(11.2) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?	481
(11.3) Does your organization use biodiversity indicators to monitor performance across its activities?	481
(11.4) Does your organization have activities located in or near to areas important for biodiversity in the reporting year?	482
C13. Further information & sign off.....	485
(13.1) Indicate if any environmental information included in your CDP response (not already reported in 7.9.1/2/3, 8.9.1/2/3/4, and 9.3.2) is verified and/or assured by a third party?..	485
(13.1.1) Which data points within your CDP response are verified and/or assured by a third party, and which standards were used?.....	485
(13.2) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored. ...	486
(13.3) Provide the following information for the person that has signed off (approved) your CDP response.....	487
(13.4) Please indicate your consent for CDP to share contact details with the Pacific Institute to support content for its Water Action Hub website.....	488

C1. Introduction

(1.1) In which language are you submitting your response?

Select from:

☒ English

(1.2) Select the currency used for all financial information disclosed throughout your response.

Select from:

☒ COP

(1.3) Provide an overview and introduction to your organization.

(1.3.2) Organization type

Select from:

☒ Publicly traded organization

(1.3.3) Description of organization

Ecopetrol is a Colombian mixed economy company, leading a diversified energy group in Latin America. It has public and private participation, of a commercial nature where the Republic of Colombia is the major shareholder, with an 88.49% interest in the company and affiliated to the Ministry of Mines and Energy (MME).

Ecopetrol's shares are listed on the Colombian Stock Exchange (BVC) and its ADRs (American Depositary Receipts) are listed on the New York Stock Exchange (NYSE). Ecopetrol's corporate purpose is undertaking, in Colombia or abroad, (i) industrial and commercial activities related to the exploration, exploitation, refining, transportation, storage, distribution, and trading of hydrocarbons and their derivatives and products; (ii) research, development, and trading of conventional and alternative sources of energy; (iii) production, mixing, storage, transport, and trading of oxygenated components and biofuels, (iv) port operations, and the execution of any related, complementary, activities for achieving the corporate purpose. Ecopetrol currently leads a diversified energy group, managing the following business lines: - Hydrocarbon business line: It includes the segments and operations in the different links of the hydrocarbon chain, as follows: upstream (exploration and exploitation), midstream (transport and logistics), downstream (refining and petrochemicals), refining products, and trading of crude oil, petrochemical and industrial products. Its objective is to maximize the value of the businesses described above, focusing on environmental and socially responsible operations which are efficient and competitive, and leading a road on decarbonized operations. - Low emission solutions business line: It involves the development of a low emissions portfolio which includes LPG, biogas, energy management, hydrogen, renewable energy, carbon capture, storage and use, and geothermal businesses, among others. Its objective is to conceptualize and build a comprehensive energy solutions portfolio for the diversification and decarbonization of the Ecopetrol Group's operations,

leveraging on cross-cutting synergies with other business lines. - Transmission and toll roads business line: It includes the electricity transmission, road infrastructure, and telecommunications businesses. Its objective is to enhance its performance and capture synergies with other business lines, maximizing the business value by having implemented operating models and regulated returns. Ecopetrol's Colombian operation includes two refineries, one in Barrancabermeja and one in Cartagena, four ports for the export and import of fuels and crude oil in Coveñas, Cartagena and Santa Marta, on the Caribbean Sea, and in Tumaco on the Pacific Ocean. The company also owns most of the country's pipelines and polyducts that connect production systems with large consumption centers and maritime terminals. The most relevant affiliated companies in Colombia are Refinería de Cartagena S.A.S., Cenit Transporte y Logística de Hidrocarburos S.A.S. (Cenit), Oleoducto Central S.A. (Ocensa) and Interconexión Eléctrica S.A. E.S.P (ISA). Ecopetrol's 2040 Corporate Strategy, "Energy that transforms" has four pillars: 1. Growing with the energy transition – This pillar sets the stage for growth and value generation in Ecopetrol Group in alignment with the new demands of the energy transition and of the environment. The two (2) purposes of this pillar are to maximize reserves and the production value while diversifying the Group's portfolio in energy and low emission businesses, aligning itself with the Company's climate efforts. 2. Generating value with TESG (technology, environment, social, and governance) - This pillar responds to socio-environmental challenges and the need to achieve sustainable operations while recognizing and working hand in hand with stakeholders. Climate Change, water and biodiversity, have been identified as materials issues in the Company's materiality exercise, and these are key components of this pillar. 3. Competitive returns – This pillar ensures the growth and value generation of Ecopetrol Group, even in low price environments, by focusing on the hydrocarbons' core and sustainable businesses. 4. Cutting-edge knowledge – This pillar includes all efforts to attract, develop, and retain talent, as well as developing a comprehensive science, technology, and innovation (CTI) strategy. In a cross-cutting way, it also adapts the organization of Ecopetrol Group by implementing digitization processes and adopting agility and innovation. The Company's efforts to minimize the potential impact of the decarbonization of its operations on its workforce are included in this pillar. Note: The scope of this report includes all facilities operated by Ecopetrol S.A. (E&P assets in Colombia and the Cartagena and Barrancabermeja Refineries).

[Fixed row]

(1.4) State the end date of the year for which you are reporting data. For emissions data, indicate whether you will be providing emissions data for past reporting years.

(1.4.1) End date of reporting year

12/31/2023

(1.4.2) Alignment of this reporting period with your financial reporting period

Select from:

☒ Yes

(1.4.3) Indicate if you are providing emissions data for past reporting years

Select from:

☒ Yes

(1.4.4) Number of past reporting years you will be providing Scope 1 emissions data for

Select from:

☒ 3 years

(1.4.5) Number of past reporting years you will be providing Scope 2 emissions data for

Select from:

☒ 3 years

(1.4.6) Number of past reporting years you will be providing Scope 3 emissions data for

Select from:

☒ 3 years

[Fixed row]

(1.4.1) What is your organization's annual revenue for the reporting period?

148999187758476

(1.5) Provide details on your reporting boundary.

(1.5.1) Is your reporting boundary for your CDP disclosure the same as that used in your financial statements?

Select from:

☒ No

(1.5.2) How does your reporting boundary differ to that used in your financial statement?

Currently, Ecopetrol reports environmental performance data (climate, water, biodiversity, and waste) from facilities operated by Ecopetrol, which includes Cartagena Refinery, one of its subsidiaries (which means that the consolidation approach is operational control). Financial statements are presented for Ecopetrol Business Group (GEE, for its Spanish acronym), which includes Ecopetrol SA, its subsidiaries, affiliates, joint ventures and associates. In total, GEE consists of approximately 100 companies. The Ecopetrol Business Group engages in commercial or industrial activities related to the exploration, exploitation, refining, transportation, storage, distribution and marketing of hydrocarbons, their derivatives and products, as well as electric power transmission services, design, development, construction, operation and maintenance of road and energy infrastructure projects and the provision of information technology and telecommunications services. Since 2021,

Ecopetrol has estimated GEE emissions, consolidating the emissions of Ecopetrol SA, Cartagena Refinery, some midstream companies (Cenit, ODL and ODC) and other companies such as Hocol, Esenttia, Ecodiesel and ISA. With this exercise, Ecopetrol has identified that around 85% of Ecopetrol Business Group GHG emissions correspond to the emissions of Ecopetrol SA and Cartagena Refinery. Currently, Ecopetrol Business Group is in the process of implementing the International Financial Reporting Standards (IFRS) S1 (Sustainability disclosure) and IFRS S2 (Climate-related disclosure) for investors. In this process, the consolidation approach and requirements for reporting sustainability issues will be evaluated to align them with the Financial Statements.
[Fixed row]

(1.6) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

ISIN code - bond

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ Yes

(1.6.2) Provide your unique identifier

US279158AV11

ISIN code - equity

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ Yes

(1.6.2) Provide your unique identifier

COC04PA00016

CUSIP number

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ Yes

(1.6.2) Provide your unique identifier

279158AV1

Ticker symbol

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ Yes

(1.6.2) Provide your unique identifier

NYSE:EC

SEDOL code

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ Yes

(1.6.2) Provide your unique identifier

B2473N4 CO

LEI number

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ No

D-U-N-S number

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ No

Other unique identifier

(1.6.1) Does your organization use this unique identifier?

Select from:

☒ Yes

(1.6.2) Provide your unique identifier

NIT. No. 8999990681

[Add row]

(1.7) Select the countries/areas in which you operate.

Select all that apply

☒ Colombia

(1.19) In which part of the oil and gas value chain does your organization operate?

Oil and gas value chain

☒ Chemicals

☒ Downstream

☒ Upstream

Other divisions

☒ Biofuels

(1.24) Has your organization mapped its value chain?

(1.24.1) Value chain mapped

Select from:

- ☒ Yes, we have mapped or are currently in the process of mapping our value chain

(1.24.2) Value chain stages covered in mapping

Select all that apply

- ☒ Upstream value chain
☒ Downstream value chain

(1.24.3) Highest supplier tier mapped

Select from:

- ☒ Tier 1 suppliers

(1.24.4) Highest supplier tier known but not mapped

Select from:

- ☒ Tier 2 suppliers

(1.24.7) Description of mapping process and coverage

Suppliers identification in the supply process is carried out through direct relations and within the framework of signed contracts, which are based on the implementation of the Environmental Sustainability Program in the Supply and Shared Service Chain, with which Ecopetrol promotes good environmental practices among its suppliers, through the following topics: 1.Decarbonization: Ecopetrol replicates the decarbonization cycle with its suppliers, impacting the company's GHG emissions inventory in Scope 1, 2 and 3, through the estimation of generated emissions in the contracts operation, establishing specific emission reduction goals and developing emission mitigation and offset initiatives. 2.Waste and materials: Ecopetrol adopted its circular economy model in the supply chain, promoting the extension of purchased goods life cycle, minimizing the generation of waste by reducing non-renewable virgin materials and promoting reuse through remanufacturing, repair and/or buybacks. 3.Water: On the road to water neutrality, Ecopetrol reports and has certified its water footprint in four major facilities. Also, the calculation of the indirect water footprint is being built, through the involvement of allied companies in certain contracting categories. 4.Natural capital: Ecopetrol seeks to involve allied companies in logistics, construction, facilities maintenance, stationery and packaging to achieve Zero Net Deforestation in indirect operations.

To achieve the established goals in each of the 4 topics, the Environmental Program in the Supply and Shared Services Chain is managed through different cross-cutting levers: 1. Procurement (Particular rules of the selection method, Bidding analysis criteria, Terms and conditions, and Performance evaluation criteria). 2. Information and Technology (Capture/Processing/Consolidation/Visualization/Repository) 3. Human talent (Networking among the actors of the supply, training and performance process). 4. Strategic relationship considering environmental aspects (Segmentation of allies, according to impact by environmental front, to implement strategies of involvement in the application of the environmental sustainability plan).
[Fixed row]

(1.24.1) Have you mapped where in your direct operations or elsewhere in your value chain plastics are produced, commercialized, used, and/or disposed of?

(1.24.1.1) Plastics mapping

Select from:

☒ Yes, we have mapped or are currently in the process of mapping plastics in our value chain

(1.24.1.2) Value chain stages covered in mapping

Select all that apply

☒ Upstream value chain

☒ Downstream value chain

☒ End-of-life management

(1.24.1.4) End-of-life management pathways mapped

Select all that apply

☒ Preparation for reuse

☒ Recycling

[Fixed row]

C2. Identification, assessment, and management of dependencies, impacts, risks, and opportunities

(2.1) How does your organization define short-, medium-, and long-term time horizons in relation to the identification, assessment, and management of your environmental dependencies, impacts, risks, and opportunities?

Short-term

(2.1.1) From (years)

1

(2.1.3) To (years)

3

(2.1.4) How this time horizon is linked to strategic and/or financial planning

The short-term horizon for assessing dependencies, impacts, risks and opportunities is in line with the company's three-year financial planning, the Balance Scorecard, and material element roadmaps, and considers the following aspects: i) the establishment and achievement of annual and medium-term targets in line with the Decarbonization, Water Neutrality, and Biodiversity; ii) the identification of short-term risks and the establishment of mitigation actions, controls, and Key Risk Indicators KRIs, as part of the annual risk management cycle; and iii) the identification and implementation of cost-effective opportunities to contribute to the company's environmental objectives.

Medium-term

(2.1.1) From (years)

4

(2.1.3) To (years)

17

(2.1.4) How this time horizon is linked to strategic and/or financial planning

The medium-term horizon for climate change, water neutrality, and biodiversity roadmaps has been set to 2040 in line with the corporate strategic and financial planning.

Long-term

(2.1.1) From (years)

18

(2.1.2) Is your long-term time horizon open ended?

Select from:

☒ Yes

(2.1.4) How this time horizon is linked to strategic and/or financial planning

The long-term horizon for climate change, water neutrality, and biodiversity roadmaps have been set beyond 2040. This horizon considers the analysis of market trends policy and regulatory changes and emerging technological developments that may affect the company’s environmental objectives and commitments and long-term business strategy.

[Fixed row]

(2.2) Does your organization have a process for identifying, assessing, and managing environmental dependencies and/or impacts?

	Process in place	Dependencies and/or impacts evaluated in this process
	Select from: <input checked="" type="checkbox"/> Yes	Select from: <input checked="" type="checkbox"/> Both dependencies and impacts

[Fixed row]

(2.2.1) Does your organization have a process for identifying, assessing, and managing environmental risks and/or opportunities?

	Process in place	Risks and/or opportunities evaluated in this process	Is this process informed by the dependencies and/or impacts process?
	Select from: <input checked="" type="checkbox"/> Yes	Select from: <input checked="" type="checkbox"/> Both risks and opportunities	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(2.2.2) Provide details of your organization's process for identifying, assessing, and managing environmental dependencies, impacts, risks, and/or opportunities.

Row 1

(2.2.2.1) Environmental issue

Select all that apply

☒ Climate change

(2.2.2.2) Indicate which of dependencies, impacts, risks, and opportunities are covered by the process for this environmental issue

Select all that apply

☒ Risks

☒ Opportunities

(2.2.2.3) Value chain stages covered

Select all that apply

☒ Direct operations

(2.2.2.4) Coverage

Select from:

☒ Full

(2.2.2.7) Type of assessment

Select from:

☒ Qualitative and quantitative

(2.2.2.8) Frequency of assessment

Select from:

☒ Annually

(2.2.2.9) Time horizons covered

Select all that apply

☒ Short-term

☒ Medium-term

☒ Long-term

(2.2.2.10) Integration of risk management process

Select from:

☒ Integrated into multi-disciplinary organization-wide risk management process

(2.2.2.11) Location-specificity used

Select all that apply

☒ National

(2.2.2.12) Tools and methods used

Commercially/publicly available tools

- ☒ TNFD – Taskforce on Nature-related Financial Disclosures
- ☒ Other commercially/publicly available tools, please specify :TCFD - Taskforce on Climate-related Financial Disclosures

Enterprise Risk Management

- ☒ COSO Enterprise Risk Management Framework
- ☒ Enterprise Risk Management
- ☒ Internal company methods
- ☒ ISO 31000 Risk Management Standard

International methodologies and standards

- ☒ IPCC Climate Change Projections

Databases

- ☒ Nation-specific databases, tools, or standards

Other

- ☒ Desk-based research
- ☒ Internal company methods
- ☒ Materiality assessment
- ☒ Scenario analysis

(2.2.2.13) Risk types and criteria considered**Acute physical**

- ☒ Drought
- ☒ Flood (coastal, fluvial, pluvial, ground water)
- ☒ Heavy precipitation (rain, hail, snow/ice)
- ☒ Wildfires
- ☒ Other acute physical risk, please specify :Wind

Chronic physical

- ☒ Heat stress

Policy

- ☒ Carbon pricing mechanisms
- ☒ Changes to international law and bilateral agreements
- ☒ Changes to national legislation
- ☒ Increased difficulty in obtaining operations permits
- ☒ Other policy, please specify :Offsetting limitations

Market

- ☒ Availability and/or increased cost of raw materials
- ☒ Changing customer behavior
- ☒ Uncertainty in the market signals

Reputation

- ☒ Increased partner and stakeholder concern and partner and stakeholder negative feedback
- ☒ Negative press coverage related to support of projects or activities with negative impacts on the environment (e.g. GHG emissions, deforestation & conversion, water stress)
- ☒ Stigmatization of sector

Technology

- ☒ Transition to lower emissions technology and products
- ☒ Unsuccessful investment in new technologies

Liability

- ☒ Exposure to litigation
- ☒ Non-compliance with regulations

(2.2.2.14) Partners and stakeholders considered

Select all that apply

- ☒ Customers
- ☒ Investors
- ☒ Regulators
- ☒ Suppliers

(2.2.2.15) Has this process changed since the previous reporting year?

Select from:

- ☒ No

(2.2.2.16) Further details of process

Ecopetrol has the Integrated Risk Management System (IRS) to manage uncertainty and avoid, reduce, or mitigate risks, maximize opportunities, develop strategies, and make decisions. The IRS is composed of principles that guide the characteristics of risk management in the Ecopetrol Group. The reference framework that contains the provisions for integrating risk management into the company's activities and functions, and is based on the ISO 31000 standard. This system is supervised by the Board of Directors through its Audit and Risk Committee. The risk management cycle contains five stages: Planning: Definition of the scope of the activities and analyses of internal and external context. Identify: Risk identification based on the opinion of the people involved and the analysis of the information. Evaluate: Analysis of causes and consequences. Treat: Selection and implementation of measures for addressing risk. Communication and consultation, monitoring and review and, record and report: Exchange of information, continuous monitoring, and periodic review of risk exposure. The risk appetite refers to how much risk the company is willing to assume for achieving its objectives, and guides risk-based decision making. Tolerance to risk indicates acceptable results or variations in relation to the achievement of objectives. Additionally, there are strategic, financial and operational risk parameters that complement the company risk appetite. Ecopetrol applies the Risk Assessment Matrix (RAM) that contains descriptive scales of probability of occurrence and impacts on dimensions such as people, environment, economic resources, reputation, and customers. According to the combination of probability and impact, the risk levels are Very High, High, Medium, Low and Very Low. Risk assessment considers the magnitude of the consequences and their probability of occurrence, obtaining basic information to prioritize risks and make decisions regarding treatment. This risk assessment includes the calculation of the level of inherent and residual risk, according to the probability and impact scales, and the tolerance and acceptance levels defined in the RAM. Within the framework of the IRS, depending on the level at which risks are managed, they are classified as strategic, tactical, and operational considering specific regulations and standards adopted. In 2023, Ecopetrol performed the review and update of its strategic risks in line with the Corporate Strategy. The risk related to environmental issues is "Inadequate response to challenges associated with climate change, water and biodiversity", which manage the exposure of the company to negative impacts due to low capacity to provide timely, efficient and effective response to commitments, obligations and expectations related to climate change, water and biodiversity. In addition, Ecopetrol conducted an analysis of climate-related physical risks for 95 locations of the main assets in Colombia. The analysis was performed under 3 IPCC climate scenarios: SSP1/RCP2.6, SSP2/RCP4.5, and SSP5/RCP8.5 to risks related to drought, thermal stress, precipitation, coastal and river flooding, forest fires and wind. As for transition risks, the analysis considered regulatory and market risks and assessed them under the following IEA scenarios: Net Zero Emissions (NZE), Announced Pledges (APS), and Stated Political Scenario (STEPS).

Row 2

(2.2.2.1) Environmental issue

Select all that apply

☒ Water

(2.2.2.2) Indicate which of dependencies, impacts, risks, and opportunities are covered by the process for this environmental issue

Select all that apply

☒ Dependencies

☒ Impacts

☒ Risks

☒ Opportunities

(2.2.2.3) Value chain stages covered

Select all that apply

☒ Direct operations

☒ Upstream value chain

(2.2.2.4) Coverage

Select from:

☒ Full

(2.2.2.5) Supplier tiers covered

Select all that apply

☒ Tier 1 suppliers

(2.2.2.7) Type of assessment

Select from:

☒ Qualitative and quantitative

(2.2.2.8) Frequency of assessment

Select from:

- ☒ Annually

(2.2.2.9) Time horizons covered

Select all that apply

- ☒ Short-term
- ☒ Medium-term
- ☒ Long-term

(2.2.2.10) Integration of risk management process

Select from:

- ☒ Integrated into multi-disciplinary organization-wide risk management process

(2.2.2.11) Location-specificity used

Select all that apply

- ☒ Site-specific

(2.2.2.12) Tools and methods used

Commercially/publicly available tools

- ☒ LEAP (Locate, Evaluate, Assess and Prepare) approach, TNFD
- ☒ WRI Aqueduct

Enterprise Risk Management

- ☒ COSO Enterprise Risk Management Framework
- ☒ Enterprise Risk Management
- ☒ ISO 31000 Risk Management Standard

International methodologies and standards

- ✓ Environmental Impact Assessment
- ✓ IPCC Climate Change Projections
- ✓ ISO 14046 Environmental Management – Water Footprint

Databases

- ✓ Nation-specific databases, tools, or standards
- ✓ Regional government databases

(2.2.2.13) Risk types and criteria considered

Acute physical

- ✓ Drought

Chronic physical

- | | |
|--|---|
| ✓ Water stress | ✓ Precipitation or hydrological variability |
| ✓ Change in land-use | ✓ Increased severity of extreme weather events |
| ✓ Declining water quality | ✓ Water availability at a basin/catchment level |
| ✓ Rationing of municipal water supply | ✓ Seasonal supply variability/interannual variability |
| ✓ Water quality at a basin/catchment level | |

Policy

- ✓ Regulation of discharge quality/volumes

Market

- ✓ Inadequate access to water, sanitation, and hygiene services (WASH)

Reputation

- ✓ Increased partner and stakeholder concern and partner and stakeholder negative feedback
- ✓ Stakeholder conflicts concerning water resources at a basin/catchment level

(2.2.2.14) Partners and stakeholders considered

Select all that apply

- | | |
|---|--|
| <input checked="" type="checkbox"/> NGOs | <input checked="" type="checkbox"/> Regulators |
| <input checked="" type="checkbox"/> Customers | <input checked="" type="checkbox"/> Local communities |
| <input checked="" type="checkbox"/> Employees | <input checked="" type="checkbox"/> Indigenous peoples |
| <input checked="" type="checkbox"/> Investors | <input checked="" type="checkbox"/> Water utilities at a local level |
| <input checked="" type="checkbox"/> Suppliers | <input checked="" type="checkbox"/> Other water users at the basin/catchment level |

(2.2.2.15) Has this process changed since the previous reporting year?

Select from:

- ☒ No

(2.2.2.16) Further details of process

[General] Ecopetrol has the Integrated Risk Management System (IRS) to manage uncertainty and avoid, reduce, or mitigate risks, maximize opportunities, develop strategies, and make decisions. The reference framework that contains the provisions for integrating risk management into the company's activities and functions and is based on the ISO 31000 standard. This system is supervised by the Board of Directors through its Audit and Risk Committee. The risk management cycle contains five stages: Planning, identify, evaluate, treat, and communication. Ecopetrol applies the Risk Assessment Matrix (RAM) that contains descriptive scales of probability of occurrence and impacts on dimensions such as people, environment, economic resources, reputation, and customers. According to the combination of probability and impact, the risk levels are Very High, High, Medium, Low and Very Low. Risk assessment considers the magnitude of the consequences and their probability of occurrence, obtaining basic information to prioritize risks and make decisions regarding treatment. This risk assessment includes the calculation of the level of inherent and residual risk, according to the probability and impact scales, and the tolerance and acceptance levels defined in the RAM. Within the framework of the IRS, depending on the level at which risks are managed, they are classified as strategic, tactical, and operational considering specific regulations and standards adopted. In 2023, Ecopetrol performed the review and update of its strategic risks in line with the Corporate Strategy. The risk related to environmental issues is "Inadequate response to challenges associated with climate change, water and biodiversity", which manage the exposure of the company to negative impacts due to low capacity to provide timely, efficient and effective response to commitments, obligations and expectations related to climate change, water and biodiversity. [Water specific] Ecopetrol's methodology for identifying water-related risks is based on the WRI Aqueduct methodology, which identifies physical (quantity and quality), regulatory, and reputational potential risks, considering a set of numerical indicators that capture a wide range of variables for describing territories' external conditions. However, data used in the WRI Aqueduct tool has a global scale, which leads to the loss of the required level of detail to carry out risk analysis at the local level. To overcome such limitations, Ecopetrol uses data from the National Water Studies (ENA), developed by the IDEAM (National Institute of Hydrology, Meteorology, and Environmental Studies), which has more detailed information. It includes 316 water sub-basins, as well as data from regional authorities and environmental impact assessments from its operations. In addition, some supplementary indicators are proposed or modified to the standard methodology as they are of key importance. They include reputational risk management, water-related complaints, and claims analysis. We also conducted research related to surface water availability changes in the short, medium, and long term (2025- 2050) within the area of influence, considering different climate change scenarios (e.g., GISS-E2-R,

MPI-ESM-MR, MRI-CGCM3, and the 3rd national communication on climate change), (ii) changes in land use (iii), hydro energy expansion, and (iv) population growth.
[Add row]

(2.2.7) Are the interconnections between environmental dependencies, impacts, risks and/or opportunities assessed?

(2.2.7.1) Interconnections between environmental dependencies, impacts, risks and/or opportunities assessed

Select from:

☒ Yes

(2.2.7.2) Description of how interconnections are assessed

Ecopetrol has been part of the Taskforce on Nature-related Financial Disclosures (TNFD) since 2021. Between 2022 and 2023, Ecopetrol carried out two pilots to test the LEAP methodology (Locate, Evaluate, Assess and Prepare) proposed by TNFD. As part of the internal work process with TNFD, a gap analysis was conducted on natural capital issues. As a result of the above, the biodiversity component was included in the business risk "Inadequate response to challenges associated with climate change, water and biodiversity". The first pilot focused on a specific production area (Yarigui-Cantagallo Production area). Ecopetrol identified and prioritized nature-related dependencies and impacts in the operations, relevant biomes, natural assets and ecosystem services. In turn, relevant aspects and data were mapped using ENCORE, IBAT, Global Forest Watch, Water Risk Filter and information from Ecopetrol. The second pilot focused on applying the socio-ecological resilience tool in 4 Ecopetrol cores in the Middle Magdalena Valley. The tool used is based on a dynamic model that simulates the processes of the socio-ecological system in response to various impacts generated by productive activities, which generates time series and indicators that help to establish intervention limits in the territories without altering their balance. However, Ecopetrol continues to understand, apply and integrate the TNFD framework to consolidate natural capital dependencies, impacts, risks and opportunities, including climate and water issues. One of the biggest challenges has been the existing gap between the scale of global climate scenarios (IPCC) and local scenarios, which requires a deeper analysis and tools for its development. For example, the effects of climate change are global, but the impacts associated with water are local and aligning this discussion requires greater understanding.

[Fixed row]

(2.3) Have you identified priority locations across your value chain?

(2.3.1) Identification of priority locations

Select from:

☒ Yes, we have identified priority locations

(2.3.2) Value chain stages where priority locations have been identified

Select all that apply

- ☒ Direct operations
- ☒ Upstream value chain

(2.3.3) Types of priority locations identified

Locations with substantive dependencies, impacts, risks, and/or opportunities

- ☒ Locations with substantive dependencies, impacts, risks, and/or opportunities relating to water

(2.3.4) Description of process to identify priority locations

Priority locations with substantive dependencies, impacts, risks, and/or opportunities relating to water are an outcome of Ecopetrol examination of probable water-related events that could take place on its operations including its impact on the business. As part of the risk assessment, the water inherent risk level is estimated considering two scenarios: 1) Effluents: Temporary restrictions for discharging treated wastewaters to surface waterbodies; a decrease in the runoff would lead to a flow reduction of wastewater-receiving water bodies to levels below their environmental flow. If this happens, Ecopetrol must suspend surface discharges and shutdown some oil wells. This situation would represent a temporary decrease in oil production from these fields; and 2) required water to operate: Freshwater unavailability for both industrial uses and enhanced oil recovery especially in water-stressed areas. Both scenarios are intensified by climate variability (e.g. El Niño Southern Oscillation) and effects of climate change.

(2.3.5) Will you be disclosing a list/spatial map of priority locations?

Select from:

- ☒ No, we have a list/geospatial map of priority locations, but we will not be disclosing it
- [Fixed row]

(2.4) How does your organization define substantive effects on your organization?

Risks

(2.4.1) Type of definition

Select all that apply

- ☒ Qualitative

☒ Quantitative

(2.4.2) Indicator used to define substantive effect

Select from:

☒ Revenue

(2.4.3) Change to indicator

Select from:

☒ Absolute decrease

(2.4.5) Absolute increase/ decrease figure

43300000000

(2.4.6) Metrics considered in definition

Select all that apply

☒ Frequency of effect occurring

☒ Likelihood of effect occurring

(2.4.7) Application of definition

Ecopetrol's Integrated Risk Management System (based on the international technical standard ISO 31000) establishes a set of principles, frame of reference, and process that allow the organization to manage the effects of uncertainty on meeting objectives, maximize opportunities, and assist in establishing strategies and making informed decisions. Our risk management approach is based on four main stages: planning, identifying, evaluating, and managing risks. To properly prioritize mitigation, treatment, and monitoring efforts of risk management at the process level, a standardized methodology was established to assess inherent and residual risk levels. The risk level (Very High, High, Medium, Low, or None) is obtained from the combination of the impacts and the probability of occurrence of those consequences. According to the level of risk, action plans for management and mitigation are defined. Ecopetrol applies the Risk Assessment Matrix that contains descriptive scales of probability of occurrence and impacts on dimensions such as people, environment, economic resources, reputation, and customers. According to the combination of probability and impact, the risk levels are Very High, High, Medium, Low and Very Low. The Matrix establishes: No tolerance zone in which risk must be managed; Tolerance zone with controls in which risk is managed through mitigation measures, and Acceptance zone in which risk is assumed by the company. Risk assessment considers the magnitude of the consequences and their probability of occurrence, obtaining basic information to prioritize risks and make decisions regarding treatment. This risk assessment includes the calculation of the level of inherent and residual risk, according to the probability and impact scales, and the tolerance and acceptance levels defined in the Risk Assessment Matrix. In this sense, the methodology for assessing corporate risks establishes what a

"substantive financial or strategic impact" is for our company. For this report the substantive financial or strategic impact, the economic affectation is higher than US 10 million.

Opportunities

(2.4.1) Type of definition

Select all that apply

- ☒ Qualitative
- ☒ Quantitative

(2.4.2) Indicator used to define substantive effect

Select from:

- ☒ Revenue

(2.4.3) Change to indicator

Select from:

- ☒ Absolute increase

(2.4.5) Absolute increase/ decrease figure

43300000000

(2.4.6) Metrics considered in definition

Select all that apply

- ☒ Likelihood of effect occurring

(2.4.7) Application of definition

Opportunities are considered as substantial when the impact on economic resources are higher than US 10 million (the same rational of risks impacts).
[Add row]

(2.5) Does your organization identify and classify potential water pollutants associated with its activities that could have a detrimental impact on water ecosystems or human health?

(2.5.1) Identification and classification of potential water pollutants

Select from:

☒ Yes, we identify and classify our potential water pollutants

(2.5.2) How potential water pollutants are identified and classified

Water pollutants are identified through direct measurements of several wastewater quality parameters, carried out internally or by an accredited third-party laboratory following standards issued by national authorities (i.e. IDEAM and ICONTEC) or international organizations (i.e. standard methods, EPA, ASTM.). In terms of frequency, daily measurements are normally carried out as part of the internal operational control, while regulatory measurements could be taken on a monthly or quarterly basis, which is defined by the environmental authority. The environmental regulation defines pollutants of interest in wastewater to be monitored by the oil and gas industry and sets maximum allowable concentrations according to the activity (i.e., upstream, downstream, and midstream) and the type of receptor matrix (i.e., surface, seawater, public sewage, or soil). Parameters include pH, COD, BOD, and TSS; hydrocarbon-related parameters such as oil and greases, TPH, PAH, BTEX, AOX, and phenols; inorganics such as phosphorous, nitrogen, chlorides, sulfates; and metals such as As, Cd, Cr, Fe, Hg, Pb, and others. Furthermore, Ecopetrol identifies and classifies potential water pollutants using the water footprint assessment, based on the ISO 14046 standard, which includes impact indicators on water degradation as human, freshwater, and seawater toxicity. Each pollutant has a different impact indicator which also allows us to prioritize it according to its hazardous level.

[Fixed row]

(2.5.1) Describe how your organization minimizes the adverse impacts of potential water pollutants on water ecosystems or human health associated with your activities.

Row 1

(2.5.1.1) Water pollutant category

Select from:

☒ Oil

(2.5.1.2) Description of water pollutant and potential impacts

Oil-related pollutants are relevant considering the nature of our hydrocarbon line business (E&P and Refining) where oil and water are in contact on petroleum reservoirs. Despite oil's low solubility in water, some hydrocarbon compounds could be naturally found in produced water. The oil and gas industry is required by national regulation to monitor and control various pollutants, some of which are included in EPA's Priority Pollutant list, as they have the potential to affect hydrobiological communities and limit water use downstream. They include: TPH levels (total petroleum hydrocarbons), as well as PAH levels (polyaromatic hydrocarbons, such as naphthalene, anthracene, benzo (a) pyrene, etc.), phenols (such as phenol, chlorophenols, nitrophenols, etc.), BTEX (benzene, toluene, ethylbenzene, and xylene), and AOX (adsorbable organic halides, such as chloroform) in wastewater discharges to surface water and seawater, which do not exceed regulatory limits. The WHO has classified benzene, benzo (a) pyrene, and pentachlorophenol as carcinogenic to humans, however these substances have not been found in Ecopetrol's wastewater discharges to surface water.

(2.5.1.3) Value chain stage

Select all that apply

☒ Direct operations

(2.5.1.4) Actions and procedures to minimize adverse impacts

Select all that apply

☒ Beyond compliance with regulatory requirements

☒ Water recycling

☒ Discharge treatment using sector-specific processes to ensure compliance with regulatory requirements

(2.5.1.5) Please explain

Prior treatment is undertaken to remove or control the concentration of interest pollutants and to assure compliance with the quality standards required by environmental laws and regulations. Furthermore, in the last five years, Ecopetrol has implemented clean technology conversion plans for wastewater management that besides ensuring compliance with the standards normativity, also allowed to eliminate surface discharge in 11 assets, avoiding the discharge of more than 8 million m³/year. Currently, these effluents are being mainly recycled for secondary oil recovery, allowing also to reduce the freshwater withdrawal requirements. Ecopetrol has also improved the quality of its remaining surface discharges beyond regulatory standards: for instance, in 2023 the average TPH concentration in E&P's surface discharges was 1.74 mg/L against the 10 mg/L regulatory limit. Moreover, as part of the water neutrality roadmap, Ecopetrol expects to continue gradually reducing surface freshwater discharges aiming to reach zero discharges in 2045 in both the Refining and E&P segments. The success of the measures to minimize adverse impacts is monitored by: •Discharge quality regulation compliance; •Monitoring of waterbodies' quality downstream after the mixing zone, assuring that water quality complies with the standards for its destination to different uses; •No evidence of acute toxicity on waste water and water bodies; Compliance with the internal and regulatory TPH limit target.

[Add row]

C3. Disclosure of risks and opportunities

(3.1) Have you identified any environmental risks which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?

Climate change

(3.1.1) Environmental risks identified

Select from:

☒ Yes, only within our direct operations

(3.1.2) Primary reason why your organization does not consider itself to have environmental risks in your direct operations and/or upstream/downstream value chain

Select from:

☒ Environmental risks exist, but none with the potential to have a substantive effect on our organization

(3.1.3) Please explain

Contracts with major water use are related to activities of well drilling, workover, general oil services, and operation and maintenance of production facilities. Water required for these activities is provided by Ecopetrol so that their water-related risks are included in Ecopetrol's direct operation analysis. Also, it is important to mention that risk related to freshwater availability for drilling operations (in terms of both water use and discharges) has decreased due to the implementation of reverse osmosis and demineralization treatments for domestic and industrial wastewater, allowing the recycling of at least 90% of the treated water in activities such as drilling fluid preparation, equipment washing, pump cooling, and other industrial uses. About 80-90% of Ecopetrol's indirect consumption water footprint is related to the electrical energy supply. Although it has been found that seasonal variability and climate phenomenon like "El Niño Southern Oscillation" could potentially impact the energy supply due to the low level of the rivers that feed the hydroelectric generation system, which could increase electricity costs and shortages of electricity supply, it is not expected that this situation may significantly affect Ecopetrol's operational continuity in the coming years.

Water

(3.1.1) Environmental risks identified

Select from:

☒ Yes, only within our direct operations

(3.1.2) Primary reason why your organization does not consider itself to have environmental risks in your direct operations and/or upstream/downstream value chain

Select from:

☒ Environmental risks exist, but none with the potential to have a substantive effect on our organization

(3.1.3) Please explain

Contracts with major water use are related to activities of well drilling, workover, general oil services, and operation and maintenance of production facilities. Water required for these activities is provided by Ecopetrol so that their water-related risks are included in Ecopetrol's direct operation analysis. Also, it is important to mention that risk related to freshwater availability for drilling operations (in terms of both water use and discharges) has decreased due to the implementation of reverse osmosis and demineralization treatments for domestic and industrial wastewater, allowing the reuse of at least 90% of the treated water in activities such as drilling fluid preparation, equipment washing, pump cooling, and other industrial uses (see more details on W4.3). As mentioned before, about 80-90% of Ecopetrol's indirect consumption water footprint is related to the electrical energy supply. Although it has been found that seasonal variability and climate phenomenon like "El Niño Southern Oscillation" could potentially impact the energy supply due to the low level of the rivers that feed the hydroelectric generation system, which could increase electricity costs and shortages of electricity supply, it is not expected that this situation may significantly affect Ecopetrol's operation in the coming years.

Plastics

(3.1.1) Environmental risks identified

Select from:

☒ No

(3.1.2) Primary reason why your organization does not consider itself to have environmental risks in your direct operations and/or upstream/downstream value chain

Select from:

☒ Evaluation in progress

(3.1.3) Please explain

Reputational impacts are related to the impact on the company's image, which could directly affect the distribution chain to meet the country's demand, losing Ecopetrol's relevant position in the petrochemical sector as the main supplier of raw materials for the plastics market.
[Fixed row]

(3.1.1) Provide details of the environmental risks identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future.

Climate change

(3.1.1.1) Risk identifier

Select from:

☒ Risk1

(3.1.1.3) Risk types and primary environmental risk driver

Chronic physical

☒ Seasonal supply variability

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☒ Direct operations

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☒ Colombia

(3.1.1.9) Organization-specific description of risk

According to the water risk assessment, the Department of Meta (where Ecopetrol's produced water discharges to surface water are the largest in volume) experiences a runoff reduction annually from December to March, which could potentially reduce regionally water availability. There is an approximate reduction of

70%* of the runoff during these months, compared to the annual average value. This scenario could also be intensified by climate variability events (e.g., El Niño Southern Oscillation) and climate change. A decrease in the runoff may lead to a flow reduction in wastewater-receiving water bodies to levels below their environmental flow. If this was the case, Ecopetrol shall suspend surface discharges which lead to suspending activities in some oil wells. This situation could represent a temporary decrease in oil production in Castilla, Apiay, and Suria fields. *Internal calculation using data from the National Water Study 20220 published by IDEAM (Institute of Hydrology, Meteorology, and Environmental Studies).

(3.1.1.11) Primary financial effect of the risk

Select from:

☒ Decreased revenues due to reduced production capacity

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☒ Likely

(3.1.1.14) Magnitude

Select from:

☒ Medium

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Medium-term: the effect in financial terms would impact cash flow, due to a reduction in revenues caused by an impact on production (deferred barrels) or an increase in production costs to meet delivery commitments to customers.

(3.1.1.17) Are you able to quantify the financial effect of the risk?

Select from:

☒ Yes

(3.1.1.21) Anticipated financial effect figure in the medium-term – minimum (currency)

0

(3.1.1.22) Anticipated financial effect figure in the medium-term – maximum (currency)

1600000000000

(3.1.1.25) Explanation of financial effect figure

The inherent financial impact was estimated considering the potential cumulative revenue loss during 2027 – 2040 (medium-term) due to the deferred production by seasonal variability, considering the forecasted flows in receivers' waterbodies (using the climate projections described by the Global Concentration models MPI-ESM-MR and MRI-CGC-M3 under the RCP 8.5 W/m2), and the current environmental flows (e-flows) established by the environmental regulators. The financial impact figure for the 14-year period was estimated at USD 376 million (COP 1,6 billion) considering an oil price of 77.3 USD/Bbl (20F oil price for the medium term), an exchange rate of 4,325 COP/USD (20F exchange rate), and the economic limit of each asset. According to Ecopetrol's Risk Assessment Matrix (RAM Matrix), the magnitude of the potential impact for this risk is medium, given that the average yearly potential economic impact is between 10 and 50 million USD. *1 COP billion 1,000 thousand million*

(3.1.1.26) Primary response to risk

Infrastructure, technology and spending

☒ Adopt water efficiency, water reuse, recycling and conservation practices

(3.1.1.27) Cost of response to risk

994750000000

(3.1.1.28) Explanation of cost calculation

The cost of response is an estimate of the capital expenditures (CAPEX) associated with the increase in produced water agroforestry reuse and reinjection for secondary recovery in Castilla; both projects seek to reduce Castilla's surface discharge in the midterm. This figure also includes the CAPEX related to research projects on water-related issues carried out by the ICP in the mid-term. Note: The Colombian Petroleum Institute (ICP for its Spanish acronym) is Ecopetrol's innovation and technology center where research on water-related issues is conducted. ICP's efforts include a technology-enabled water management program that encompasses the conservation, recycling, reuse, and valorization of produced water streams, as a measure to face rising water-related risk.

(3.1.1.29) Description of response

For these facilities, specific water management programs have been established to identify and implement efficient solution alternatives for produced water management, from a value perspective. These programs are based on the following action lines (where it applies): (1) Water reinjection for oil recovery (when possible) or disposal; (2) Water reuse and quality enrichment, which seeks to identify alternatives and potential customers (receivers) close to the existing water discharge infrastructure, for agricultural and forestry irrigation systems. (3) Technology, which seeks to identify alternatives to minimize produced water brought to the surface. (4) Water treatment and technologies to improve produced water quality (even below 1 ppm of oil and greases), to reduce pollutant loads discharged to receiving water bodies; and (5) basin protection and restoration. Further details will be presented in the section on water-related opportunities since these strategies seek both to reduce the risk associated with the potential impact on current production and to enable the production of contingent resources (increase production).

Water

(3.1.1.1) Risk identifier

Select from:

☒ Risk1

(3.1.1.3) Risk types and primary environmental risk driver

Chronic physical

☒ Seasonal supply variability

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☒ Direct operations

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☒ Colombia

(3.1.1.7) River basin where the risk occurs

Select all that apply

☒ Orinoco

(3.1.1.9) Organization-specific description of risk

According to the water risk assessment, the Department of Meta (where Ecopetrol's produced water discharges to surface water are the largest in volume) experiences a runoff reduction annually from December to March, which could potentially reduce water availability regionally. There is an approximate reduction of 70% of the runoff during these months, compared to the annual average value. This scenario could also be intensified by climate variability events (e.g., El Niño Southern Oscillation) and climate change. A decrease in the runoff may lead to a flow reduction in wastewater-receiving water bodies to levels below their ecological-environmental flow. If this was the case, Ecopetrol would suspend surface discharges which lead to production deferral in some oil wells in the Castilla, Apiay, and Suria fields. *Internal calculation using data from the National Water Study 2018 published by IDEAM (Institute of Hydrology, Meteorology, and Environmental Studies).*

(3.1.1.11) Primary financial effect of the risk

Select from:

☒ Decreased revenues due to reduced production capacity

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☒ Likely

(3.1.1.14) Magnitude

Select from:

☒ Medium

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Medium-term: the effect in financial terms would impact cash flow, due to a reduction in revenues due to the impact on production (deferred barrels) or an increase in production costs to meet delivery commitments to customers.

(3.1.1.17) Are you able to quantify the financial effect of the risk?

Select from:

☒ Yes

(3.1.1.21) Anticipated financial effect figure in the medium-term – minimum (currency)

0

(3.1.1.22) Anticipated financial effect figure in the medium-term – maximum (currency)

1600000000000

(3.1.1.25) Explanation of financial effect figure

The inherent financial impact was estimated considering the potential cumulative revenue loss during 2027 – 2040 (medium-term) due to the deferred production by seasonal variability, considering the forecasted flows in receivers' waterbodies (using the climate projections described by the Global Concentration models MPI-ESM-MR and MRI-CGC-M3 under the RCP 8.5 W/m2), and the current environmental flows (e-flows) established by the environmental regulators. The financial impact figure for the 14-year period was estimated at USD 376 million (COP 1,6 billion*) considering an oil price of 77.3 USD/Bbl (20F oil price for the medium term), an exchange rate of 4,325 COP/USD (20F exchange rate), and the economic limit of each asset. According to Ecopetrol's Risk Assessment Matrix (RAM Matrix), the magnitude of the potential impact for this risk is medium, given that the average yearly potential economic impact is between 10 and 50 million USD. *1 COP billion 1,000 thousand million

(3.1.1.26) Primary response to risk

Infrastructure, technology and spending

☒ Adopt water efficiency, water reuse, recycling and conservation practices

(3.1.1.27) Cost of response to risk

994750000000

(3.1.1.28) Explanation of cost calculation

The cost of response is an estimate of the capital expenditures (CAPEX) associated with the increase in produced water agroforestry reuse and reinjection for secondary recovery in Castilla; both projects seek to reduce Castilla's surface discharge in the midterm. This figure also includes the CAPEX related to research projects on water-related issues carried out by the ICP in the mid-term. Note: The Colombian Petroleum Institute (ICP for its Spanish acronym) is Ecopetrol's innovation and technology center where research on water-related issues is conducted. ICP's efforts include a technology-enabled water management program that encompasses the conservation, recycling, reuse, and valorization of produced water streams, as a measure to face rising water-related risk.

(3.1.1.29) Description of response

For these facilities, specific water management programs have been established to identify and implement efficient solution alternatives for produced water management, from a value perspective. These programs are based on the following action lines (where it applies): (1) Water reinjection for oil recovery (when possible) or disposal; (2) Water reuse and quality enrichment, which seeks to identify alternatives and potential customers (receivers) close to the existing water discharge infrastructure, for agricultural and forestry irrigation systems. (3) Technology, which seeks to identify alternatives to minimize produced water brought to the surface. (4) Water treatment and technologies to improve produced water quality (even below 1 ppm of oil and greases), to reduce pollutant loads discharged to receiving water bodies; and (5) basin protection and restoration. Further details will be presented in the section on water-related opportunities since these strategies seek both to reduce the risk associated with the potential impact on current production and to enable the production of contingent resources (increase production).

Climate change

(3.1.1.1) Risk identifier

Select from:

☒ Risk2

(3.1.1.3) Risk types and primary environmental risk driver

Policy

☒ Changes to national legislation

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☒ Direct operations

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☒ Colombia

(3.1.1.9) Organization-specific description of risk

Ecopetrol recognises that one of the regulatory risks to which it is exposed is the restriction on the use of offsets to achieve the 2030 emission reduction target, which considers a 30% cap through Natural Climate Solutions. The restriction may come from sector-specific guidelines (SBTi), other applicable guidelines or local regulations. If carbon offsets are not allowed to address 30% of Ecopetrol's 2030 emission reduction targets, then other abatement technologies will be required, which will increase costs. Ecopetrol manages this transition risk by continually assessing legislative changes both domestically and internationally for the use of offsets, monitoring the evolution of abatement technologies and associated cost curves to allocate capital effectively, and periodically reviewing Ecopetrol's abatement cost curve to prioritise initiatives. Regarding local regulations, Ecopetrol will face restrictions due to the implementation of the National Program of Tradable GHG Emissions Quotas (PNCTE, for its Spanish acronym), similar to an Emissions Trading System, which would assign emission rights. This program is in the design and development phase of the regulatory framework and its enactment is expected in 2025 with full enforceability by 2030.

(3.1.1.11) Primary financial effect of the risk

Select from:

☒ Increased cost of capital

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☒ More likely than not

(3.1.1.14) Magnitude

Select from:

☒ High

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

In the medium term: the effect in financial terms would have an impact on the increase in CAPEX needed to enable the entry of new projects and initiatives that reduce emissions that cannot be abated through offsetting

(3.1.1.17) Are you able to quantify the financial effect of the risk?

Select from:

☒ Yes

(3.1.1.21) Anticipated financial effect figure in the medium-term – minimum (currency)

678965952000

(3.1.1.22) Anticipated financial effect figure in the medium-term – maximum (currency)

1139692848000

(3.1.1.25) Explanation of financial effect figure

The inherent financial effect is defined based on the scenario of limitation in the use of compensation for regulatory requirements or other requirements applicable to the industry. Ecopetrol in the definition of its decarbonization goals established the offsetting option with a maximum limit of 30%, if any regulatory requirement or the obligation to apply limits derived from an emissions trading system materializes, this option would be reduced to 10% or less, which implies accelerating the implementation of new initiatives or low-emission technologies and consequently increasing the capital-allocation to these options. To determine the impact figure, the price of the International Energy Agency's NZE scenario for 2030 of US140 was used, taking as a reference maximum emissions offset scenario of 1.68 MtCO₂e and a minimum scenario of 0.56 MtCO₂e. The difference between the scenarios corresponds to the additional emissions to be abated through operational options, on which capital expenditures is required for their implementation. (Exchange Rate: 4.330, 14)

(3.1.1.26) Primary response to risk

Infrastructure, technology and spending

☒ Increase environment-related capital expenditure

(3.1.1.27) Cost of response to risk

(3.1.1.28) Explanation of cost calculation

In order to prioritize emission reduction initiatives and capital allocation, the marginal abatement cost curve (MACC) is used, which represents the volume of CO2 abated by the different technological levers (MtonCO2e) defined by the company and the cost in dollars per reduced ton of CO2e of each of them. The calculation of the response cost was estimated from the difference between the International Energy Agency's cost per ton of CO2 of US140 in 2030 in an NZE scenario and the average abatement cost of the company's portfolio of initiatives (leakage and venting, tars, energy efficiency, renewable energies, hydrogen and carbon capture, use and storage-CCUS), corresponding to US106. (Exchange Rate: 4.330,14)

(3.1.1.29) Description of response

Ecopetrol carries out a periodic analysis of compliance with the established goals, with the purpose of: (i) updating the emissions of the 2019 base year, with respect to which the progress associated with the fulfillment of the decarbonization goals is measured, (ii) estimating emission projections for different analysis scenarios, in order to determine the gap for compliance with the goals, (iii) identify the portfolio of opportunities for emission reductions and the associated costs, in order to prioritize investments in decarbonization, and (iv) advance in the research and development of decarbonization initiatives in: • Energy efficiency • Advanced biofuels • CCUS • Natural climate solutions, through the decarbonization cluster of the Colombian Petroleum Institute (now Colombian Institute of Petroleum and Transition Energies).
[Add row]

(3.1.2) Provide the amount and proportion of your financial metrics from the reporting year that are vulnerable to the substantive effects of environmental risks.

Climate change**(3.1.2.1) Financial metric**

Select from:

☒ CAPEX

(3.1.2.2) Amount of financial metric vulnerable to transition risks for this environmental issue (unit currency as selected in 1.2)

189948808000

(3.1.2.3) % of total financial metric vulnerable to transition risks for this environmental issue

Select from:

☒ Less than 1%

(3.1.2.4) Amount of financial metric vulnerable to physical risks for this environmental issue (unit currency as selected in 1.2)

0

(3.1.2.5) % of total financial metric vulnerable to physical risks for this environmental issue

Select from:

☒ Less than 1%

(3.1.2.6) Amount of CAPEX in the reporting year deployed towards risks related to this environmental issue

0

(3.1.2.7) Explanation of financial figures

Amount of financial metric vulnerable to physical risks is evaluated in water risk. •Amount of financial metric vulnerable to transition risks was estimated as follows: The % of total financial metric vulnerable to climate-related transition risks was estimated at COP 189.948 million, considering the average potential revenue loss in one year due to the deferred production explained before for the mid-term (total estimated impact for the mid-term USD 376 million divided by 14 years). The estimated CAPEX corresponds to the period 2024-2026 and corresponds to the allocation for decarbonization.

Water

(3.1.2.1) Financial metric

Select from:

☒ Revenue

(3.1.2.2) Amount of financial metric vulnerable to transition risks for this environmental issue (unit currency as selected in 1.2)

0

(3.1.2.3) % of total financial metric vulnerable to transition risks for this environmental issue

Select from:

☒ Less than 1%

(3.1.2.4) Amount of financial metric vulnerable to physical risks for this environmental issue (unit currency as selected in 1.2)

116200000000

(3.1.2.5) % of total financial metric vulnerable to physical risks for this environmental issue

Select from:

☒ Less than 1%

(3.1.2.7) Explanation of financial figures

•Amount of financial metric vulnerable to transition risks: Not evaluated; •Amount of financial metric vulnerable to physical risks: The % of total financial metric vulnerable to water-related physical risks was estimated at COP 116,200 million (USD 26,9 million) considering the average potential revenue loss in one year due to the deferred production explained before for the mid-term (total estimated impact for the mid-term USD 376 million divided by 14 years). This figure is approximately 0.1%. of Ecopetrol Group's total revenues in 2023. • Amount of CAPEX in the reporting year deployed towards risks: Corresponds to the assigned CAPEX for the Aqua Project in 2023, which included: 1) Evaluation of the response of different plant models to the application of nanofertilizers, ECONANO; 2) TPH Polishing in Castilla (60 BPD); 3) DOWS technology surface-level test; 4) Wells stimulation using nanofluids (NanoRPM).

[Add row]

(3.2) Within each river basin, how many facilities are exposed to substantive effects of water-related risks, and what percentage of your total number of facilities does this represent?

Row 1

(3.2.1) Country/Area & River basin

Colombia

☒ Orinoco

(3.2.2) Value chain stages where facilities at risk have been identified in this river basin

Select all that apply

☒ Direct operations

(3.2.3) Number of facilities within direct operations exposed to water-related risk in this river basin

3

(3.2.4) % of your organization's total facilities within direct operations exposed to water-related risk in this river basin

Select from:

☒ 1-25%

(3.2.9) % organization's global oil and gas production volume that could be affected by these facilities

Select from:

☒ 1-25%

(3.2.10) % organization's total global revenue that could be affected

Select from:

☒ Less than 1%

(3.2.11) Please explain

According to the water-related risk assessment, Ecopetrol has identified that 3 assets could be exposed to possible water risks due to seasonal variability with the potential to have a substantive financial impact in operations as described before. These facilities (Castilla, Apiay, and Suria) are in Orinoco's river basin and some of their oil production depends on the surface water discharges, which could be affected by the receiver bodies' low levels in the dry season. Note: Currently, Rubiales closes part of its production during the dry season, due to an annual low ecological flow in the surface water body where it discharges, and it is expected an increase on production impacts by seasonal variability in the mid-term (2% in average for 2027-2040); however, is not considered a facility exposed to water risks that could have a substantive financial impact as the reduction in production associated with seasonal variability is already included in the production planning (P50), and thus the production effects due to the yearly surface water discharge temporary suspension, is not considered a deferred production.

[Add row]

(3.3) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

	Water-related regulatory violations	Comment
	Select from: <input checked="" type="checkbox"/> No	Ecopetrol was not subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations

[Fixed row]

(3.5) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Select from:

☒ Yes

(3.5.1) Select the carbon pricing regulation(s) which impact your operations.

Select all that apply

☒ Colombia carbon tax

(3.5.3) Complete the following table for each of the tax systems you are regulated by.

Colombia carbon tax

(3.5.3.1) Period start date

01/01/2023

(3.5.3.2) Period end date

12/31/2023

(3.5.3.3) % of total Scope 1 emissions covered by tax

(3.5.3.4) Total cost of tax paid

19083676385

(3.5.3.5) Comment

The carbon tax is an economic instrument created to encourage compliance with greenhouse gas (GHG) mitigation goals at the national level and consists of paying a fee related to the carbon content of fuels. The fuels that are taxed by this tax are: Gasoline, Kerosene, Jet Fuel, ACPM and Fuel Oil. Natural gas is also taxed, but only for use in the petrochemical and hydrocarbon refining industry, and liquefied petroleum gas (LPG) but only for sale to industrial users. As of January 2023, coal is also taxed. The tax considers its non-causality through neutralization with carbon credits derived from eligible projects in accordance with the national regulations established for this purpose. As of January 2023, this non-causality mechanism is limited to 50% of the carbon tax. In 2023, Ecopetrol agreed to this mechanism using GHG emission reduction certificates obtained from its own energy efficiency projects, and the Cartagena Refinery neutralized emissions through the purchase of carbon credits from projects available on the Colombian carbon market. Total emissions taxed and neutralized were 645.134 tCO₂, approximately 5.4% of Scope 1 emissions.

[Fixed row]

(3.5.4) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Ecopetrol's climate change strategy incorporates a line of action focused on managing regulatory risks, actively participating in different discussion scenarios or public consultations, to anticipate changes and possible implications for the company. In addition, within the framework of the business risk map, there is the "Regulatory Management Risk", which includes emerging regulatory issues associated with climate change and is analyzed from the perspective of business impact. Regarding current regulations, since 2017 Colombia has applied a consumption tax on all fossil fuels, including all petroleum derivatives and all types of fossil gas (only for refining) that are used for energy purposes. This tax is currently priced at approximately US\$5.7 per ton of CO₂e emitted. The tax considers its non-causality through neutralization with carbon credits derived from eligible projects in accordance with the national regulations established for this purpose. Regarding the emerging regulation, the climate change law (National Law of Colombia 1931 of 2018), defined the provisions for the creation and establishment of a National Cap & Trade System (PNCTE), which is expected to come into force in 2025. For the above, the company has a Decarbonization Plan, which implies a permanent update of the GHG emissions inventory, a portfolio of emission reduction projects and a compensation portfolio in Natural Climate Solutions. This plan is part of the carbon neutrality roadmap for 2050 and in between goals, which will allow rapid adaptation to the PNCTE, provided by the national government.

(3.6) Have you identified any environmental opportunities which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?

	Environmental opportunities identified
Climate change	<i>Select from:</i> <input checked="" type="checkbox"/> Yes, we have identified opportunities, and some/all are being realized
Water	<i>Select from:</i> <input checked="" type="checkbox"/> Yes, we have identified opportunities, and some/all are being realized

[Fixed row]

(3.6.1) Provide details of the environmental opportunities identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future.

Climate change

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp1

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resource efficiency

☒ Use of new technologies

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.8) Organization specific description

Hydrogen is an important opportunity, with an average annual investment around 500,000,000,000 COP between 2023 and 2040. The Ecopetrol Group is executing a dynamic plan for green and blue hydrogen production, an energy source that will provide between 9% to 11% of its long-term GHG emissions reduction targets for scopes 1,2. For its execution, the Company has outlined a path with three-time horizons: The first (2022-2030), focuses on intensifying hydrogen within its own operations, through industrial-scale projects and starting applications in sustainable mobility with cars and buses. The second (2030-2040), seeks to capture and attain significant results in the decarbonization of operations, diversifying with hydrogen business into maritime and aviation mobility, and realizing new business opportunities in the European and Asian markets. The third horizon, from the 2040 onwards, Ecopetrol is focused on promoting widespread adoption of hydrogen and expanding the portfolio.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Increased revenues resulting from increased demand for products and services

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Long-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ Very likely (90–100%)

(3.6.1.12) Magnitude

Select from:

☒ Medium-high

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Two impacts on the financial situation are analyzed regarding the hydrogen opportunity. An EBITDA contribution is expected from 2030 to 2040, representing 1% of Ecopetrol Group's total EBITDA. Additionally, a CAPEX impact is anticipated from 2026 to 2040, with a share of 2% to the total CAPEX.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

1000000000000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

17000000000000

(3.6.1.23) Explanation of financial effect figures

The financial impact is an estimated annual 2040 EBITDA range considering: Ecopetrol's energy transition scenarios, hydrogen demand growth (road transport, maritime, aviation, industrial and gas blending) and market share behavior as expected. For this figures, green hydrogen is produced with additional energy matrix purchase when needed.

(3.6.1.24) Cost to realize opportunity

10400000000000

(3.6.1.25) Explanation of cost calculation

The cost to realize the opportunity is calculated considering Ecopetrol's energy transition scenarios base case and the accumulated capital allocation in H2 opportunities from 2022 to 2040.

(3.6.1.26) Strategy to realize opportunity

Hydrogen represents the potential of replacing the H2 on our refineries and the development of the market for others in industrial and mobility applications. It depends on the evolutions of the competitiveness and feasibility of the technology along the value chain and the applications. As a starting point for this hydrogen business, Ecopetrol has started a pilot for replacing grey to green hydrogen. The pilot consists of electrolyzers installed at Cartagena refinery which is currently supplying a percentage of hydrogen used to improve fuel quality.

Water

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp2

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resource efficiency

☒ Improved field recovery factor

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Orinoco

(3.6.1.8) Organization specific description

The initiative protects water resources by using alternative sources for agroforestry activities, while allowing more efficient use of produced water and reducing water stress in the basin. Ecopetrol studied for 15 years the impact of using treated produced water from the Castilla field in the irrigation of agroforestry crops in the area named Sustainable Agriculture Area (ASA) in the municipality of Acacias, led by Agrosavia (formerly Corpoica), demonstrating that there are no adverse effects from the use of produced water in agricultural and forestry irrigation and that it improves the growth rate. Based on these results, Ecopetrol has been scaling up this option since 2019 as an additional destination for Castilla's produced water to an average of 62 KBWPD in 2023. This opportunity drives three strategic aspects: Having an additional destination for produced water that allows crude oil production, reducing energy consumption compared to water injection and leveraging the aspect of water by increasing water compensation to achieve neutrality in the hydrographic sub-zone where the operation is carried out. During 2023, maintenance and cleaning activities were carried out to reduce the pressure restriction on the pipeline, which will allow to increase the flow in the next years above 110KBWPD during the summer season (December to February) and 75KBWPD for the rest of the year

(3.6.1.9) Primary financial effect of the opportunity

Select from:

- ☒ Increased revenues resulting from increased production capacity

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

- ☒ Short-term
- ☒ Medium-term
- ☒ The opportunity has already had a substantive effect on our organization in the reporting year

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

- ☒ Virtually certain (99–100%)

(3.6.1.12) Magnitude

Select from:

- ☒ Medium-high

(3.6.1.13) Effect of the opportunity on the financial position, financial performance and cash flows of the organization in the reporting period

The initiative allows to manage the water associated with the extraction of crude oil in a sustainable way, which enables its production. Additionally, the initiative reduces energy consumption versus injecting water which means that 1/6 of the energy is consumed by placing it on the surface than by injecting.

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

The ASA expansion between 75KBWPD to 100KBWPD from 2027 will enable to guarantee the additional oil barrels (678.071 per year) and reduce energy consumption by 0.5 kwh/bbl vs. water injection with annual savings of approximately 14 MUSD.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.16) Financial effect figure in the reporting year (currency)

216000000000

(3.6.1.17) Anticipated financial effect figure in the short-term - minimum (currency)

647000000000

(3.6.1.18) Anticipated financial effect figure in the short-term – maximum (currency)

647000000000

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

2100000000000

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

2100000000000

(3.6.1.23) Explanation of financial effect figures

The financial effect figure in the reporting year was calculated based on the crude oil production enabled due to the water reuse in the ASA during 2023. The short-term benefits are estimated assuming that the oil production enabled by the ASA during 2023 remains about the same for the next three years. For the medium term (2027 to 2035), we expect to expand the reuse in 48000 BWPD which will allow us to increase the oil production enabled by the ASA, but also, we expect an energy consumption benefit considering that reusing is 6 time less energy demanding than water reinjection. The following are the assumptions for calculations : 1000 barrels of reused water enables 30 barrels of oil; an energy cost of 280 COP/KWh; an exchange rate of 4100 COP/US; Brent: US 73.53 per barrel.

(3.6.1.24) Cost to realize opportunity

1900000000

(3.6.1.25) Explanation of cost calculation

78% of annual costs in 2023 were related to the operation and maintenance activities in the ASA, while the 22% remaining corresponded to the technical support required for a proper operation of the system. The cost associated to the ASA expansion will be similar to the current maintenance and operation cost. It is also included the costs related to pipelines and water delivery systems adjustments.

(3.6.1.26) Strategy to realize opportunity

The ASA expansion project is based on interdisciplinary work between different areas of the company seeking to improve the design on the current water pipelines in order to reduce the pressure losses and precipitates formation.

Climate change

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp3

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Energy source

☒ Use of carbon capture and storage

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.8) Organization specific description

The energy transition is opening opportunities in businesses related to the decarbonization. Considering that the demand of solutions and services will increase in the next decades, the group has identified and prioritized opportunities as part of the diversification where it can build a profitable segment given its competences, the geographic position of its operations and markets and the characteristics of its assets. One of these opportunities is carbon capture, use, and storage (CCUS)

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Increased revenues resulting from increased demand for products and services

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Long-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ More likely than not (50–100%)

(3.6.1.12) Magnitude

Select from:

☒ Medium-high

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Two impacts on the financial situation are analyzed regarding the CCUS opportunity. An EBITDA contribution is expected from 2033 to 2040, representing 2.6% of Ecopetrol Group's total EBITDA. Additionally, a CAPEX impact is anticipated from 2030 to 2040, with a contribution of 6% to the total CAPEX.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

5000000000000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

6000000000000

(3.6.1.23) Explanation of financial effect figures

The financial figures are an initial estimation of the annual 2040 EBITDA generated by CCUS. The figures assume a decrease in cost and technological improvements for CCUS, the use of CO2 for EOR and industrial use, and the development of regulation regarding carbon taxes and pricing.

(3.6.1.24) Cost to realize opportunity

27761000000000

(3.6.1.25) Explanation of cost calculation

The cost to realize the opportunity is calculated as the average of Ecopetrol's energy transition scenarios, considering the accumulated CAPEX from 2023 to 2040. Additionally, the impact of this opportunity was calculated, considering the associated EBITDA for 2040, which is the year with the highest return in this projection.

(3.6.1.26) Strategy to realize opportunity

CCUS represents the potential business around providing CCUS solutions to different clusters of companies and industries in Colombia. Ecopetrol Group has been conducting studies regarding CCUS and has identified potential clusters in Colombia which can use CCUS for EOR and carbon capture in Barrancabermeja refinery. Between 2030 and 2040, the Ecopetrol Group plans to invest an average of USD 2.5 COP Billion annually in the development of CCUS technology.

Climate change

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp3

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Products and services

☒ Ability to diversify business activities

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.8) Organization specific description

The energy transition is opening up opportunities in businesses related to the de-carbonization. Considering that the demand of solutions and services will increase in the next decades, the group has identified and prioritized opportunities as part of the diversification where it can build a profitable segment given its competences, the geographic position of its operations and markets and the characteristics of its assets. One of these three opportunities is Natural Climate Solutions (NCS)

(3.6.1.9) Primary financial effect of the opportunity

Select from:

- ☒ Increased revenues resulting from increased demand for products and services

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

- ☒ Long-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

- ☒ More likely than not (50–100%)

(3.6.1.12) Magnitude

Select from:

- ☒ Medium-high

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Two impacts on the financial situation are analyzed regarding the NCS opportunity. An EBITDA contribution is expected from 2033 to 2040, representing 0.7% of Ecopetrol Group's total EBITDA. Additionally, a CAPEX impact is anticipated from 2030 to 2040, with a contribution of 0.6% to the total CAPEX.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

- ☒ Yes

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

1000000000000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

11000000000000

(3.6.1.23) Explanation of financial effect figures

The financial figures are an initial estimation of the annual 2040 EBITDA generated by NCS. The figures consider the incorporation of regulations related to carbon taxes and pricing, the roles that Ecopetrol can undertake, and the accounting rules in the voluntary carbon market.

(3.6.1.24) Cost to realize opportunity

2980000000000

(3.6.1.25) Explanation of cost calculation

The cost to realize the opportunity is calculated as the average of Ecopetrol's energy transition scenarios, considering the accumulated CAPEX from 2023 to 2040.

(3.6.1.26) Strategy to realize opportunity

Ecopetrol's 2040 strategy proposes NCS as one of the low-emission businesses that leverage portfolio diversification and decarbonisation goals. Regarding the opportunity for diversification, by 2040 it is expected to have a supply of carbon credits to meet domestic demand and sell to the market.

Climate change

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp4

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Markets

☒ Expansion into new markets

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Other, please specify :Not applicable. The opportunity is related to climate change, not to water.

(3.6.1.8) Organization specific description

Ecopetrol is an integrated energy group that participates in the whole hydrocarbon chain (exploration, production, transportation, refining and marketing) and in linear infrastructure, both in energy transmission and road concessions. In this last line, in 2021, the Ecopetrol Group acquired 51.4% of ISA, a company that operates in the electric power, roads and telecommunications, and ICT sectors, with a footprint across six (6) South American countries and Central America. ISA has a strategic role as a catalyst for that goal. It is expected that ISA will account between 22% and 26% of the Group's long -term EBITDA.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Increased revenues through access to new and emerging markets

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Short-term

☒ Medium-term

☒ Long-term

☒ The opportunity has already had a substantive effect on our organization in the reporting year

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ Virtually certain (99–100%)

(3.6.1.12) Magnitude

Select from:

☒ Medium-high

(3.6.1.13) Effect of the opportunity on the financial position, financial performance and cash flows of the organization in the reporting period

During 2023, Electric Power Transmission and Toll Roads Concessions Segment represented 17.3% of the group's investment in CAPEX, with a generated EBITDA of approximately 9.1 trillion Colombian pesos, representing 15% of the total EBITDA of Ecopetrol Business Group.

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Two impacts on the financial situation have been analyzed regarding ISA opportunity. An EBITDA contribution is expected from 2022 to 2040, representing 22.3% of Ecopetrol Group's total EBITDA. Additionally, a CAPEX impact is anticipated from 2022 to 2040, with a share of 15.4% to the total CAPEX.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.16) Financial effect figure in the reporting year (currency)

9117000000000

(3.6.1.17) Anticipated financial effect figure in the short-term - minimum (currency)

9000000000000

(3.6.1.18) Anticipated financial effect figure in the short-term – maximum (currency)

10000000000000

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

12000000000000

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

13000000000000

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

15000000000000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

16000000000000

(3.6.1.23) Explanation of financial effect figures

The financial impact given is an estimated annual 2040 EBITDA range considering: Ecopetrol's energy transition scenarios, internal electricity needs, associated with decarbonization and efficiency initiatives and market share behavior as expected. For these figures, utilization of remaining capacity is the driver for achieving the strategic aspiration by 2040.

(3.6.1.24) Cost to realize opportunity

71000000000000

(3.6.1.25) Explanation of cost calculation

The cost to realize the opportunity is calculated as the accumulated CAPEX between 2023 and 2040, taking into account Ecopetrol's energy transition scenarios, the projected growth in internal electricity demand, and the expected market share behavior.

(3.6.1.26) Strategy to realize opportunity

ISA enables Ecopetrol group to achieve its long-term objective of consolidating as a diversified energy company, while also ensuring long-term growth with the energy transition and allows Ecopetrol Group to incorporate a more resilient business line within its portfolio.

Climate change

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp5

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Markets

☒ Increased availability of products with reduced environmental impact [other than certified products]

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.8) Organization specific description

The IEA has highlighted the role of natural gas as a bridge fuel to enable energy transition, considering that it can replace more polluting fuels thus, improving air quality, limiting GHG emissions, provide a reliable backup energy source and a diversification alternative. As part of the energy transition, the company has included within its long-term strategy "2040: Energy That Transforms", opportunities to make its core business more resilient by taking advantage of the perspectives of gas as transition fuel, the need of logistic and transport for other type of fuels and energetics and the growing demand for petrochemicals products.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Increased revenues resulting from increased demand for products and services

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

- ☒ Short-term
- ☒ Medium-term
- ☒ Long-term
- ☒ The opportunity has already had a substantive effect on our organization in the reporting year

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

- ☒ Virtually certain (99–100%)

(3.6.1.12) Magnitude

Select from:

- ☒ Medium-high

(3.6.1.13) Effect of the opportunity on the financial position, financial performance and cash flows of the organization in the reporting period

During 2023, Gas and LPG production reached 162 thousand barrels equivalent per day, representing 22% of the group's production mix, 75% of the country Market Share, with a generated EBITDA of approximately 3.5 trillion pesos.

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Two impacts on the financial situation are analyzed regarding the gas opportunity. An EBITDA contribution is expected from 2022 to 2040, representing 12.5% of Ecopetrol Group's total EBITDA. Additionally, a CAPEX impact is anticipated from 2022 to 2040, with a contribution of 8.3% to the total CAPEX.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

- ☒ Yes

(3.6.1.16) Financial effect figure in the reporting year (currency)

3500000000000

(3.6.1.17) Anticipated financial effect figure in the short-term - minimum (currency)

5000000000000

(3.6.1.18) Anticipated financial effect figure in the short-term – maximum (currency)

5500000000000

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

6500000000000

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

7500000000000

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

7500000000000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

7700000000000

(3.6.1.23) Explanation of financial effect figures

The financial impact given is an estimated annual 2040 EBITDA range considering: Ecopetrol's energy transition scenarios, participation of gas in the upstream production, and the midstream business. The petrochemical business potential is to be defined.

(3.6.1.24) Cost to realize opportunity

3600000000000

(3.6.1.25) Explanation of cost calculation

The cost to realize the opportunity makes reference to the gas development strategy that incorporates an accumulated CAPEX from 2023 to 2040. Regarding the downstream segment diversification, an analysis was conducted, and it was determined that the cost to realize this opportunity could represent around 5.500.000.000.000 and this initiative is going under further analysis within the decision-making process.

(3.6.1.26) Strategy to realize opportunity

In the 2040 strategy and according to the recent discoveries in the Colombian Caribbean offshore, the Company has given gas a key strategic role and plan for the next 20 years that includes the next main actions: i) secure the monetization of the current gas portfolio, ii) develop additional demand in Colombia, iii) expand the groups participation in the gas value chain in Colombia and in the region, according to regulations and where market opportunities are attractive. Also, in the midstream sector, the Company is currently exploring this as an opportunity, included in the strategy for the segment with an estimated business cases that is constantly being analyzed and updated. For petrochemicals, as part of the strategy for the segment, during 2022 a diversification analysis was conducted, and the company plans to develop its petrochemical business in the next two decades and maintain the resilience of its Downstream business.

Water

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp6

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resilience

☒ Increased resilience to impacts of climate change

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Magdalena

(3.6.1.8) Organization specific description

The extraction of water from deep aquifers (brackish aquifers) is an option to complement the water required for enhanced oil recovery (EOR) technologies without affecting fresh water sources in the regions where Ecopetrol operates, especially in areas at risk of water scarcity and particularly during dry seasons, ensuring a reliable supply of water for operating activities. This opportunity drives two strategic objectives. Firstly, it supports the objective of increasing oil production as a pillar of competitiveness and at the same time guaranteeing the supply of water for these projects. Secondly, it is aligned with the ambition to achieve water neutrality, as part of the strategic pillar of Value Generation with T ESG, by reducing the water supply in the deficit areas where the operation is carried out. The scope of the initiative consists of the study, characterization, pilot test and expansion to extract water from brackish aquifers that meet required physical and chemical characteristics, as well as ensuring a continuous supply capacity to use in EOR for mature oil fields. This approach aims to prevent negative impacts in regions where this resource is commonly used for potabilization and irrigation as well as the protection of the current and future freshwater supplies in the regions where ECOPETROL operates.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Other, please specify :ensures the supply of water for the operation, preferably not competing with the community's water.

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ Likely (66–100%)

(3.6.1.12) Magnitude

Select from:

☒ High

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

The business case of this opportunity is based on the assumption of freshwater extraction reduction in Ecopetrol. In this way, as the withdrawal of fresh water in the operation is restricted, there will be millions of dollars impacts on operational continuity. The deep aquifers study attempts to meet the future demand for the water resource required to guarantee the operational continuity of the main assets in the area of influence in Valle Medio de Magdalena in drought scenarios. Early estimates of the financial impact within the organization show values that may be close to - 65 MUSD of the benefit of guaranteeing a water source in harmony with the communities and the environment between 2027-2037 to maintain production in the same levels. The projections are based on the evaluation of the impact of the main assets of the Cuenca del Valle Medio del Magdalena basin in which secondary and tertiary recovery processes have been implemented where water supply is vital or important to guarantee continuity.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

82000000000

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

266500000000

(3.6.1.23) Explanation of financial effect figures

Financial impact was preliminary estimated based on a water restriction release by this new source, in order to enable the production for secondary recovery by the EOR technologies, incorporating reserves and production, for assets located in the area of Magdalena Medium Valley. The financial evaluation was conducted considering the following information: production enabled because water availability for enhance oil recovery, positive impact in TSEG issues by enabling water sources that does not compete with the ecosystem, saving in water permits and 10-year timeline. (Average exchange rate 4.100 COP/USD). The VPN was evaluated considering the operation of 44 water intake wells in Casabe, Yariguí-Cantagallo and La Cira-Infanta fields and variables like Brent projections, oil sales quality adjustment, lifting cost, transport, CAPEX which includes studies, engineering, drilling, and surface facilities construction; and OPEX regarding to maintenance, lifting, transport, between others. The benefit is estimate for 10 years scenario between 2027 and 2037. Business case updated with exchange rate and reserves levels.

(3.6.1.24) Cost to realize opportunity

(3.6.1.25) Explanation of cost calculation

The costs include the hydrological model construction in the Valle medio del Magdalena Aquifer. This consist of: - Hydrochemical characterization of water samples. - Isotopic characterization of water samples. - Geological model construction in the area. - Intervention of wells for sampling and pumping tests. - Numerical modeling. The cost is executing between 2021 to 2025.

(3.6.1.26) Strategy to realize opportunity

The study is found in an investigation project presented to the Science and Technology Colombian Ministry. This aims to break the knowledge frontier associated with the groundwater potential. Also inform the control entities of the characteristics of the identified resource so that they can regulate it. Ecopetrol selected the water basin with the highest demand for water resources for the operation with the purpose of defining how fresh water withdrawals will be replaced by waters associated with brackish aquifers.

Water

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp7

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resource efficiency

☒ Use of new technologies

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Magdalena

☒ Orinoco

(3.6.1.8) Organization specific description

The objective of this technology is to treat the produced water to achieve the quality required for injection, maintaining profitability and increasing oil production. This initiative enhances the quality of treated water for injection preserving the operation life of injection wells, reducing maintenance cost and protecting the injection capacity. The implementation of the technology supports Ecopetrol strategy regarding competitive returns by ensuring the management of produced water at competitive cost. In 2023, the Tukano 5 KBWPD filtration package with a new design in the CPO9 field was successfully tested. In 2024 the technologies will be expanded in other oil fields like Chichimene.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Reduced direct costs

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

☒ The opportunity has already had a substantive effect on our organization in the reporting year

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ Likely (66–100%)

(3.6.1.12) Magnitude

Select from:

☒ Medium

(3.6.1.13) Effect of the opportunity on the financial position, financial performance and cash flows of the organization in the reporting period

The benefits are related to the incremental production by the water quality improvement and the reduction of workover in wells because better water quality

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

The benefits are calculated based on a prototype of industrial scale with capacity between 15 and 20 KBWPD. These volumes are a projection that may change over time depending on the expansion technology.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.16) Financial effect figure in the reporting year (currency)

3072880000

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

208927947600

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

228483893900

(3.6.1.23) Explanation of financial effect figures

In 2023, the benefits were certified with the pilots executed, which improved the water quality for the wellhead curve of production (0.55 MUSD) and savings in Opex due to a decrease in the frequency of workover services to the injection well as an effect of the improved quality of injected water (0.16 MUSD). In the short term the opportunity will be developed. For the medium term (2027-2037) the benefits are projected in the same way, increase oil production for the water injection quality and

wells intervention reduction. After the execution of the pilot, it was found that the technology is applicable to more fields such as Castilla and Chichimene, which allows for a possible injection of 232 KBWPD in 45 wells with 22 tukano units and therefore the benefits are greater than last year. It is important to clarify that all of these are estimated projections of what may happen given the current advances in technology, so this value may change over time.

(3.6.1.24) Cost to realize opportunity

13079000000

(3.6.1.25) Explanation of cost calculation

The cost of the initiatives has been implemented under a single budget related to the investment in the water technology suite (Set of studies and technologies related to water management in which the company invests). The total budget for 2024-2025 corresponds to: 3,190,000 USD (13,079,000,000 COP) that include Advanced separation of fluids – ultra-treatment (Tukano), Enrichment of treated wastewater, water demineralization (Selective polish), among others. These resources are awaiting approval by the company's investment plan. The investment for the pilot corresponding to 2023 was: 113,000 USD. (489,064,000 COP).

(3.6.1.26) Strategy to realize opportunity

The scaling of the technology is expected in Castilla, CPO09 and Chichimene fields of up to 22 units with the capacity to treat between 15 and 20 KBWPD Vs the current capacity of 10 KBWPD. Regarding polishing beads, it is expected to be scaled up to 100 KBWPD in Castilla. For the moment, it is expected to be implemented in the central region and the eastern Andean region).

Water

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp8

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resilience

☒ Increased resilience to impacts of climate change

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Orinoco

(3.6.1.8) Organization specific description

Enrichment of treated wastewaters. The objective is to add nano-fertilizers and microorganisms to treat wastewater that could be reused in the irrigation (ASA project) and wood-fuel plantations, generating a circular economy between oil and gas operations at the Orinoquía and eastern plains regions of Colombia, as well as decreasing impacts from in-situ fertilization activities. It is expected to bring the initiative to Rubiales in the medium term. Also the technology includes an alternative called Polishing beads (a new materials for water treatment) for produced water treatment in the final stage of treatment guaranteeing the removal of total hydrocarbons (TPH), bringing them to a concentration of less than 1 mg/l for agro-industrial and agroforestry use, according to the current normativity. Currently, tests have been carried out in Castilla, however, it is expected to take this technology to fields in the central region. It is expected to ensure 240.000 BWPD for industrial irrigation, which would help to stabilize clean crude oil barrels (for the Acacias station).

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Reduced direct costs

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ Likely (66–100%)

(3.6.1.12) Magnitude

Select from:

☒ High

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Financial impact was preliminary estimated based on agriculture business case up to 10.909 hectares irrigated. The objective is to guarantee water production and management in case of reduction of rate for discharged water in the rivers with additional impacts related to increased crop production. The cases were evaluated from 2027 to 2037 for enrichment of treated wastewater. Besides the benefits are related with crude oil increase and water treatment improvement, initially it is expected that the resources will come from Castilla. On the other hand, they generate value with the implementation of technologies for energy transition, for the provision of water for irrigation of industrial use and thus reduce water stress for Polishing beads (new materials for water treatment)

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

149404000000

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

149404000000

(3.6.1.23) Explanation of financial effect figures

The financial impact is based on the water production and management in case of reduction of rate for discharged water in rivers. These benefits are estimated and may change as technology advances. The benefits focus on the following front: increased production through the feasibility of enhanced recovery projects using produced water generating benefits. It is important to emphasize that the benefits are projected, so they may change as the technology is developed. Assumptions are made about the flow rates to be handled and thus the benefits, as well as increasing reuse in agroindustrial areas.

(3.6.1.24) Cost to realize opportunity

13079000000

(3.6.1.25) Explanation of cost calculation

The cost of the initiatives has been implemented under a single budget related to the investment in the water technology suite (Set of studies and technologies related to water management in which the company invests). The total budget for 2024-2025 corresponds to: 3,190,000 USD (13,079,000,000 COP) that includes Advanced separation of fluids – ultra-treatment (Tukano), Enrichment of treated wastewater, water demineralization (Selective polish), among others. These resources are awaiting approval by the company's investment plan

(3.6.1.26) Strategy to realize opportunity

It is expected to achieve the implementation of the technology in the Castilla field with the materialization of the project and the installation of an enrichment unit with nanofertilizers.

Water

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp9

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resource efficiency

☒ Use of new technologies

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Magdalena

☒ Orinoco

(3.6.1.8) Organization specific description

NanoRPM and ECRPM and NanoWW technologies are innovative developments for controlling water production at the source due to the modification of oil and water mobility and the aqueous-phase catchment on near wellbore in conditions of high-water cuts (70% to 95%) and high fluids flows (higher than 3,000 barrels of fluids per day). NanoRPM are polymers with a carbon skeleton and hydrolysable, superabsorbent functional groups. In the case of ECRPM it involved the synthesis of a copolymer and terpolymers. For the following years, it is expected to achieve widespread use of the technology between 2024 and 2032. The well number will depend on the opportunity to intervene in the wells, so the future benefits will be projected.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Reduced indirect (operating) costs

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ Very likely (90–100%)

(3.6.1.12) Magnitude

Select from:

☒ Medium-low

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

The benefits for the medium and long term are due to the incorporation of new income associated with increases in production. As in the benefits that have already been reported, the calculation of the benefit is considered the EBITDA margin, including only the relevant variable costs directly related to the application of the technology, and in no case are they considered investments.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

237697500000

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

237697500000

(3.6.1.23) Explanation of financial effect figures

The monetary benefits are associated with increased production related with the BSW reduction where the technology is applied. The benefits are a sum of the production upsides and the planned wells developed during the year, by the Brent price and discounting the cost of the technology associated with that barrel. The NPV estimates are based on a business case where this technology is implemented in 30 production wells (2024-2025) where benefits are expected due to savings in water treatment, oil production increments, energy savings, lower atmospheric emissions, and increased surface facilities capacity for enabling more Production (2024-2025).

(3.6.1.24) Cost to realize opportunity

0

(3.6.1.25) Explanation of cost calculation

There are not additional costs.

(3.6.1.26) Strategy to realize opportunity

The expansion will be carried out on an opportunity basis through well intervention depending on the needs of the fields.

Water

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp10

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resource efficiency

☒ Improved field recovery factor

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Orinoco

(3.6.1.8) Organization specific description

Selective polishing or water demineralization removes critical ions present in production water such as Na, CL, F, Ca, Mg to enable enhanced recovery (EOR) and reuse projects in the agroindustry. Currently, there is a selection of filter materials for ion removal, as well as a proposal for the pilot plant that allows it.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Reduced direct costs

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Medium-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ Likely (66–100%)

(3.6.1.12) Magnitude

Select from:

☒ High

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

This technology will allow for increased production by enabling enhanced recovery projects using produced water. It is important to emphasize that the benefits are projected, so they may change as the technology develops.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

328082180400

(3.6.1.23) Explanation of financial effect figures

This technology will allow for increased production by making possible improved recovery projects using produced water. It is important to emphasize that the benefits are projected, so they may change as the technology develops. Assumptions are made about the flows that will be managed and thus the benefits, as well as increasing reuse for agricultural use. The benefit quantification includes quality assurance water for Suria and Rubiales fields, for Suria with a potential of 88 KBWPD, ensuring the removal of chlorides and for the Rubiales field the removal of sodium is contemplated for 300 KBWPD.

(3.6.1.24) Cost to realize opportunity

13812700000

(3.6.1.25) Explanation of cost calculation

The cost of the initiatives has been implemented under a single budget related to the investment in the water technology suite (Set of studies and technologies related to water management in which the company invests). The total budget for 2024-2025 corresponds to: 3,190,000 USD (13.079.000.000 COP) that include Advanced separation of fluids – ultra-treatment (Tukano), Enrichment of treated wastewater, water demineralization (Selective polish), among others. These resources are awaiting approval by the company's investment plan.

(3.6.1.26) Strategy to realize opportunity

1. Scaling the developed materials. 2. Pilot field tests in fields with mineral removal needs. 3. Design and scaling up of the solution for each particular case depending on the type of production water and the reuse for agriculture use strategy.

Water**(3.6.1.1) Opportunity identifier**

Select from:

☒ Opp11

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resilience

- ☒ Increased resilience to impacts of climate change

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

- ☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

- ☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

- ☒ Magdalena

(3.6.1.8) Organization specific description

La Tribuna is an Eco-reserve located in the San Francisco field in the municipality of Palermo, Huila, with 128 hectares dedicated to the conservation of tropical dry forest. For more than two decades, it has been one of the most relevant experiences in environmental sustainability as a complementary strategy for the conservation of oil production areas. In 2012, this Eco-Reserve became part of Ecopetrol, which is now the guarantor of the protection of the site and the ecosystem through natural regeneration. The Eco-Reserve protects 140 butterflies, 123 bird species, 63 arachnids, 32 dragonflies, 18 amphibians, 13 reptiles and 24 mammals, migratory birds; in addition to all the flora that is restored and protected in the region, exceeding 700 protected species. In this location there are 7 oil wells and several natural oil outcrops. The Eco-reserve protects some important water sources: El Nacimiento La Moyita (spring of crystal-clear waters), La Laguna Verde (source supplier), Quebrada El Neme (micro-basin in which the Eco-reserve is located), Chispiadal waterfall, etc. La Tribuna It is one of the 20 Ecoreserves designated in the Ecopetrol Group, twelve (12) correspond to Ecopetrol S.A., five (5) to Cenit, two (2) to Ocesa and one (1) to Hocol.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

- ☒ Other, please specify :Water compensation for environmental protection

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

- ☒ Long-term
- ☒ The opportunity has already had a substantive effect on our organization in the reporting year

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

- ☒ Very likely (90–100%)

(3.6.1.12) Magnitude

Select from:

- ☒ Medium

(3.6.1.13) Effect of the opportunity on the financial position, financial performance and cash flows of the organization in the reporting period

More than a monetary benefit there is an environmental benefit which is the compensation of water, the protection and restoration of an ecosystem that corresponds to 123 hectares. The water compensation is the 184 barrels/day (67,381 barrels per year), related to the reduction of soil degradation and fires, which allow greater water retention in the land. This benefit demonstrates the company's commitment to protecting and restoring the environment, focusing on the 2040 energy strategy, aligned with offsetting and the search for water neutrality.

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

There is an environmental benefit which is the water compensation, ecosystem protection and restoration corresponds to 123 hectares. The water compensation is the 184 barrels/day (67,381 barrels per year).

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

- ☒ No

(3.6.1.24) Cost to realize opportunity

710153674

(3.6.1.25) Explanation of cost calculation

The cost of the implementation, recovery and maintenance of the Ecoreserve from 2021 to 2023 has been 174,247 USD. The Expected cost for 2024 is 82,100 USD.

(3.6.1.26) Strategy to realize opportunity

The Eco-reserve has already been implemented.

Water

(3.6.1.1) Opportunity identifier

Select from:

☒ Opp12

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Resource efficiency

☒ Reduced water usage and consumption

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☒ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☒ Colombia

(3.6.1.6) River basin where the opportunity occurs

Select all that apply

☒ Magdalena

☒ Orinoco

(3.6.1.8) Organization specific description

The Water Management Suite is a commercial initiative from the Vice presidency of Science, Technology and Innovation of Ecopetrol and it is based on the consolidation of a product/service consisting on the technologies developed by the ICP (Research and Development Center of Ecopetrol) to meet the needs in this matter for different industries.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☒ Reduced direct costs

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☒ Long-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☒ More likely than not (50–100%)

(3.6.1.12) Magnitude

Select from:

☒ High

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

The Water Management Suite is a commercial initiative from the Vice presidency of Science, Technology and Innovation of Ecopetrol and is based on the consolidation of a product/service based on the technologies developed by the ICP (Research and Development Center of Ecopetrol) to meet the needs in this matter for different industries

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☒ Yes

(3.6.1.21) Anticipated financial effect figure in the long-term - minimum (currency)

963156600000

(3.6.1.22) Anticipated financial effect figure in the long-term – maximum (currency)

1062529900000

(3.6.1.23) Explanation of financial effect figures

The financial impact comes from the income that would receive Ecopetrol for supplying the technologies for its implementation in the its full potential, taking in count different scenarios to go to market.

(3.6.1.24) Cost to realize opportunity

305764000000

(3.6.1.25) Explanation of cost calculation

The activities that this resource had as its scope were: 1). TPH polishing test was carried out at the Acacias station for 17,000 Bls of water, which was executed with successful results, a test was carried out with a 60-day operation. 2). The Dows Unit test in Castilla 196 well was carried out, achieving 50 ppm of oil in water, a successful test result. 3). Water enrichment test with nanofertilizers at the laboratory scale carried out successfully with an agreement made with Cenipalma and Agrosavia. 4). Test of Tukano technology, pilot of a 10,000 Bbl unit was executed in the CPO-9 field with successful results.

(3.6.1.26) Strategy to realize opportunity

The strategy is based in fulfilling by scopes the maturity of several technologies until TRL9 (Technology Readiness Level) to show off the efficiency of the technologies within Ecopetrol and based on that (scope 1), make a commercial approach initially to other O&G companies (scope 2). The first scope includes four

technologies with TRL 6 (SOWS, THP polishing, MCAI-Tucano polishing, nano technologies that covers NanoRPM and ECORPM) that will be implemented in Ecopetrol's full potential; these technologies are focused on separate the water from the crude with good quality for in-situ injection at the well clusters, treatment and polishing of production water to be reused mainly for crop irrigation, water reuse for drilling and completion activities, control of water production at the source due to the modification of oil and water mobility and the aqueous-phase catchment on near wellbore, respectively.

[Add row]

(3.6.2) Provide the amount and proportion of your financial metrics in the reporting year that are aligned with the substantive effects of environmental opportunities.

Climate change

(3.6.2.1) Financial metric

Select from:

☒ CAPEX

(3.6.2.2) Amount of financial metric aligned with opportunities for this environmental issue (unit currency as selected in 1.2)

0

(3.6.2.3) % of total financial metric aligned with opportunities for this environmental issue

Select from:

☒ 1-10%

(3.6.2.4) Explanation of financial figures

Currently, Ecopetrol has an assessment of the financial impact of opportunities related to climate change and energy transition. However, the exercise of analysing the proportion of investment in climate change opportunities with respect to the total made has not been evaluated. It is expected that in the next two years progress will be made in identifying the participation of environmental issues within the defined financial variables.

Water

(3.6.2.1) Financial metric

Select from:

☒ Other, please specify :Not assessed

(3.6.2.2) Amount of financial metric aligned with opportunities for this environmental issue (unit currency as selected in 1.2)

0

(3.6.2.3) % of total financial metric aligned with opportunities for this environmental issue

Select from:

☒ Less than 1%

(3.6.2.4) Explanation of financial figures

Not assessed
[Add row]

C4. Governance

(4.1) Does your organization have a board of directors or an equivalent governing body?

(4.1.1) Board of directors or equivalent governing body

Select from:

☒ Yes

(4.1.2) Frequency with which the board or equivalent meets

Select from:

☒ More frequently than quarterly

(4.1.3) Types of directors your board or equivalent is comprised of

Select all that apply

☒ Non-executive directors or equivalent

☒ Independent non-executive directors or equivalent

(4.1.4) Board diversity and inclusion policy

Select from:

☒ Yes, and it is publicly available

(4.1.5) Briefly describe what the policy covers

The Diversity and Inclusion Policy for the composition of the Board of Directors of Ecopetrol (BoD) and the Boards of Ecopetrol Group's companies is a corporate governance guideline through which the BoD recognizes the value of diversity and inclusion framed within the three components of Ecopetrol's Diversity and Inclusion Program, namely: 1) talent, 2) corporate responsibility, and 3) corporate management. It is essential to ensure that the composition of the BoD provides an adequate balance of diversity within its members in terms of training, experience, and suitability; and gender and non-binary gender identity; origin and geographical; origin; race or ethnicity; age; beliefs; disability; amongst others, to foster a sound decision-making process.

(4.1.6) Attach the policy (optional)

C4.1.CGOB-diversity-inclusion-policy-BD-ENG.pdf

[Fixed row]

(4.1.1) Is there board-level oversight of environmental issues within your organization?

	Board-level oversight of this environmental issue
Climate change	Select from: <input checked="" type="checkbox"/> Yes
Water	Select from: <input checked="" type="checkbox"/> Yes
Biodiversity	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(4.1.2) Identify the positions (do not include any names) of the individuals or committees on the board with accountability for environmental issues and provide details of the board's oversight of environmental issues.

Climate change

(4.1.2.1) Positions of individuals or committees with accountability for this environmental issue

Select all that apply

☒ Board-level committee

(4.1.2.2) Positions' accountability for this environmental issue is outlined in policies applicable to the board

Select from:

☒ Yes

(4.1.2.3) Policies which outline the positions' accountability for this environmental issue

Select all that apply

☒ Other policy applicable to the board, please specify :Internal regulations of The Ecopetrol S.A. Board of Directors HSE Committee

(4.1.2.4) Frequency with which this environmental issue is a scheduled agenda item

Select from:

☒ Scheduled agenda item in some board meetings – at least annually

(4.1.2.5) Governance mechanisms into which this environmental issue is integrated

Select all that apply

- | | |
|--|---|
| <input checked="" type="checkbox"/> Reviewing and guiding annual budgets | <input checked="" type="checkbox"/> Reviewing and guiding innovation/R&D priorities |
| <input checked="" type="checkbox"/> Overseeing and guiding scenario analysis | <input checked="" type="checkbox"/> Approving and/or overseeing employee incentives |
| <input checked="" type="checkbox"/> Overseeing the setting of corporate targets | <input checked="" type="checkbox"/> Overseeing and guiding major capital expenditures |
| <input checked="" type="checkbox"/> Monitoring progress towards corporate targets | <input checked="" type="checkbox"/> Monitoring the implementation of the business strategy |
| <input checked="" type="checkbox"/> Approving corporate policies and/or commitments | <input checked="" type="checkbox"/> Overseeing reporting, audit, and verification processes |
| <input checked="" type="checkbox"/> Monitoring the implementation of a climate transition plan | |
| <input checked="" type="checkbox"/> Overseeing and guiding the development of a business strategy | |
| <input checked="" type="checkbox"/> Overseeing and guiding acquisitions, mergers, and divestitures | |
| <input checked="" type="checkbox"/> Monitoring supplier compliance with organizational requirements | |
| <input checked="" type="checkbox"/> Monitoring compliance with corporate policies and/or commitments | |
| <input checked="" type="checkbox"/> Overseeing and guiding the development of a climate transition plan | |
| <input checked="" type="checkbox"/> Reviewing and guiding the assessment process for dependencies, impacts, risks, and opportunities | |

(4.1.2.7) Please explain

The Board is responsible for approving the Ecopetrol Group's (GE) strategy and investment plan. In 2023, the Board followed up on the 2040 Strategy, which responds comprehensively to the current environmental, social and governance challenges. The 2040 Strategy includes 4 pillars, 2 of which are related to energy

transition and sustainability. The sustainability pillar "Generating value through T ESG" aims to generate net-zero emissions of CO2 equivalent by 2050 in scopes 1 and 2, and the "Growing with the energy transition" pillar includes goals to further diversification into energy and low-emission businesses. Ecopetrol has developed a plan to accelerate and prioritize decarbonization, energy efficiency and energy transition. In 2023 the Board approved the 2024 general organic Investment Plan for the Ecopetrol Group (IP). In 2024, the GE will invest around COP 3,7 trillion to sustainability projects and activities, mainly in territorial development, climate change and science, technology and innovation affairs. About 36% of such amount is aimed at climate change, use of alternative energies and air quality matters, and about 24% is aimed at comprehensive water management matters. The 2024 IP enhances reduction of almost one million tons of CO2 equivalent between 2024 and 2026. Furthermore, over 40% of the 2024 IP is aimed at energy transition projects, through low-emissions-solutions businesses, natural gas supply, sustainability, decarbonization, electrical transmission and roads. The Board also reviewed the results of corporate targets and performance objectives for the GE's 2022 Balanced Scorecard (TBG) and updated the goals for 2023 of the 2023-2025 TBG. The TBG is used to set and monitor performance in relation to the Company's targets and it has an impact on employees' annual variable remuneration. Regarding energy transition and sustainability related matters, the 2023 TBG included a 65% relevance weight. The Boards structure includes Committees that support its decision-making process including climate change and water. Through its HSE Committee, it monitored the performance of targets related to water neutrality, greenhouse effect gases and reduction of methane emissions, and through its Risk and Audit Committee it reviewed the Business Risk Map which includes as a risk "Inadequate response to challenges associated with climate change, water and biodiversity".

Water

(4.1.2.1) Positions of individuals or committees with accountability for this environmental issue

Select all that apply

☒ Board-level committee

(4.1.2.2) Positions' accountability for this environmental issue is outlined in policies applicable to the board

Select from:

☒ Yes

(4.1.2.3) Policies which outline the positions' accountability for this environmental issue

Select all that apply

☒ Other policy applicable to the board, please specify :Internal regulations of The Ecopetrol S.A. Board of Directors HSE Committee

(4.1.2.4) Frequency with which this environmental issue is a scheduled agenda item

Select from:

☒ Scheduled agenda item in some board meetings – at least annually

(4.1.2.5) Governance mechanisms into which this environmental issue is integrated

Select all that apply

- ☒ Overseeing and guiding scenario analysis
- ☒ Overseeing the setting of corporate targets
- ☒ Monitoring progress towards corporate targets
- ☒ Approving corporate policies and/or commitments
- ☒ Reviewing and guiding innovation/R&D priorities
- ☒ Monitoring compliance with corporate policies and/or commitments
- ☒ Reviewing and guiding the assessment process for dependencies, impacts, risks, and opportunities
- ☒ Overseeing and guiding major capital expenditures
- ☒ Monitoring the implementation of the business strategy
- ☒ Overseeing reporting, audit, and verification processes
- ☒ Overseeing and guiding the development of a business strategy
- ☒ Overseeing and guiding acquisitions, mergers, and divestitures

(4.1.2.7) Please explain

The Board is responsible for approving the Ecopetrol Group's (GE) strategy and investment plan. In 2023, the Board followed up on the 2040 Strategy, which responds comprehensively to the current environmental, social and governance challenges. The 2040 Strategy includes 4 pillars, 2 of which are related to energy transition and sustainability. The sustainability pillar "Generating value through T ESG" aims to generate net-zero emissions of CO2 equivalent by 2050 in scopes 1 and 2, and the "Growing with the energy transition" pillar includes goals to further diversification into energy and low-emission businesses. Ecopetrol has developed a plan to accelerate and prioritize decarbonization, energy efficiency and energy transition. In 2023 the Board approved the 2024 general organic Investment Plan for the Ecopetrol Group (IP). In 2024, the GE will invest around COP 3,7 trillion to sustainability projects and activities, mainly in territorial development, climate change and science, technology and innovation affairs. About 36% of such amount is aimed at climate change, use of alternative energies and air quality matters, and about 24% is aimed at comprehensive water management matters. The 2024 IP enhances reduction of almost one million tons of CO2 equivalent between 2024 and 2026. Furthermore, over 40% of the 2024 IP is aimed at energy transition projects, through low-emissions-solutions businesses, natural gas supply, sustainability, decarbonization, electrical transmission and roads. The Board also reviewed the results of corporate targets and performance objectives for the GE's 2022 Balanced Scorecard (TBG) and updated the goals for 2023 of the 2023-2025 TBG. The TBG is used to set and monitor performance in relation to the Company's targets and it has an impact on employees' annual variable remuneration. Regarding energy transition and sustainability related matters, the 2023 TBG included a 65% relevance weight. The Boards structure includes Committees that support its decision-making process including climate change and water. Through its HSE Committee, it monitored the performance of targets related to water neutrality, greenhouse effect gases and reduction of methane emissions, and through its Risk and Audit Committee it reviewed the Business Risk Map which includes as a risk "Inadequate response to challenges associated with climate change, water and biodiversity".

Biodiversity

(4.1.2.1) Positions of individuals or committees with accountability for this environmental issue

Select all that apply

- ☒ Board-level committee

(4.1.2.2) Positions' accountability for this environmental issue is outlined in policies applicable to the board

Select from:

☒ Yes

(4.1.2.3) Policies which outline the positions' accountability for this environmental issue

Select all that apply

☒ Other policy applicable to the board, please specify :Internal regulations of The Ecopetrol S.A. Board of Directors HSE Committee

(4.1.2.4) Frequency with which this environmental issue is a scheduled agenda item

Select from:

☒ Scheduled agenda item in some board meetings – at least annually

(4.1.2.5) Governance mechanisms into which this environmental issue is integrated

Select all that apply

- | | |
|--|---|
| <input checked="" type="checkbox"/> Reviewing and guiding annual budgets | <input checked="" type="checkbox"/> Reviewing and guiding innovation/R&D priorities |
| <input checked="" type="checkbox"/> Overseeing and guiding scenario analysis | <input checked="" type="checkbox"/> Overseeing and guiding major capital expenditures |
| <input checked="" type="checkbox"/> Overseeing the setting of corporate targets | <input checked="" type="checkbox"/> Monitoring the implementation of the business strategy |
| <input checked="" type="checkbox"/> Monitoring progress towards corporate targets | <input checked="" type="checkbox"/> Overseeing reporting, audit, and verification processes |
| <input checked="" type="checkbox"/> Approving corporate policies and/or commitments | <input checked="" type="checkbox"/> Overseeing and guiding the development of a business strategy |
| <input checked="" type="checkbox"/> Overseeing and guiding acquisitions, mergers, and divestitures | |
| <input checked="" type="checkbox"/> Monitoring supplier compliance with organizational requirements | |
| <input checked="" type="checkbox"/> Reviewing and guiding the assessment process for dependencies, impacts, risks, and opportunities | |

(4.1.2.7) Please explain

The Board is responsible for approving the Ecopetrol Group's (GE) strategy and investment plan. In 2023, the Board followed up on the 2040 Strategy, which responds comprehensively to the current environmental, social and governance challenges. The 2040 Strategy includes 4 pillars, 2 of which are related to energy transition and sustainability. The sustainability pillar "Generating value through T ESG" aims to generate net-zero emissions of CO2 equivalent by 2050 in scopes 1 and 2, and the "Growing with the energy transition" pillar includes goals to further diversification into energy and low-emission businesses. Ecopetrol has developed a plan to accelerate and prioritize decarbonization, energy efficiency and energy transition. In 2023 the Board approved the 2024 general organic Investment Plan for

the Ecopetrol Group (IP). In 2024, the GE will invest around COP 3,7 trillion to sustainability projects and activities, mainly in territorial development, climate change and science, technology and innovation affairs. About 36% of such amount is aimed at climate change, use of alternative energies and air quality matters, and about 24% is aimed at comprehensive water management matters. The 2024 IP enhances reduction of almost one million tons of CO2 equivalent between 2024 and 2026. Furthermore, over 40% of the 2024 IP is aimed at energy transition projects, through low-emissions-solutions businesses, natural gas supply, sustainability, decarbonization, electrical transmission and roads. The Board also reviewed the results of corporate targets and performance objectives for the GE's 2022 Balanced Scorecard (TBG) and updated the goals for 2023 of the 2023-2025 TBG. The TBG is used to set and monitor performance in relation to the Company's targets and it has an impact on employees' annual variable remuneration. Regarding energy transition and sustainability related matters, the 2023 TBG included a 65% relevance weight. The Boards structure includes Committees that support its decision-making process including climate change and water. Through its HSE Committee, it monitored the performance of targets related to water neutrality, greenhouse effect gases and reduction of methane emissions, and through its Risk and Audit Committee it reviewed the Business Risk Map which includes as a risk "Inadequate response to challenges associated with climate change, water and biodiversity".
[Fixed row]

(4.2) Does your organization's board have competency on environmental issues?

Climate change

(4.2.1) Board-level competency on this environmental issue

Select from:

☒ Yes

(4.2.2) Mechanisms to maintain an environmentally competent board

Select all that apply

- ☒ Integrating knowledge of environmental issues into board nominating process
- ☒ Regular training for directors on environmental issues, industry best practice, and standards (e.g., TCFD, SBTi)
- ☒ Having at least one board member with expertise on this environmental issue

(4.2.3) Environmental expertise of the board member

Other

☒ Other, please specify :The BoD defined its Competencies and Experience Matrix to determine the knowledge, training and expertise required from its members. One of the complementary requirements is HSE. 3 Directors have experience in climate change.

Water

(4.2.1) Board-level competency on this environmental issue

Select from:

☒ Yes

(4.2.2) Mechanisms to maintain an environmentally competent board

Select all that apply

☒ Integrating knowledge of environmental issues into board nominating process

☒ Regular training for directors on environmental issues, industry best practice, and standards (e.g., TCFD, SBTi)

☒ Having at least one board member with expertise on this environmental issue

(4.2.3) Environmental expertise of the board member

Other

☒ Other, please specify :The BoD defined its Competencies and Experience Matrix to determine the knowledge, training and expertise required from its members. One of the complementary requirements is HSE. 1 Director have experience in water.

[Fixed row]

(4.3) Is there management-level responsibility for environmental issues within your organization?

	Management-level responsibility for this environmental issue
Climate change	Select from: <input checked="" type="checkbox"/> Yes

	Management-level responsibility for this environmental issue
Water	Select from: <input checked="" type="checkbox"/> Yes
Biodiversity	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(4.3.1) Provide the highest senior management-level positions or committees with responsibility for environmental issues (do not include the names of individuals).

Climate change

(4.3.1.1) Position of individual or committee with responsibility

Executive level

☒ Other C-Suite Officer, please specify :HSE Vice President

(4.3.1.2) Environmental responsibilities of this position

Dependencies, impacts, risks and opportunities

☒ Managing environmental dependencies, impacts, risks, and opportunities

Engagement

☒ Managing public policy engagement related to environmental issues

Policies, commitments, and targets

☒ Monitoring compliance with corporate environmental policies and/or commitments

- ☒ Measuring progress towards environmental corporate targets
- ☒ Setting corporate environmental policies and/or commitments
- ☒ Setting corporate environmental targets

Strategy and financial planning

- ☒ Developing a business strategy which considers environmental issues
- ☒ Developing a climate transition plan
- ☒ Implementing the business strategy related to environmental issues
- ☒ Managing environmental reporting, audit, and verification processes
- ☒ Managing major capital and/or operational expenditures relating to environmental issues

(4.3.1.4) Reporting line

Select from:

- ☒ Reports to the Chief Operating Officer (COO)

(4.3.1.5) Frequency of reporting to the board on environmental issues

Select from:

- ☒ More frequently than quarterly

(4.3.1.6) Please explain

The VP reports to the COO. He/she directs and leads the definition and implementation of the Environmental Management, Industrial Safety, Process Safety, Integral and Occupational Health strategy through strong guidance and deployment of management systems, standards, risk and opportunity management, best practices and systematic HSE assessments. Within the framework of the Environmental Strategy, climate change, circular economy and biodiversity efforts are managed through the Sustainability and Decarbonization Management team, and water, air quality, environmental compliance and waste issues through the Environmental and Relationship Management team. On climate change, it leads the implementation of the Decarbonization Plan, defines emission reduction and offset targets, manages the Atmospheric Emissions Management System (SIGEA), defines guidelines for emissions offset management, and establishes climate change adaptation measures to reduce climate-related vulnerabilities and risks. Additionally, the role of the VP includes measuring its performance, identifying gaps and formulating intervention plans at a strategic and tactical level, ensuring the integral care of people, the environment and the organization's infrastructure.

Water

(4.3.1.1) Position of individual or committee with responsibility

Executive level

- ☒ Other C-Suite Officer, please specify :HSE Vice President

(4.3.1.2) Environmental responsibilities of this position

Dependencies, impacts, risks and opportunities

- ☒ Assessing environmental dependencies, impacts, risks, and opportunities
- ☒ Managing environmental dependencies, impacts, risks, and opportunities

Policies, commitments, and targets

- ☒ Monitoring compliance with corporate environmental policies and/or commitments
- ☒ Measuring progress towards environmental corporate targets
- ☒ Setting corporate environmental targets

Strategy and financial planning

- ☒ Managing annual budgets related to environmental issues
- ☒ Managing environmental reporting, audit, and verification processes

(4.3.1.4) Reporting line

Select from:

- ☒ Reports to the Chief Operating Officer (COO)

(4.3.1.5) Frequency of reporting to the board on environmental issues

Select from:

- ☒ More frequently than quarterly

(4.3.1.6) Please explain

The VP reports to the COO. He/she directs and leads the definition and implementation of the Environmental Management, Industrial Safety, Process Safety, Integral and Occupational Health strategy through strong guidance and deployment of management systems, standards, risk and opportunity management, best practices and systematic HSE assessments. Within the framework of the Environmental Strategy, climate change, circular economy and biodiversity efforts are managed through the Sustainability and Decarbonization Management team, and water, air quality, environmental compliance and waste issues through the Environmental and Relationship Management team. In relation to Water Neutrality, it manages the issues of operational efficiency in water management, integration of knowledge and technology, and sustainability and water security in the environment. Additionally, the role of the VP includes measuring its performance, identifying gaps and formulating intervention plans at a strategic and tactical level, ensuring the integral care of people, the environment and the organization's infrastructure. The Vice-president of HSE is also responsible for leading the Business Risk "Inadequate management of climate change and water" which includes the following activities:

- Assessing water-related risk, including the identification of causes and consequences, and the scenario analysis
- Defining treatment actions for managing risks and defining their responsible
- Defining key risk indicators and thresholds

Biodiversity

(4.3.1.1) Position of individual or committee with responsibility

Executive level

☒ Other C-Suite Officer, please specify :HSE Vice President

(4.3.1.2) Environmental responsibilities of this position

Dependencies, impacts, risks and opportunities

- ☒ Assessing environmental dependencies, impacts, risks, and opportunities
- ☒ Managing environmental dependencies, impacts, risks, and opportunities

Engagement

☒ Managing engagement in landscapes and/or jurisdictions

Policies, commitments, and targets

- ☒ Monitoring compliance with corporate environmental policies and/or commitments
- ☒ Measuring progress towards environmental corporate targets
- ☒ Setting corporate environmental policies and/or commitments
- ☒ Setting corporate environmental targets

Strategy and financial planning

- ☒ Developing a business strategy which considers environmental issues
- ☒ Implementing the business strategy related to environmental issues
- ☒ Managing annual budgets related to environmental issues
- ☒ Managing environmental reporting, audit, and verification processes
- ☒ Managing major capital and/or operational expenditures relating to environmental issues

(4.3.1.4) Reporting line

Select from:

- ☒ Reports to the Chief Operating Officer (COO)

(4.3.1.5) Frequency of reporting to the board on environmental issues

Select from:

- ☒ More frequently than quarterly

(4.3.1.6) Please explain

The VP reports to the COO. He/she directs and leads the definition and implementation of the Environmental Management, Industrial Safety, Process Safety, Integral and Occupational Health strategy through strong guidance and deployment of management systems, standards, risk and opportunity management, best practices and systematic HSE assessments. Within the framework of the Environmental Strategy, climate change, circular economy and biodiversity efforts are managed through the Sustainability and Decarbonization Management team, and water, air quality, environmental compliance and waste issues through the Environmental and Relationship Management team. In Biodiversity, management is aimed at positively impacting the environment in which we operate, through the implementation of nature-based solutions and generating knowledge within the framework of the mitigation hierarchy. Additionally, the role of the VP includes measuring its performance, identifying gaps and formulating intervention plans at a strategic and tactical level, ensuring the integral care of people, the environment and the organization's infrastructure.

[Add row]

(4.5) Do you provide monetary incentives for the management of environmental issues, including the attainment of targets?

Climate change

(4.5.1) Provision of monetary incentives related to this environmental issue

Select from:

☒ Yes

(4.5.2) % of total C-suite and board-level monetary incentives linked to the management of this environmental issue

22

(4.5.3) Please explain

Total Compensation for Ecopetrol employees is given in fixed compensation, variable compensation (short-term and long-term), and benefits. Short-term variable compensation is awarded based on annual company's results, variable compensation includes HSE impacts, environmental, ethical, and disciplinary events, internal control failures and the individual performance of each employee. Company's metrics for compensation includes, among others, compliance with greenhouse gas reduction targets from 2019 to 2023 and, the definition methane reduction targets for 2025 and 2030. For Long-Term Incentive Plans (LTI), we currently have three plans implemented for periods 2021-2023, 2022-2024, and 2023-2025; the objectives are associated with the generation of value and energy transition and, the diversification of low-emission businesses. All these plans include decarbonization objectives, goals and targets to reduce Greenhouse Gas emissions with an average weight of 15% of the LTI.

Water

(4.5.1) Provision of monetary incentives related to this environmental issue

Select from:

☒ Yes

(4.5.2) % of total C-suite and board-level monetary incentives linked to the management of this environmental issue

9

(4.5.3) Please explain

The short-term variable compensation of Senior Managers is subject to compliance with the annual business results reflected in the Balanced Business Group Management Dashboard (TBG GE), which includes metrics associated with the main focuses of the Strategy. The TBG GE 2023 includes the Generate Value through T ESG composed by the indicators of Reduction of Greenhouse Gas Emissions (5%), Strategy for the definition of methane reduction targets for 2025 and 2030(2%), Efficiency in Water Management (3%) and Compliance with Social Investment Goals for Territorial Development (6%). In addition, the short-term variable

compensation considers compliance with the Individual Performance Agreement of each of the Senior Managers, which includes its own indicators that reflect the specific contribution of the processes in charge to the fulfillment of the strategic objectives of the company organization, and at this specific point the deployment of Sustainability metrics according to each person's
[Fixed row]

(4.5.1) Provide further details on the monetary incentives provided for the management of environmental issues (do not include the names of individuals).

Climate change

(4.5.1.1) Position entitled to monetary incentive

Board or executive level

☒ Chief Executive Officer (CEO)

(4.5.1.2) Incentives

Select all that apply

☒ Bonus - % of salary

(4.5.1.3) Performance metrics

Emission reduction

☒ Reduction in absolute emissions

(4.5.1.4) Incentive plan the incentives are linked to

Select from:

☒ Both Short-Term and Long-Term Incentive Plan, or equivalent

(4.5.1.5) Further details of incentives

The Long -Term Incentives (LTI) apply to company executives and each plan includes a GHG reduction target for each three-year period, aligned with the company's goal of reducing GHG emissions by 25% by 2030 (Scopes 1 and 2) and achieving zero net carbon emissions by 2050. Currently we have implemented three LTI plans for the periods, 2021-2023, 2022-2024 and 2023-2025.

(4.5.1.6) How the position's incentives contribute to the achievement of your environmental commitments and/or climate transition plan

The objectives set to guarantee the alignment of the GE companies and the fulfillment of the objectives leverage the energy transition plan of the organization. The Greenhouse gas reduction indicator: This accounts for the annual and cumulative reduction of Greenhouse Gas (GHG) emissions of the Ecopetrol Group (CO₂, CH₄, N₂O) in terms of CO₂ equivalents, due to the implementation of mission reduction projects such as: process optimization, gas utilization, energy efficiency, changes in the energy matrix, among others. In terms of short-term variable compensation, the goal for 2023 is to reach a total amount of 581,532 tons of CO₂ equivalent. Additionally, there are three long-term incentive plans (LTIP) in progress for the years 2021-2023, 2022-2024, 2023-2025 whose goals are 1,33, 1,55, and 1,57 million of tons CO₂ equivalent, respectively. Further details: 2023 Integrated Management Report, https://files.ecopetrol.com.co/web/eng/Ecopetrol_IS2023_ENG_20240527.pdf (Pages: 49-51)

Water

(4.5.1.1) Position entitled to monetary incentive

Board or executive level

☒ Chief Executive Officer (CEO)

(4.5.1.2) Incentives

Select all that apply

☒ Bonus - % of salary

(4.5.1.3) Performance metrics

Targets

☒ Achievement of environmental targets

Resource use and efficiency

☒ Reduction of water withdrawals – direct operations

☒ Improvements in water efficiency – direct operations

(4.5.1.4) Incentive plan the incentives are linked to

Select from:

☒ Short-Term Incentive Plan, or equivalent, only (e.g. contractual annual bonus)

(4.5.1.5) Further details of incentives

The Short-Term Incentive (STI) applies to all employees and is recognized based on the results of the strategic objectives and the goals of the Balanced Scorecard (TBGs). In 2023 Ecopetrol's Group Balanced Scorecard included the "water management efficiency" indicator composed by: i) freshwater withdrawal limit; ii) produced water recycling target; and iii) industrial water recycling target.

(4.5.1.6) How the position's incentives contribute to the achievement of your environmental commitments and/or climate transition plan

Short-term targets have been set for monitoring the progress on the achievement of water neutrality targets. This goal aimed to minimize Ecopetrol's freshwater withdrawals and discharges, thus reducing the pressure that the company puts on natural resources, especially in areas with high rates of water use
[Add row]

(4.6) Does your organization have an environmental policy that addresses environmental issues?

	Does your organization have any environmental policies?
	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(4.6.1) Provide details of your environmental policies.

Row 1

(4.6.1.1) Environmental issues covered

Select all that apply

- ☒ Climate change
- ☒ Water
- ☒ Biodiversity

(4.6.1.2) Level of coverage

Select from:

- ☒ Organization-wide

(4.6.1.3) Value chain stages covered

Select all that apply

- ☒ Direct operations

(4.6.1.4) Explain the coverage

Our Environmental Strategy sets the corporate mission and vision for environmental protection and is immersed and coordinated with the Company's T ESG Strategy, its Corporate Responsibility Strategy within an energy transition framework. The Environmental Strategy was developed in accordance with the Leadership and Planning stage of the HSE Management System, and the strategic pillars defined on it obey to the Programs and Plans sub-element, according to the guidelines set out in the ISO 14001 Standard. The environmental vision of Ecopetrol states the importance of 1) Environmental legal compliance; 2) The systematic identification and management of potential environmental impacts and risks associated with the activities of Ecopetrol S.A., with a focus on continuous improvement and the application of the mitigation hierarchy. 3) TGenerating long-term environmental value within the area of influence of our projects and operations. 4) Promote achievement of corporate environmental goals on the energy transition path. The Environmental Strategy is aligned with our Risk Management System, seeking to promote risk and impact prevention and mitigation to nature, This Strategy is applicable to all projects and activities. Based on the above, the following strategic pillars for environmental management were defined: •Environmental Planning and Compliance; •ClimateAction; •Water Neutrality; •Biodiversity and Ecosystem Services; •Circular Economy; •Air Quality; •Waste Management; •Pre

(4.6.1.5) Environmental policy content

Environmental commitments

- ☒ Commitment to a circular economy strategy
- ☒ Commitment to comply with regulations and mandatory standards
- ☒ Commitment to take environmental action beyond regulatory compliance
- ☒ Commitment to implementation of nature-based solutions that support landscape restoration and long-term protection of natural ecosystems
- ☒ Commitment to stakeholder engagement and capacity building on environmental issues

Climate-specific commitments

- ☒ Commitment to net-zero emissions
- ☒ Commitment to zero flaring
- ☒ Other climate-related commitment, please specify :Oil and gas decarbonization charter; •Oil and gas methane partnership; •Aiming for zero methane emissions

Water-specific commitments

- ☒ Commitment to reduce water consumption volumes
- ☒ Commitment to reduce water withdrawal volumes
- ☒ Commitment to control/reduce/eliminate water pollution
- ☒ Commitment to safely managed WASH in local communities
- ☒ Commitment to the conservation of freshwater ecosystems
- ☒ Commitment to water stewardship and/or collective action

Social commitments

- ☒ Adoption of the UN International Labour Organization principles
- ☒ Commitment to promote gender equality and women's empowerment
- ☒ Commitment to respect and protect the customary rights to land, resources, and territory of Indigenous Peoples and Local Communities
- ☒ Commitment to respect internationally recognized human rights
- ☒ Other social commitment, please specify :Prior consultation to local communities

Additional references/Descriptions

- ☒ Recognition of environmental linkages and trade-offs
- ☒ Description of environmental requirements for procurement
- ☒ Description of impacts on natural resources and ecosystems
- ☒ Description of renewable electricity procurement practices
- ☒ Reference to timebound environmental milestones and targets

- ☒ Description of dependencies on natural resources and ecosystems
- ☒ Description of grievance/whistleblower mechanism to monitor non-compliance with the environmental policy and raise/address/escalate any other greenwashing concerns
- ☒ Other additional reference/description, please specify :Alignment with TNFD

(4.6.1.6) Indicate whether your environmental policy is in line with global environmental treaties or policy goals

Select all that apply

- ☒ Yes, in line with the Paris Agreement
- ☒ Yes, in line with the Kunming-Montreal Global Biodiversity Framework
- ☒ Yes, in line with Sustainable Development Goal 6 on Clean Water and Sanitation
- ☒ Yes, in line with another global environmental treaty or policy goal, please specify :Colombia's Nationally Determined Contribution (NDC)

(4.6.1.7) Public availability

Select from:

- ☒ Publicly available

(4.6.1.8) Attach the policy

HSE-N-005_Environmental_Strategy.pdf
[Add row]

(4.10) Are you a signatory or member of any environmental collaborative frameworks or initiatives?

(4.10.1) Are you a signatory or member of any environmental collaborative frameworks or initiatives?

Select from:

- ☒ Yes

(4.10.2) Collaborative framework or initiative

Select all that apply

- ☒ Business 4 Nature
- ☒ CEO Water Mandate
- ☒ UN Global Compact
- ☒ Climate Action 100+

zero methane emissions

- ☒ Transition Pathway Initiative

- ☒ Water Action Hub (by CEO Water Mandate)

- ☒ Task Force on Nature-related Financial Disclosures (TNFD)

- ☒ Task Force on Climate-related Financial Disclosures (TCFD)

- ☒ Other, please specify :**Other, please specify: CCAC; OGMP;OGDC;ZRF; Aiming for**

(4.10.3) Describe your organization's role within each framework or initiative

Ecopetrol has joined to the Climate and Clean Air Coalition (CCAC) since 2018, an initiative created by the United Nations with the support of the Environmental Defense Fund (EDF) and the European Commission, to assist companies in reducing methane emissions. In 2020, they launch the Oil and Gas Methane Partnership (OGMP 2.0) initiative. •Oil and Gas Methane Partnership - OGMP 2.0: In November 2020, Ecopetrol joined the Oil and Gas Methane Partnership initiative, led by the United Nations Environmental Program - UNEP, which seeks to improve the measurement and reporting of methane emissions. In 2023, Ecopetrol received the Gold Standard recognition from the United Nations Environmental Program - UNEP, for its quality and level of detail in the reporting of methane emissions. •Zero Routine Flaring by 2030: Ecopetrol joined in January 2020 to the "Zero Routine Flaring by 2030" initiative led by the World Bank, which brings together governments, oil companies and institutions that recognize that routine gas flaring is unsustainable from an economic and environmental point of view, whereby the different organizations agree to cooperate to eliminate routine gas flaring in production activities by 2030. •Aiming for Zero Methane Emissions Initiative: In November 2023, Ecopetrol joined the "Aiming for Zero Methane Emissions by 2030" initiative of OGCI (Oil and Gas Climate Initiative), which seeks to treat methane emissions with the same seriousness with which industrial and process safety is treated. Ecopetrol commits to work towards reducing methane emissions as close to zero as possible by 2030, to transparently report its emissions and reduction progress, to adopt better technologies to detect, measure and monitor methane emissions, and to support the development and implementation of regulation in the countries where it operates and encourage its partners to do the same. •Oil and Gas Decarbonization Accelerator - OGDA: During the last Conference of the Parties to the Climate Change Convention (COP28), Ecopetrol joined the global sectoral agreement to accelerate the decarbonization of oil and gas - OGDC, ratifying its commitment to address climate change. •The OGDC is a sectoral document on the impact that companies have on the decarbonization of the economy and establishes how to commit to clear goals and lines of action that keep the increase in the earth's average temperature below 2C and seek to limit it to 1.5C. It thus becomes the reference framework for unifying industry commitments to decarbonization and motivates more oil and gas companies to join these efforts. •COALICIÓN AGUA COLOMBIA (Since 2018, Ecopetrol has been part of to the promoter group of the Water for Colombia Coalition, a multisectoral national initiative that seeks to improve the water security of 15 sub-basins, which together represent an area where 48% of the National GDP is produced and where 43% of the population lives. Currently, Ecopetrol is part of the working groups: corporate standards, public policies, and technology and innovation). •CEO WATER MANDATE: Since 2014, Ecopetrol has been publicly committed to sustainable water management through its adherence to the CEO Water Mandate initiative, promoted by the United Nations Global Compact. Currently, the water security initiatives promoted by Ecopetrol are part of the global platform for collaboration and knowledge exchange for water sustainability and climate resilience -Water Action Hub. •Regarding Climate Action 100, and World Benchmarking Alliance, Ecopetrol's role is to participate in the analysis, and review the assessment. •Regarding GRI, Ecopetrol's role is to report information according to the standard metrics. Also, the 2023 Integrated Management Report followed the guidelines of following reporting frameworks: Stakeholder Capitalism Metrics (SCM) by the World Economic Forum (WEF); United Nations Sustainable Development Goals (SDGs); Sustainability Accounting Standards Board (SASB) – (Exploration and Production); Task Force on Climate-Related Financial Disclosures (TCFD); Corporate Sustainability Reporting Directive (CSRD); Dow Jones Sustainability Index by S&P Global (DJSI); International Sustainability Standards Board (ISSB). •Additionally, it adheres to the requirements of the Superintendence

of Companies and Circulars 031 and 012 of 2022 from the Financial Superintendency of Colombia. It also complies with External Circular 100-000010 dated November 21, 2023, from the Superintendence of Companies of Colombia, which introduces Chapter XV.
[Fixed row]

(4.11) In the reporting year, did your organization engage in activities that could directly or indirectly influence policy, law, or regulation that may (positively or negatively) impact the environment?

(4.11.1) External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the environment

Select all that apply

- ☒ Yes, we engaged directly with policy makers
- ☒ Yes, we engaged indirectly through, and/or provided financial or in-kind support to a trade association or other intermediary organization or individual whose activities could influence policy, law, or regulation

(4.11.2) Indicate whether your organization has a public commitment or position statement to conduct your engagement activities in line with global environmental treaties or policy goals

Select from:

- ☒ Yes, we have a public commitment or position statement in line with global environmental treaties or policy goals

(4.11.3) Global environmental treaties or policy goals in line with public commitment or position statement

Select all that apply

- ☒ Paris Agreement

(4.11.4) Attach commitment or position statement

Ecopetrol+SA+PIGCCe+version+1+EN.pdf

(4.11.5) Indicate whether your organization is registered on a transparency register

Select from:

☒ Yes

(4.11.6) Types of transparency register your organization is registered on

Select all that apply

- ☒ Mandatory government register
- ☒ Voluntary government register
- ☒ Non-government register

(4.11.7) Disclose the transparency registers on which your organization is registered & the relevant ID numbers for your organization

- Unidad de Información Financiera (UIAF) - Securities Exchange Commission (SEC) – 20F - Procuraduría General de la Nación (PGN) – Attorney General - Contraloría General de la República (CGR) – Comptroller General - ISO reviews - Dow Jones Sustainability Index (DJSI) - Morgan Stanley Capital International (MSCI) - Sustainalytics - Integrity and Compliance Program of the Transparency Secretariat of the Presidency of the Republic

(4.11.8) Describe the process your organization has in place to ensure that your external engagement activities are consistent with your environmental commitments and/or transition plan

In line with its commitment to mitigate climate change, advance with the energy transition, and its T ESG agenda, Ecopetrol announced its net zero emissions goal for scopes 1 & 2 by 2050. Under this goal, the Company ratifies its commitment to the Sustainable Development Goals and the Paris Climate Agreement's purpose of curtailing global warming. This objective has the intermediate goal of reducing 25% of scope 1 and 2 emissions by 2030, compared to a 2019 baseline. Furthermore, Ecopetrol seeks to reduce 50% of its total emissions by 2050 (scopes 1, 2 & 3), contributing to the Colombian government's commitment to reduce 51% of GHG emissions by 2030. Under this goal, the energy sector target is to reduce 11,2 million tons, and Ecopetrol will contribute with more than half of this reduction. The Sustainability and Decarbonization Area of the HSE Vicepresidency is responsible for the Company's climate change strategy and for revising the scope and implications of national Law and regulations. The actions that are taken in each case are decided in tandem with the Legal Vice-presidency. The Company ensures the alignment of its climate related policy efforts with its 2040 Corporate Strategy and its environmental strategy. Ecopetrol articulates its Climate Action pillar to the national government public policy, through an action line called "participation in public policy documents". Besides, it contributes to the construction of technical and regulatory guidelines to strengthen the country's institutional capacity in climate change. Furthermore, the strategic risk "Changes in regulatory framework affecting business lines" includes a Key Risk Indicator (KRI) that seeks to monitor and analyze national, regional, and local legislative projects that affect HSE, climate, and water issues. This is another mechanism to assure that climate related policy actions taken are aligned with the Company's overall strategy. The Water Management Strategy establishes the following action lines: (i) Establish alliances for knowledge acquisition to strengthen decision-making processes that may impact the territories where we operate; (ii) Identify and participate in processes of concertation, formulation, consultation, implementation, and monitoring of water regulations; (iii) Analyze technical, economic and environmental impacts of regulatory changes and provide constructive feedback; (iv) Determine adjustments of projects/operations due to new water-related requirements.

[Fixed row]

(4.11.1) On what policies, laws, or regulations that may (positively or negatively) impact the environment has your organization been engaging directly with policy makers in the reporting year?

Row 1

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

National Development Plan 2022-2026 “Colombia potencia mundial de la vida”

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☒ Climate change

☒ Water

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Social issues

☒ Rights of Indigenous Peoples and local communities

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☒ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☒ Colombia

(4.11.1.6) Your organization’s position on the policy, law, or regulation

Select from:

☒ Support with minor exceptions

(4.11.1.7) Details of any exceptions and your organization's proposed alternative approach to the policy, law, or regulation

The minor comments are recommendations to provide greater clarity on their application.

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☒ Responding to consultations

☒ Submitting written proposals/inquiries

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.10) Explain the relevance of this policy, law, or regulation to the achievement of your environmental commitments and /or transition plan, how this has informed your engagement, and how you measure the success of your engagement

The NDP proposes two main axes in terms of environment and climate change. First, land use planning around water and environmental justice, and second, productive transformation, internationalization and climate action. In the axis of land use planning around water and environmental justice, the NDP proposes to protect the country's natural wealth while making sustainable use of biodiversity through land use planning. On the other hand, in the axis of productive transformation, internationalization and climate action, the NDP seeks to curb deforestation, promote the decarbonization of the economy, energy transition and bioeconomy, and financing for climate action. Together, these components seek to diversify productive activities based on natural resources. In this context, it gives continuity to the goal of reducing greenhouse gas emissions by 51%, for which it will include new actions to strengthen public policy on this horizon. Likewise, it is positive that the PND seeks to articulate with existing public policy instruments on climate change; for example, the Long-term Climate Strategy E2050, led by the Ministry of Environment; the sectoral and territorial comprehensive plans for climate change management, the updated national climate finance strategy and the National Plan for Adaptation to Climate Change. This guiding framework outlines the path on which the company aligns its objectives and roadmaps for material environmental issues

(4.11.1.11) Indicate if you have evaluated whether your organization's engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:

☒ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply

☒ Paris Agreement

☒ Sustainable Development Goal 6 on Clean Water and Sanitation

Row 2

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

"Resolution 40066-2022" which establishes the technical requirements for leaks detection and repair, and the use, flaring and venting of natural gas during hydrocarbon exploration and exploitation activities, issued by the Ministry of Mines and Energy and modified by Resolution 40317-2023, going further with the Comprehensive Climate Change Management Plan proposed by the country's mining and energy sector, which, seeks to reduce fugitive emissions for reaching sector's mitigation goal by 2030.

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☒ Climate change

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Environmental impacts and pressures

☒ Emissions – methane

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☒ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☒ Colombia

(4.11.1.6) Your organization's position on the policy, law, or regulation

Select from:

☒ Support with minor exceptions

(4.11.1.7) Details of any exceptions and your organization's proposed alternative approach to the policy, law, or regulation

The minor comments are recommendations to provide greater clarity on their application.

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☒ Responding to consultations

☒ Submitting written proposals/inquiries

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.10) Explain the relevance of this policy, law, or regulation to the achievement of your environmental commitments and/or transition plan, how this has informed your engagement, and how you measure the success of your engagement

The modification of "Resolution 40066-2022" is relevant for Ecopetrol since it is related to the technical requirements for leaks detection and repair, and the use, flaring and venting of natural gas during hydrocarbon exploration and exploitation activities. Additionally, with this regulation, it will be possible to have all the operators in the country working in terms of leaks detection and repair and it is the beginning to start their pathways towards venting reduction and flaring efficiency allowing Ecopetrol to leverage compliance with its voluntary commitments in terms of measurement and reduction targets of methane emissions in both its operated and non-operated assets in Colombia. This policy enhances the Comprehensive Climate Change Management Plan proposed by the country's mining and energy sector, which, seeks to reduce fugitive emissions for reaching sector's mitigation goal by 2030. Ecopetrol has been engaged with the regulator since the beginning of the definition of this Resolution providing its knowledge in the detection and measurement of methane emissions in the oil and gas sector and after its issue,

Ecopetrol has been leading technical workshops with its Affiliates and Associates in the Upstream segment to work together in the understanding of the requirements established and the analysis of the best technologies available for leaks, vents and flaring efficiency measurement and reduction. More recently in 2024, Ecopetrol has been actively participating in the European Union Climate Dialogues project, specifically in the methane technical meetings between key stakeholders in Colombia and experts from the European Union (EU) to share successful mechanisms, regulatory frameworks, technologies, and good practices from the EU and Colombia. The intent of these dialogues was sharing international initiatives and opportunities that can support Colombia in achieving CH4- related goals, and successful European and other countries' cases in the monitoring and reduction of CH4.

(4.11.1.11) Indicate if you have evaluated whether your organization's engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:

☒ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply

☒ Paris Agreement

Row 3

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

By which articles 22 and 57 of Law 2099 of 2021, article 264 of Law 2294 of 2023 that adopt the National Development Plan 2022-2026 are partially modified and Title VIII is added to Part 2 of Book 2 of Decree 1073 of 2015.

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☒ Climate change

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Environmental impacts and pressures

☒ Emissions – CO2

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☒ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☒ Colombia

(4.11.1.6) Your organization's position on the policy, law, or regulation

Select from:

☒ Support with minor exceptions

(4.11.1.7) Details of any exceptions and your organization's proposed alternative approach to the policy, law, or regulation

The minor comments are recommendations to provide greater clarity on their application.

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☒ Responding to consultations

☒ Submitting written proposals/inquiries

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.10) Explain the relevance of this policy, law, or regulation to the achievement of your environmental commitments and/or transition plan, how this has informed your engagement, and how you measure the success of your engagement

This process is relevant for Ecopetrol since it is related to the implementation of Carbon Capture, Utilization and Storage (CCUS) technologies.

(4.11.1.11) Indicate if you have evaluated whether your organization's engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:

☒ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply

☒ Paris Agreement

Row 4

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

By which Decree 1073 of 2015, the Unique Regulatory Decree of the Administrative Sector of Mines and Energy is added, to regulate article 235 of Law 2294 of 2023.

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☒ Climate change

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Energy and renewables

☒ Renewable energy generation

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☒ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☒ Colombia

(4.11.1.6) Your organization's position on the policy, law, or regulation

Select from:

☒ Support with minor exceptions

(4.11.1.7) Details of any exceptions and your organization's proposed alternative approach to the policy, law, or regulation

The minor comments are recommendations to provide greater clarity on their application.

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☒ Responding to consultations

☒ Submitting written proposals/inquiries

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.10) Explain the relevance of this policy, law, or regulation to the achievement of your environmental commitments and/or transition plan, how this has informed your engagement, and how you measure the success of your engagement

This modification is relevant to Ecopetrol since it regulates the development of White Hydrogen projects within the framework of the Fair Energy Transition in Colombia.

(4.11.1.11) Indicate if you have evaluated whether your organization's engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:

☒ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply

☒ Paris Agreement

[Add row]

(4.11.2) Provide details of your indirect engagement on policy, law, or regulation that may (positively or negatively) impact the environment through trade associations or other intermediary organizations or individuals in the reporting year.

Row 1

(4.11.2.1) Type of indirect engagement

Select from:

☒ Indirect engagement via a trade association

(4.11.2.4) Trade association

South America

☒ Other trade association in South America, please specify :Colombian Association of Carbon Market Actors ASOCARBONO, for its Spanish acronym

(4.11.2.5) Environmental issues relevant to the policies, laws, or regulations on which the organization or individual has taken a position

Select all that apply

☒ Climate change

(4.11.2.6) Indicate whether your organization's position is consistent with the organization or individual you engage with

Select from:

☒ Consistent

(4.11.2.7) Indicate whether your organization attempted to influence the organization or individual's position in the reporting year

Select from:

☒ No, we did not attempt to influence their position

(4.11.2.8) Describe how your organization's position is consistent with or differs from the organization or individual's position, and any actions taken to influence their position

Asocarbono's mission is to consolidate and strengthen the Colombian carbon market, which is a key contributor to the achievement of the Sustainable Development Goals and Colombia's Nationally Determined Contribution, through the following lines of action: i) Consolidation and strengthening of the carbon market, ii) Advocacy in public policy and the carbon regulatory framework, iii) Training of its associates, and iv) Generation of updated information on the behavior of the Colombian carbon market. The Association gathers the positions of its member organizations and drafts a discussion document that is shared with policy makers. During 2023, the focus of Asocarbono was the analysis of the impact of Article 6 of the Paris Agreement, and the environmental and social safeguards of carbon projects developed in Colombia. This is fundamental for Ecopetrol, considering that the company has a portfolio of Natural Climate Solutions, which may be affected by regulatory decisions.

(4.11.2.9) Funding figure your organization provided to this organization or individual in the reporting year (currency)

2979.12

(4.11.2.10) Describe the aim of this funding and how it could influence policy, law or regulation that may impact the environment

The aim of this funding is not directly intended to influence policy, law or regulation; it is intended to enable capacities and participate in discussion spaces that contribute to the understanding or strengthening of the issues involved in laws, policies or regulations, such as the carbon market, and Environmental and social safeguards.

(4.11.2.11) Indicate if you have evaluated whether your organization's engagement is aligned with global environmental treaties or policy goals

Select from:

- ☒ Yes, we have evaluated, and it is aligned

(4.11.2.12) Global environmental treaties or policy goals aligned with your organization's engagement on policy, law or regulation

Select all that apply

- ☒ Another global environmental treaty or policy goal, please specify :Carbon Market regulation

Row 2

(4.11.2.1) Type of indirect engagement

Select from:

- ☒ Indirect engagement via a trade association

(4.11.2.4) Trade association

Global

- ☒ Other global trade association, please specify :IPIECA

(4.11.2.5) Environmental issues relevant to the policies, laws, or regulations on which the organization or individual has taken a position

Select all that apply

- ☒ Climate change
☒ Water

(4.11.2.6) Indicate whether your organization's position is consistent with the organization or individual you engage with

Select from:

☒ Consistent

(4.11.2.7) Indicate whether your organization attempted to influence the organization or individual's position in the reporting year

Select from:

☒ No, we did not attempt to influence their position

(4.11.2.8) Describe how your organization's position is consistent with or differs from the organization or individual's position, and any actions taken to influence their position

Ipieca is the global oil and gas association dedicated to promoting environmental and social performance in the energy transition. It brings together members and stakeholders to lead the integration of sustainability by promoting climate action, environmental responsibility and social performance in all oil, gas and renewable energy activities. Ipieca has a collaborative approach, engaging experts from within and outside the industry to find answers to global environmental and social challenges. Ecopetrol is part of various working groups in which documents or technical notes are developed, which are subject to review and consultation for different interest groups, including policy makers. Ecopetrol participates in working groups on: Methane Taskforce, Low-carbon emissions pathways (Hydrogen, 08/09/2024 CCUS, and Carbon-compensated products), Biodiversity and Ecosystem Services (BES) working group, the Global Biodiversity Framework (GBF) task-force, Water working group, and Adaptation and resilience task-force.

(4.11.2.9) Funding figure your organization provided to this organization or individual in the reporting year (currency)

58720.84

(4.11.2.10) Describe the aim of this funding and how it could influence policy, law or regulation that may impact the environment

The aim of this funding is not directly intended to influence policy, law or regulation; it is intended to enable capacities and participate in discussion spaces, in the following IPIECA's work groups: i) Offsets Task Force, to convene the industry to build consensus and understanding of the importance, challenges, and opportunities of carbon offsets as part of a broader carbon mitigation strategy. As an outcome, at the end of this work, member companies will be better placed to benefit from these opportunities, manage the associated risks and be better able to apply good practice. In summary, the task force will: i) Discuss offsets activities in their broader definition, ii) Explore regulated/compliance and voluntary standards and markets, iii) Monitor and build understanding of changes to role of offsets in regulated schemes, iv) Explore regulatory and reputational risks, v) Share experiences among members, vi) Engage with relevant stakeholders and vii) Act as a resource and support to the Ipiecas Environment and Reporting Groups; ii) Biodiversity and Ecosystem Services (BES) Task Force and co-chaired the Global Biodiversity Force (GBF) Task Force at IPIECA, to discuss prevailing trends, prioritize topics, and share experiences related to biodiversity management in the oil, gas, and alternative energy sectors. In 2023, Ecopetrol presented its biodiversity monitoring efforts in Colombia, in collaboration with the National Biodiversity Institute, during a peer-to-peer workshop. The company also co-led the compilation of contributions from IPIECA member companies to the Global Biodiversity Framework; iii) Adaptation and Resilience Task Force (TF), seeks to explore the oil and gas industry's exposure to climate risks and the tools to incorporate them into an overall risk management framework. Broadening participation to include expertise from other Ipieca groups will better enable companies to plan and build long-term resiliency into their business adaptation plans.

(4.11.2.11) Indicate if you have evaluated whether your organization's engagement is aligned with global environmental treaties or policy goals

Select from:

- ☒ Yes, we have evaluated, and it is aligned

(4.11.2.12) Global environmental treaties or policy goals aligned with your organization's engagement on policy, law or regulation

Select all that apply

- ☒ Paris Agreement
- ☒ Kunming-Montreal Global Biodiversity Framework
- ☒ Sustainable Development Goal 6 on Clean Water and Sanitation

[Add row]

(4.12) Have you published information about your organization's response to environmental issues for this reporting year in places other than your CDP response?

Select from:

- ☒ Yes

(4.12.1) Provide details on the information published about your organization's response to environmental issues for this reporting year in places other than your CDP response. Please attach the publication.

Row 1

(4.12.1.1) Publication

Select from:

- ☒ In mainstream reports, in line with environmental disclosure standards or frameworks

(4.12.1.2) Standard or framework the report is in line with

Select all that apply

- ☒ GRI
- ☒ TCFD
- ☒ TNFD

(4.12.1.3) Environmental issues covered in publication

Select all that apply

- ☒ Climate change
- ☒ Water
- ☒ Biodiversity

(4.12.1.4) Status of the publication

Select from:

- ☒ Complete

(4.12.1.5) Content elements

Select all that apply

- | | |
|---|--|
| <input checked="" type="checkbox"/> Strategy | <input checked="" type="checkbox"/> Value chain engagement |
| <input checked="" type="checkbox"/> Governance | <input checked="" type="checkbox"/> Dependencies & Impacts |
| <input checked="" type="checkbox"/> Emission targets | <input checked="" type="checkbox"/> Biodiversity indicators |
| <input checked="" type="checkbox"/> Emissions figures | <input checked="" type="checkbox"/> Public policy engagement |
| <input checked="" type="checkbox"/> Risks & Opportunities | <input checked="" type="checkbox"/> Water accounting figures |
| <input checked="" type="checkbox"/> Water pollution indicators | |
| <input checked="" type="checkbox"/> Content of environmental policies | |

(4.12.1.6) Page/section reference

2023 Integrated Management Report, Generate value through T ESG, pages 152 - 421

(4.12.1.7) Attach the relevant publication

(4.12.1.8) Comment

Available online: https://files.ecopetrol.com.co/web/eng/Ecopetrol_IS2023_ENG_20240527.pdf

Row 2

(4.12.1.1) Publication

Select from:

☒ In other regulatory filings

(4.12.1.3) Environmental issues covered in publication

Select all that apply

☒ Climate change

☒ Water

☒ Biodiversity

(4.12.1.4) Status of the publication

Select from:

☒ Complete

(4.12.1.5) Content elements

Select all that apply

☒ Content of environmental policies

☒ Risks & Opportunities

☒ Strategy

☒ Emission targets

(4.12.1.6) Page/section reference

(4.12.1.7) Attach the relevant publication

SEC Report_URL.pdf

(4.12.1.8) Comment

Available online: <https://www.sec.gov/ix?doc/Archives/edgar/data/1444406/000141057824000515/ec-20231231x20f.htm>

[Add row]

C5. Business strategy

(5.1) Does your organization use scenario analysis to identify environmental outcomes?

Climate change

(5.1.1) Use of scenario analysis

Select from:

☒ Yes

(5.1.2) Frequency of analysis

Select from:

☒ Annually

Water

(5.1.1) Use of scenario analysis

Select from:

☒ Yes

(5.1.2) Frequency of analysis

Select from:

☒ Annually

[Fixed row]

(5.1.1) Provide details of the scenarios used in your organization’s scenario analysis.

Climate change

(5.1.1.1) Scenario used

Climate transition scenarios

☒ Customized publicly available climate transition scenario, please specify :Ecopetrol now uses three consolidated energy transition scenarios: Climate Alignment, Energy Balance, and Climate Divergence. The Climate Alignment scenario anticipates a shift to low-emission economies, uniting stakeholders on climate goals

(5.1.1.3) Approach to scenario

Select from:

☒ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☒ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☒ Policy

☒ Market

☒ Technology

(5.1.1.6) Temperature alignment of scenario

Select from:

☒ 1.6°C - 1.9°C

(5.1.1.7) Reference year

2023

(5.1.1.8) Timeframes covered

Select all that apply

- ☒ 2025
- ☒ 2030
- ☒ 2040

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

- ☒ Speed of change (to state of nature and/or ecosystem services)
- ☒ Climate change (one of five drivers of nature change)

Finance and insurance

- ☒ Cost of capital
- ☒ Sensitivity of capital (to nature impacts and dependencies)
- ☒ Other finance and insurance driving forces, please specify :Levelized Cost of Electricity (LCOE)

Stakeholder and customer demands

- ☒ Consumer attention to impact
- ☒ Impact of nature footprint on reputation

Regulators, legal and policy regimes

- ☒ Global regulation
- ☒ Political impact of science (from galvanizing to paralyzing)
- ☒ Level of action (from local to global)
- ☒ Global targets

Relevant technology and science

- ☒ Granularity of available data (from aggregated to local)

Direct interaction with climate

- ☒ Perception of efficacy of climate regime

Macro and microeconomy

- ☒ Globalizing markets

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

The first climate alignment scenario envisions a revolutionary transformation to a sustainable, low-carbon economy. This transformation must be supported by strong government actions that generate changes in both energy markets and emissions. In terms of assumptions, this scenario considers mainly three aspects. First, strong international cooperation is required, with coordinated governments to address security issues and achieve the climate goals set. In addition, the economic outlook is marked by geopolitical tensions in the energy market, which may cause economic disruptions in the short term. However, these conditions will eventually pave the way for private investment, with an average growth of 2.5%. Finally, a strong environmental policy is expected, with several G20 countries moving towards meeting climate targets.

(5.1.1.11) Rationale for choice of scenario

Ecopetrol considers it relevant to compare three possible scenarios. Although the first scenario does not reflect the group's base vision, it is necessary to compare other possible perspectives on energy transition in the world. The Ecopetrol Group's baseline vision of the energy future is in scenario two, which seeks an energy balance. Although it is not our primary scenario, the Ecopetrol group considers it important to acknowledge an energy vision where the world follows a path of increased adoption of low-emission energy sources. This would be accompanied by a rise in investments in such energy, potentially accelerating the fulfillment of environmental agreements. Despite the efforts made by various countries, not all are able to meet climate change goals due to the inadequacy of current measures

Water

(5.1.1.1) Scenario used

Water scenarios

- ☒ Bespoke water scenario

(5.1.1.3) Approach to scenario

Select from:

- ☒ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☒ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☒ Reputation

☒ Technology

☒ Liability

(5.1.1.7) Reference year

2019

(5.1.1.8) Timeframes covered

Select all that apply

☒ 2025

☒ 2030

☒ 2040

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

☒ Changes to the state of nature

☒ Speed of change (to state of nature and/or ecosystem services)

☒ Climate change (one of five drivers of nature change)

Finance and insurance

☒ Cost of capital

☒ Sensitivity of capital (to nature impacts and dependencies)

Stakeholder and customer demands

☒ Consumer attention to impact

- ☑ Impact of nature footprint on reputation
- ☑ Impact of nature service delivery on consumer

Regulators, legal and policy regimes

- ☑ Global regulation
- ☑ Level of action (from local to global)
- ☑ Global targets

Relevant technology and science

- ☑ Granularity of available data (from aggregated to local)

Direct interaction with climate

- ☑ Perception of efficacy of climate regime

Macro and microeconomy

- ☑ Globalizing markets

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

Ecopetrol's long-term strategy, "2040: Energy that Transforms," incorporates scenario analysis related to water as a core component of its long-term business objectives. In 2020, Ecopetrol reviewed its structure for managing ESG (Environmental, Social, and Governance) matters, considering emerging international trends. As a result, the company developed its new TESG (Technology, Environment, Social, and Governance) Strategy, which is integrated into the 2040 business strategy. The foundation of this strategy was a comprehensive materiality analysis of key issues. This analysis categorized water as an "Exceptional" element due to its significant impact (both positive and negative) on Ecopetrol's ability to create value, as well as its considerable relevance to stakeholders. "Exceptional" elements are those through which Ecopetrol aims to stand out and be globally recognized for developing best practices and incorporating technological advancements for superior management of the exceptional element. The water-related issues considered in the TESG materiality assessment included: 1) Effluents: temporary restrictions on the discharge of treated wastewater into surface water bodies, caused by reduced precipitation leading to lower water flow and, consequently, reduced assimilative capacity. This is identified as a long-term challenge. In terms of water neutrality, our commitment remains to achieve water neutrality by 2045. To this end, by 2030, we are committed to reducing water intake by 55% and industrial discharges to freshwater bodies by 66%. By 2045, we aim to reduce freshwater intake by 66% and achieve zero industrial discharges to freshwater bodies.

(5.1.1.11) Rationale for choice of scenario

The most relevant parameters considered were GDP and population growth. The assumptions used where: i) Reference scenario: Includes technological expectations (proved and the ones with the highest development investment), demand (observable and foreseeable trends), and regulatory patterns (existent and

those necessary to stimulate technological adoption) ii) Accelerated transition scenario: highest energy efficiency and penetration of renewable energy due to tighter regulation in terms of emissions and cost reduction in parallel with greener consumption patterns and new technological developments. iii) Decelerated sensitivity: considers a slower transition due to economic issues which translates into reprioritization of policies and regulations towards more economy-driven measures vs emissions. iv) 2C sensitivity: considers radical changes in consumption, regulation, and technology to achieve decarbonization and global warming goal of 2C. In general, the different scenarios evaluated, which considered changes in rainfall and temperature dynamics associated with climate change, as well as changes in water demand patterns, project an increase in physical risk due to surface water availability, especially in the first season of less rainfall (December - April) that could temporarily restrict (or increase restrictions). This is relevant for our business strategy because it allows us to improve our resilience to climate change impacts

Climate change

(5.1.1.1) Scenario used

Climate transition scenarios

☒ Customized publicly available climate transition scenario, please specify :Ecopetrol considers it relevant to compare three possible scenarios. Although the first scenario does not reflect the group's base vision, it is necessary to compare other possible perspectives on energy transition in the world. The Ecopetrol Group's

(5.1.1.3) Approach to scenario

Select from:

☒ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☒ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☒ Policy

☒ Market

☒ Technology

(5.1.1.6) Temperature alignment of scenario

Select from:

☒ 2.0°C - 2.4°C

(5.1.1.7) Reference year

2023

(5.1.1.8) Timeframes covered

Select all that apply

☒ 2025

☒ 2030

☒ 2040

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

- ☒ Speed of change (to state of nature and/or ecosystem services)
- ☒ Climate change (one of five drivers of nature change)

Finance and insurance

- ☒ Cost of capital
- ☒ Sensitivity of capital (to nature impacts and dependencies)
- ☒ Other finance and insurance driving forces, please specify :Levelized Cost of Electricity (LCOE) and Levelized Cost of Hydrogen (LCOH)

Stakeholder and customer demands

- ☒ Consumer attention to impact
- ☒ Impact of nature footprint on reputation

Regulators, legal and policy regimes

- ☒ Global regulation
- ☒ Political impact of science (from galvanizing to paralyzing)
- ☒ Level of action (from local to global)

- ☑ Global targets

Relevant technology and science

- ☑ Granularity of available data (from aggregated to local)

Direct interaction with climate

- ☑ Perception of efficacy of climate regime

Macro and microeconomy

- ☑ Globalizing markets

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

Ecopetrol's long-term strategy, "2040: Energy that Transforms," incorporates scenario analysis related to water as a core component of its long-term business objectives. In 2020, Ecopetrol reviewed its structure for managing ESG (Environmental, Social, and Governance) matters, taking into account emerging international 08/09/2024 trends. As a result, the company developed its new TSEG (Technology, Environment, Social, and Governance) Strategy, which is integrated into the 2040 business strategy. The foundation of this strategy was a comprehensive materiality analysis of key issues. This analysis categorized water as an "Exceptional" element due to its significant impact (both positive and negative) on Ecopetrol's ability to create value, as well as its considerable relevance to stakeholders. "Exceptional" elements are those through which Ecopetrol aims to stand out and be globally recognized for developing best practices and incorporating technological advancements for superior management of the exceptional element. The water-related issues considered in the TSEG materiality assessment included: 1) Effluents: temporary restrictions on the discharge of treated wastewater into surface water bodies, caused by reduced precipitation leading to lower water flow and, consequently, reduced assimilative capacity. This is identified as a long-term challenge. In terms of water neutrality, our commitment remains to achieve water neutrality by 2045. To this end, by 2030, we are committed to reducing water intake by 55% and industrial discharges to freshwater bodies by 66%. By 2045, we aim to reduce freshwater intake by 66% and achieve zero industrial discharges to freshwater bodies.

(5.1.1.11) Rationale for choice of scenario

Based on the strategic vision contemplated for the year 2040, the Ecopetrol Group considers this scenario as the most probable and aligned with situations in which the energy future will be led by an energy transition. This transition contemplates the additional use of low-emission energy sources without eliminating the existence and use of conventional energy within the energy matrix. Furthermore, this scenario is expected to allow for greater sustainability and resilience in the energy supply, thus contributing to the global goals of emissions reduction and climate change mitigation. In this context, the Ecopetrol Group is committed to the diversification of its energy portfolio as contemplated for the energy balance scenario. The addition of low-emission energy sources, such as renewable sources and natural gas, not only contributes to climate change mitigation, but also reduces dependence on traditional fossil fuels. In summary, the baseline energy balance scenario for the Ecopetrol Group is a comprehensive vision that seeks to harmonize economic growth with environmental sustainability.

Climate change

(5.1.1.1) Scenario used

Climate transition scenarios

☒ Customized publicly available climate transition scenario, please specify :The Climate Divergence scenario highlights varying decarbonization interests, driven by energy security concerns. Despite policy and market changes, global efforts are insufficient to close the climate ambition gap

(5.1.1.3) Approach to scenario

Select from:

☒ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☒ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☒ Policy

☒ Market

☒ Technology

(5.1.1.6) Temperature alignment of scenario

Select from:

☒ 2.5°C - 2.9°C

(5.1.1.7) Reference year

2023

(5.1.1.8) Timeframes covered

Select all that apply

- ☒ 2025
- ☒ 2030
- ☒ 2040

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

- ☒ Speed of change (to state of nature and/or ecosystem services)
- ☒ Climate change (one of five drivers of nature change)

Finance and insurance

- ☒ Cost of capital
- ☒ Sensitivity of capital (to nature impacts and dependencies)
- ☒ Other finance and insurance driving forces, please specify :Levelized Cost of Electricity (LCOE)

Stakeholder and customer demands

- ☒ Consumer attention to impact
- ☒ Impact of nature footprint on reputation

Regulators, legal and policy regimes

- ☒ Global regulation
- ☒ Political impact of science (from galvanizing to paralyzing)
- ☒ Level of action (from local to global)
- ☒ Global targets

Relevant technology and science

- ☒ Granularity of available data (from aggregated to local)

Direct interaction with climate

- ☒ Perception of efficacy of climate regime

Macro and microeconomy

☒ Globalizing markets

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

In the climate divergence scenario, the world is seen as stagnant, with unstable markets and a combination of isolationist tendencies and political instability. This affects governmental decisions, generates uncertainty and slows down the energy transition. Regarding the assumptions of the energy balance scenario, three aspects are considered. First, there is weak international cooperation, where international relations suffer from internal political divisions, which generates distrust and isolation. Second, the economic outlook is fragile due to conflicts in Europe and the Middle East, thus, political uncertainty persists and weakens both governments and market growth, which remains at an average of 2.1%. Finally, climate policy is expected to be weak to moderate, as several countries abandon their climate targets and environmental agreements.

(5.1.1.11) Rationale for choice of scenario

For Ecopetrol it is relevant to consider three possible scenarios. Although the third scenario does not reflect the group's base vision, it is necessary to compare other possible perspectives on the energy transition. The Ecopetrol Group considers it important to acknowledge an energy scenario where the world envisions a slower decarbonization with a low adoption of low-emission energy sources. This would be accompanied by a strong stance on maintaining energy security, regardless of the significant environmental gap.

Climate change

(5.1.1.1) Scenario used

Physical climate scenarios

☒ RCP 8.5

(5.1.1.2) Scenario used SSPs used in conjunction with scenario

Select from:

☒ SSP5

(5.1.1.3) Approach to scenario

Select from:

☒ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☒ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☒ Acute physical

☒ Chronic physical

(5.1.1.6) Temperature alignment of scenario

Select from:

☒ 4.0°C and above

(5.1.1.7) Reference year

2022

(5.1.1.8) Timeframes covered

Select all that apply

☒ 2030

☒ 2040

☒ 2050

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

☒ Changes in ecosystem services provision

☒ Climate change (one of five drivers of nature change)

Direct interaction with climate

- ☒ On asset values, on the corporate

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

Physical risks have been evaluated in 95 strategic locations of our assets in Colombia, to identify and implement adaptation measures in the comprehensive management of water, ecosystems and biodiversity, infrastructure and to increase the capacity and resilience to extreme weather events. The analysis has considered seven physical risks related to chronic hazards (drought and heat stress) and acute hazards (precipitation, coastal flooding, river flooding, wildfire, and wind speed) under three climate scenarios presented by the Intergovernmental Panel on Climate Change ("IPCC"): (i) SSP 1- RCP 2.6C, (ii) SSP 2- RCP 4.5, and (iii) SSP 5- RCP 8.5. The analysis included regional climate models that use dynamic downscaling to provide, for a specific region, higher-resolution information about the atmosphere and land surface through the use of a finer grid (on the order of 10-25 km) than their global counterparts.

(5.1.1.11) Rationale for choice of scenario

Ecopetrol chose to use the Business-As-Usual scenario considering that it presents the most extreme results, which allows for a conservative view of possible climate risks. The analysis used the following datasets to perform calculations: i) CMIP6 (Coupled Model Intercomparison Project) simulations estimate future climate change under different scenarios; ii) ERA5 generated by the European Center for Medium-Range Weather Forecasts (ECMWF), providing a best-in-class historical reconstruction across a wide range of climate variables; iii) CORDEX regional climate model simulations; iv) Flooding, geospatial and observational data: Weather station observational data, Coastal and riverine inundation data, Global hydrography, topographical data and digital elevation maps, High-resolution regional and local observational data, Observational geophysical data tracking coastline changes, and mean and extreme sea-level data. This analysis allows the identification of the assets with the greatest exposure to develop a more detailed analysis considering local climate dynamics, to establish investment plans in adaptation to climate change. Further details can be seen in Ecopetrol's website: <https://www.ecopetrol.com.co/wps/portal/Home/tesg/environmental/climate-action/climate-change-adaptation>

[Add row]

(5.1.2) Provide details of the outcomes of your organization's scenario analysis.

Climate change

(5.1.2.1) Business processes influenced by your analysis of the reported scenarios

Select all that apply

- ☒ Risk and opportunities identification, assessment and management
- ☒ Strategy and financial planning

- ☒ Target setting and transition planning

(5.1.2.2) Coverage of analysis

Select from:

- ☒ Organization-wide

(5.1.2.3) Summarize the outcomes of the scenario analysis and any implications for other environmental issues

As part of the scenario analysis for global electricity generation by source, the Ecopetrol Group has adopted the Energy Balance (Scenario 2) as a benchmark. Among the key findings, it is anticipated that from 2022 to 2040, solar energy will increase its share from 5% to 24%, while wind energy will rise from 7% to 29%. This scenario also predicts a decline in traditional energy sources. Oil is expected to decrease its share from 3% to 1% by 2040, natural gas will drop from 22% to 13%, and coal will shrink from 36% in 2022 to 9% in 2040 of the total energy mix. In relation to the global demand for oil, the Energy Balance Scenario, which serves as the reference for Ecopetrol, forecasts a decline from 101.5 million barrels per day in 2022 to 92.2 million barrels per day by 2040. Although this scenario implies a reduction, it is not as drastic as projected in the Climate Alignment Scenario 1, which anticipates a demand of 76.9 million barrels by 2040. Conversely, in the Climate Divergence Scenario 3, an increase in demand is anticipated, reaching 107.8 million barrels for the same year. The primary analysis of total CO₂ emissions is based on the Energy Balance Scenario 2 for the year 2022, which recorded 48,598 megatonnes of carbon dioxide equivalent. A decrease is projected by 2040, with emissions estimated to be above 37,754 MtCO₂e. When comparing this projection with other scenarios, Scenario 1 anticipates a figure of 31,770 MtCO₂e by 2040, whereas Scenario 3 of Climate Divergence foresees a modest reduction, reaching 43,738 MtCO₂e. In the scenario analysis, it was deemed relevant to examine the expansion of global electrical grids, particularly concerning Ecopetrol's transmission business line. For the year 2022, the base Energy Balance Scenario estimates 72.6 million kilometers of electrical grids. However, significant growth is expected by 2040, reaching 108.9 million kilometers. In contrast, the Climate Alignment Scenario projects 118.9 million kilometers, while the Climate Divergence Scenario 3 does not anticipate substantial growth, forecasting 98.8 million kilometers.

Water

(5.1.2.1) Business processes influenced by your analysis of the reported scenarios

Select all that apply

- ☒ Risk and opportunities identification, assessment and management
- ☒ Strategy and financial planning
- ☒ Target setting and transition planning

(5.1.2.2) Coverage of analysis

Select from:

☒ Organization-wide

(5.1.2.3) Summarize the outcomes of the scenario analysis and any implications for other environmental issues

Outcomes of the scenario analysis (with other variables) were used to classify water as a material element within the TESG strategy due to its importance to the company to generate value in the short, medium, and long term and its significant relevance for stakeholders. Water-related risks are also included in the company's Business Risk Map, considering their potential impact on the 2040 Corporate Strategy (the company's business risk management is based on the ISO 31000 standard, which is used to identify, assess, and manage its corporate business risks). Potential financial impacts derived from water-related risks are updated every year after carrying out a sensitivity analysis on how changes in water availability could result in financial impacts to the company. Due to the importance of water as a strategic enabler, Water Neutrality is part of the Ecopetrols 2040 strategy. Ecopetrol monitors the probability of occurrence of extreme weather events based on monthly alerts, which are issued by the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM). These alerts are related to the possible occurrence of El Niño and La Niña phenomena, which triggers an action plan when an occurrence probability exceeds 80%. In the case of other risks that can potentially generate losses and damage affecting the company's financials, such as water shortages, floods, forest fires, storms, hurricanes, and rising sea levels, Ecopetrol has implemented an adaptation plan to variability and climate change in six regions of Colombia. Also, Ecopetrol considers water as a strategic enabler, and due to regulation, it must be managed in the best possible way without affecting water bodies and communities.

[Fixed row]

(5.2) Does your organization's strategy include a climate transition plan?

(5.2.1) Transition plan

Select from:

☒ No, but we have a climate transition plan with a different temperature alignment

(5.2.2) Temperature alignment of transition plan

Select from:

☒ Other, please specify :1.9°C - 2.3°C

(5.2.3) Publicly available climate transition plan

Select from:

☒ Yes

(5.2.4) Plan explicitly commits to cease all spending on, and revenue generation from, activities that contribute to fossil fuel expansion

Select from:

☒ No, and we do not plan to add an explicit commitment within the next two years

(5.2.6) Explain why your organization does not explicitly commit to cease all spending on and revenue generation from activities that contribute to fossil fuel expansion

The company recognizes the challenges of the energy transition and the importance of maintaining a low-carbon operation that is resilient to the effects of climate change. However, its role as National Oil Company (NOC) and its contribution to the country's development and socioeconomic well-being, Gross Domestic Product (GDP), royalties, taxes and the annual national budget, requires striking a balance between decarbonization objectives and its contribution to the country's socioeconomic well-being. NOCs are being compared at the same level as private companies that are autonomous in their investment decisions and can achieve more ambitious climate targets in a shorter timeframe. In this sense, the main challenges for a NOC to move towards a low-carbon operation, in addition to the above, are associated with: (i) advancing in the definition of alternatives to replace traditional companies that do not affect the socioeconomic development of the country, (ii) increasing the allocation of CAPEX to establish ambitious decarbonization goals, and (iii) developing technical capacities to implement low-emission technologies.

(5.2.7) Mechanism by which feedback is collected from shareholders on your climate transition plan

Select from:

☒ We have a different feedback mechanism in place

(5.2.8) Description of feedback mechanism

To gather shareholder and investor feedback on our climate transition plan, we follow a rigorous process. On a weekly basis and throughout the year, we hold calls and meetings with the company's various investors and shareholders. In addition, we organize key events such as ESG Day, AGMs and Investor Day. During these events, we communicate our corporate strategy and the decarbonization plan that is part of it. Not only do we share the strategy, but we also gather feedback from shareholders and investors on issues related to the climate transition and its impact on different areas of the company. These comments are shared with the corresponding areas to analyze whether they are aligned with our current plan. Subsequently, internal evaluations are conducted to determine the feasibility and relevance of the suggestions received. If opportunities for improvement or necessary adjustments are identified, specific action plans are developed to implement these changes. This approach allows us not only to continuously improve our climate transition strategy, but also to maintain an open and constructive dialogue with our stakeholders and investors, ensuring that their concerns and expectations are duly considered in our decision-making. In addition, we use digital tools and communication platforms to facilitate the participation of our stakeholders and investors, regardless of their geographic location. This guarantees greater inclusiveness and diversity of opinions, further enriching the feedback process and allowing us to adapt our strategies more effectively to the needs and demands of the global marketplace.

(5.2.9) Frequency of feedback collection

Select from:

☒ Less frequently than annually

(5.2.10) Description of key assumptions and dependencies on which the transition plan relies

Within the framework of the 2040 "Energy that Transforms" strategy, the scenario trends and sensitivities were translated into business scenarios, as shown below: Reference Scenario: considers the same trends identified in the Energy Transition Reference Scenario, which is also the base scenario for the Company's 2040 strategy. High Price Scenario: Linked to the Decelerating Sensitivity trends in terms of energy transition. It seeks to reflect a business scenario in which the current trend is maintained and the climate targets for 2030 and 2050 are not met. Stress Test Scenario: Reflects the trends of the Accelerated Transition Scenario and some evolutions of the Sensitivity to a 2C scenario.

(5.2.11) Description of progress against transition plan disclosed in current or previous reporting period

Regarding the progress made during the execution of Ecopetrol's 2040 strategy, which outlines the company's transition plan, several milestones were achieved in 2023: 1. Renewable Energy Expansion: In 2022, we announced a goal to incorporate 1,000 MW of renewable energy by 2030. We are now accelerating this target, aiming to incorporate 900 MW by 2025. This acceleration is aligned with maintaining the competitiveness of our hydrocarbons business and advancing our low-emission portfolio. 2. Growth in Renewable Initiatives: Over the past few years, Ecopetrol has expanded its portfolio of renewable energy initiatives, currently operating 208 MW through various mechanisms such as PPAs, grid purchases, and auction participation. By the end of 2023, we expected to deploy approximately 400 MW of non-conventional renewable energy through operational and under-construction projects, and we achieved 472 MW. 3. Low-Emission Hydrogen Strategy: As part of our low-emission hydrogen strategic plan, from 2022 to 2025, we have produced the first green hydrogen molecule, initiated white hydrogen sampling, launched mobility pilots, and opened the Caribbean Innovation Center. 4. Decarbonization Plan: The Ecopetrol Business Group maintains its commitment to achieve net zero carbon emissions by 2050, reduce 25% of its emissions by 2030 compared to 2019, and 1.6 million tons of CO₂e in the period 2020-2024, for scopes 1 and 2, and eliminate routine flaring by 2030 in line with the initiative led by the World Bank. In addition, reduce 50% of its scope 1, 2 and 3 emissions by 2050. a) In March 2023, Ecopetrol S.A. committed to reduce its methane emissions by 45% by 2025 and by 55% by 2030, compared to the 2019 baseline, in direct operations of the production segment through the detection, measurement and closure of fugitive emissions and the reduction of vents in tanks and wells. in line with the recent regulations issued by the Ministry of Mines and Energy related to the reduction of flaring and venting in hydrocarbon exploration and production activities. On the other hand, in November 2023, Ecopetrol joined the 'Aiming for Zero Methane Initiative' led by the Oil and Gas Climate Initiative (OGCI) that seeks to bring methane emissions close to zero. b) The company sets annual emissions reduction targets, which includes methane-related initiatives, with a view to advancing in meeting the above goals. For 2023, the goal was 416,672 tCO₂e, which was exceeded by 40%, reaching 581,532 tCO₂e. We achieved cumulative GHG reduction of 1,5 MtCO₂e between 2020 and 2023. c) Ecopetrol is committed to eliminating routine gas flaring by 2030, in line with the "Zero Routine Flaring" initiative led by the World Bank, of which we have been a part since 2020. In 2023, total flaring was reported at 8.300 million cubic feet and routine flaring at 5.800 million cubic feet with a reduction of 12.9% with respect to 2022.

(5.2.12) Attach any relevant documents which detail your climate transition plan (optional)

EcopetrolSA_PIGCCe_Versión1 (1).pdf,presentacion-estrategia-si.pdf

(5.2.13) Other environmental issues that your climate transition plan considers

Select all that apply

- ☒ Water
- ☒ Biodiversity

(5.2.14) Explain how the other environmental issues are considered in your climate transition plan

Within the framework of generating value with T ESG, of the 2040 strategy, all material environmental issues for the company are incorporated, which are managed in an integrated manner, taking into account that the actions developed within the framework of one of the issues may have effects on another, achieving, for example, maximizing results or reducing efforts. The material issues identified by Ecopetrol are 14, including climate change, water, biodiversity and ecosystem services, air quality, and materials and waste. For example, the initiatives developed in the framework of materials and waste consider circularity analyses that involve the estimation of GHG emissions and their impact on decarbonization goals. Likewise, life cycle analyses (LCA) are carried out on different products, materials and wastes in which the impact on the elements of water, ecosystems, atmosphere and soils is evaluated. Ecopetrol has carried out ACV to modified asphalt, catalysts, oily sludge, advanced chemical recycling and resins.

(5.2.15) Primary reason for not having a climate transition plan that aligns with a 1.5°C world

Select from:

- ☒ Other, please specify

(5.2.16) Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world

The long-term strategy seeks to consolidate an organization that adapts quickly to the changes faced by the energy industry and therefore, its objective is the diversification of its energy matrix, gradually incorporating low-emission businesses, ensuring a fair and equitable energy transition under a framework of gradualism and security and maintaining the balance between its contribution to climate change and the development and socio-economic welfare of the country. To this end, scenarios were developed to assess the speed of the energy transition, which, although not aligned with a 1.5C world, our reference scenario anticipates significant changes in governments, markets and society, driving a transition aligned with a range of 1.9 to 2.3C.

[Fixed row]

(5.3) Have environmental risks and opportunities affected your strategy and/or financial planning?

(5.3.1) Environmental risks and/or opportunities have affected your strategy and/or financial planning

Select from:

- ☒ Yes, both strategy and financial planning

(5.3.2) Business areas where environmental risks and/or opportunities have affected your strategy

Select all that apply

- ☒ Products and services
☒ Upstream/downstream value chain
☒ Investment in R&D
☒ Operations

[Fixed row]

(5.3.1) Describe where and how environmental risks and opportunities have affected your strategy.

Products and services

(5.3.1.1) Effect type

Select all that apply

- ☒ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

- ☒ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

The corporate strategy focuses on growing with the energy transition, with a robust decarbonization roadmap, and a TEGS (technology at the heart of sustainability) strategy as some of its key drivers. The company will invest in low-carbon technologies and align its activities with global trends to mitigate climate change and ultimately achieve its target of Net Zero emissions by 2050 (scopes 1 and 2). These activities include low-carbon hydrogen production as an energy source, Carbon Capture, Usage and Storage (CCUS), and Natural Climate Solutions (NCS). In 2021 Ecopetrol acquired a 51% stake in ISA which is a company that has participation in energy transmission, roads, and telecommunications across Latin America. Also, Ecopetrol Group continues to improve its fuel quality program, which supplies better quality diesel (known as Ultra Low Sulfur Diesel) and gasoline to Colombia. Additionally, the diesel sold by Ecopetrol S.A. has a percentage of Biodiesel (Biofuel produced from palm oil). The blend sold by Ecopetrol from the Barrancabermeja Refinery is known as B2E Diesel (98% Fossil Diesel and 2% Biodiesel).

Wholesale distributors mix B2E with an additional 8% Biodiesel, generating a B10 mix (90% Fossil Diesel and 10% Biodiesel), which is what is consumed in the Colombian market. Ecodiesel, one of the subsidiaries of the Ecopetrol Group, has a biodiesel production plant in Barrancabermeja with a production capacity of 125 thousand tons per year.

Upstream/downstream value chain

(5.3.1.1) Effect type

Select all that apply

☒ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☒ Climate change

☒ Water

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

The management of environmental resources in the value chain allows for the establishment of goals in decarbonization and efficient water use. This management is mainly carried out in the commitments that have been established with clients and suppliers through green clauses and the development of the SOSTECnibility Strategy in the supply chain.

Investment in R&D

(5.3.1.1) Effect type

Select all that apply

☒ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☒ Climate change

☒ Water

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Ecopetrol's Innovation and Technology Center (ICP, for its Spanish acronym) has proposed several specific initiatives aimed at process optimization, energy efficiency, new energy vector valuation, carbon capture, and low-carbon products development. Since 2021, has been developed several studies which explore a portfolio of key technologies for O&G operations decarbonization and establish Ecopetrol's energy transition pathway. This research lines include:

- CCUS potential identification and estimation.
- Vegetables oil coprocessing in refineries.
- Oxycombustion technologies (flameless) potential evaluation in thermal generators.
- Evaluation of technological options for low carbon hydrogen production.
- Research in High enthalpy geothermal potential estimation and pilot conceptualization.
- Evaluation of carbon capture emerging technologies evaluation.
- Field evaluation for identifying native sources for CO2 capture and fixation.
- Research in Offshore renewable energy potential estimation for Colombia.
- Identified and evaluation of technological options to produce low carbon fuels from CO2 and hydrogen.
- A program aimed at identifying and quantifying large methane emissions, using satellite images and overflights with infrared spectrum analysis.

Operations

(5.3.1.1) Effect type

Select all that apply

☒ Risks

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☒ Water

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Ecopetrol has pledged to reach water neutrality by 2045, putting water management at the forefront of its corporate strategy. Efficient and responsible water management is essential to ensure operational continuity of the Company's assets. As the consequences of climate change become more dire, Ecopetrol is aware of the importance of water quality and availability to stakeholders, like communities surrounding the Company's operations. Furthermore, water availability is pivotal to Ecopetrol's operations. Through the Water Neutrality pillar of the environmental strategy and the Water Neutrality Roadmap, the Company has put in place a set of initiatives and projects aimed at reaching the 2045 water neutrality goal. These initiatives focus on reducing the Company's water footprint and curtailing potential impacts on water associated conflicts. Water issues considered under the material topic are: (i) Water required for operations: freshwater for both industrial uses and enhanced oil recovery especially in water-stressed areas, (ii) Effluents: discharges treated wastewaters to surface waterbodies, (iii) Water-related risks: decrease in rainfall that drives to a reduction in waterbodies flows and thus its assimilation capacity, and (iv) Watershed compensation: compensation projects in the same basins where water is extracted. Furthermore, we consider the "Inadequate response to challenges associated with climate change, water and biodiversity" as one of the company's strategic risks, as evidenced in our business risk map. In this sense, efficient use of this resource and its stewardship and protection, are measures to mitigate risks associated with water availability in the territories where the Company operates.

[Add row]

(5.3.2) Describe where and how environmental risks and opportunities have affected your financial planning.

Row 1

(5.3.2.1) Financial planning elements that have been affected

Select all that apply

- ☒ Capital expenditures
- ☒ Capital allocation
- ☒ Access to capital

(5.3.2.2) Effect type

Select all that apply

- ☒ Risks
- ☒ Opportunities

(5.3.2.3) Environmental issues relevant to the risks and/or opportunities that have affected these financial planning elements

Select all that apply

- ☒ Climate change
- ☒ Water

(5.3.2.4) Describe how environmental risks and/or opportunities have affected these financial planning elements

Various environmental aspects influence financial planning. For example, capital expenditure is impacted as the internal price of CO2 is considered in project evaluations as part of OPEX, benefiting those with lower emissions. Additionally, all investments aimed at mitigating CO2 emissions, reducing water intake and discharges, and environmental investments include both mandatory and strategic amounts in the estimated project costs. Furthermore, environmental opportunities are identified when developing projects that, due to their low emissions or environmental sustainability, can access better financial options.

[Add row]

(5.4) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s climate transition?

	Identification of spending/revenue that is aligned with your organization’s climate transition	Methodology or framework used to assess alignment with your organization’s climate transition
	Select from: <input checked="" type="checkbox"/> Yes	Select all that apply <input checked="" type="checkbox"/> Other methodology or framework

[Fixed row]

(5.4.1) Quantify the amount and percentage share of your spending/revenue that is aligned with your organization’s climate transition.

Row 1

(5.4.1.1) Methodology or framework used to assess alignment

Select from:

☒ Other, please specify :As ‘Green Taxonomy’ is yet to be applied by the regulator in Colombia, Ecopetrol uses a self classification method for its spending/revenue. Taxonomy will be applied along with regulator development.

(5.4.1.5) Financial metric

Select from:

☒ CAPEX

(5.4.1.6) Amount of selected financial metric that is aligned in the reporting year (currency)

4701107541763

(5.4.1.7) Percentage share of selected financial metric aligned in the reporting year (%)

17.3

(5.4.1.8) Percentage share of selected financial metric planned to align in 2025 (%)

23.1

(5.4.1.9) Percentage share of selected financial metric planned to align in 2030 (%)

0

(5.4.1.12) Details of the methodology or framework used to assess alignment with your organization's climate transition

The Ecopetrol Group (GE) defined its 2040 strategy "Energy that Transforms", with four (4) strategic pillars: (i) Competitive returns, (ii) Growth with the transition, (iii) Generating value with Sustainability" and, (iv) Cutting-edge knowledge. Each pillar contributes to the goal of consolidating an agile and dynamic organization that adapts quickly to the changes facing the energy industry and leads the way to a fair and equitable energy transition. The pillar "Growing with the energy transition" seeks to maintain competitiveness in the integrated hydrocarbon chain and diversify the business, through the promotion of the energies associated with the transition. In the scenarios evaluated by the company, the energy transmission business is expected to grow in the region and grow alongside electrification. Thus, this business (one of the three main businesses within the Ecopetrol Group) is recognized as one of the most important opportunities within Ecopetrol Groups energy transition. Moreover, this is coherent with the Ecopetrols largest financial transaction in 2021 through which it acquired 51.4% government stakes of ISA, taking advantage of the strategic and leading position that ISA has in the power transmission business throughout Latin America. Through this purchase, Ecopetrol expects to gain further progress towards the energy transition and promote a regional energy integration. From the point of view of diversification, the successful integration of ISA into the Ecopetrol Group stands out where the business contributes with 12% of the Ecopetrol Groups EBITDA in 2023.. In 2023, COP 10 trillion were collectively granted to electricity transmission projects in Colombia, Brazil, Chile and Peru. Ecopetrol estimates that ISAs contribution to GEs EBITDA is 20% in 2030 and 26% in 2040, respectively. During 2024, it is estimated that ISA will invest around US1.4 billion, of which US1.2 billion will go to the electric transmission business. The energy grid is expected to increase by approximately 2,500 kilometers by 2026, maintaining the company as a leader in power transmission in the region. In addition, a capital allocation of 15% is planned for 2040. The CAPEX amounts presented in Colombian Pesos (COP) have been converted at a rate of COP 4,330.14 per USD 1.00, which corresponds to the average Representative Market Rate (TRM) for 2023.

Row 2

(5.4.1.1) Methodology or framework used to assess alignment

Select from:

☒ Other, please specify :As 'Green Taxonomy' is yet to be applied by the regulator in Colombia, Ecopetrol uses a self classification method for its spending/revenue. Taxonomy will be applied along with regulator development.

(5.4.1.5) Financial metric

Select from:

☒ CAPEX

(5.4.1.6) Amount of selected financial metric that is aligned in the reporting year (currency)

619597201470

(5.4.1.7) Percentage share of selected financial metric aligned in the reporting year (%)

2.3

(5.4.1.8) Percentage share of selected financial metric planned to align in 2025 (%)

3.2

(5.4.1.9) Percentage share of selected financial metric planned to align in 2030 (%)

0

(5.4.1.12) Details of the methodology or framework used to assess alignment with your organization's climate transition

The Ecopetrol Group (GE) defined its 2040 strategy "Energy that Transforms", with four (4) strategic pillars: (i) Competitive returns, (ii) Growth with the transition, (iii) Generating value with Sustainability" and, (iv) Cutting-edge knowledge. Each pillar contributes to the goal of consolidating an agile and dynamic organization that adapts quickly to the changes facing the energy industry and leads the way to a fair and equitable energy transition. The "Generating Value with Sustainability" pillar seeks to strengthen transparent and ethical relationships with stakeholders, applying high standards of corporate governance to achieve environmentally responsible, safe and efficient operations, in which innovation and technology act as catalysts to accelerate solutions to the challenges of the future. Within the framework of this pillar, the decarbonization goals were established. In 2021, the Ecopetrol Group committed to reaching net zero carbon emissions by 2050 and reducing its emissions by 25% by 2030 compared to 2019 for scopes 1 and 2. To achieve this, progress is being made in the development of GHG emission mitigation initiatives in technological levers such as energy efficiency, reduction of leaks and vents, reduction of flaring and renewable energies, which has made it possible to achieve a cumulative reduction of 1.46 million tons of CO2 equivalent in the period 2020-2023. In this context, in 2023, investments (CAPEX) in the following projects stand out:

- La Cira Infantas Solar Farm (Upstream) 30 MUSD - Optimization of Energy Sources (Upstream) 15 MUSD - Cartagena Refinery Solar Park (Downstream) 8 MUSD*
- Barrancabermeja Refinery Lighting Systems (Downstream) 5 MUSD*

Ecopetrol continues to enable CAPEX to advance on the path of decarbonization and compliance with climate ambition for 2030 and 2050, through the identification of new mitigation opportunities and the development of emerging technologies such as Carbon Capture, Sequestration and Use – CCUS and Hydrogen.

[Add row]

(5.5) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

(5.5.1) Investment in low-carbon R&D

Select from:

☒ Yes

(5.5.2) Comment

Ecopetrol's Innovation and Technology Center (ICP, for its Spanish acronym) has proposed several specific initiatives aimed at process optimization, energy efficiency, new energy vector valuation, carbon capture, and low-carbon products development. Since 2021, has been developing several studies which explore a portfolio of key technologies for O&G operations decarbonization and setting Ecopetrol's energy transition pathway. This research lines include: • CCUS potential identification and estimation. • Vegetables oil coprocessing in refineries. • Oxycombustion technologies (flameless) potential evaluation in thermal generators. • Evaluation of technological options for low carbon hydrogen production. • Research in High enthalpy geothermal potential estimation and pilot conceptualization. • Evaluation of carbon capture emerging technologies evaluation. • Field evaluation for identifying native sources for CO2 capture and fixation. • Research in Offshore renewable energy potential estimation for Colombia. • Identified and evaluation of technological options to produce low carbon fuels from CO2 and hydrogen. • A program aimed at identifying and quantifying large methane emissions, using satellite images and overflights with infrared spectrum analysis.

[Fixed row]

(5.5.7) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Row 1

(5.5.7.1) Technology area

Select from:

☒ Carbon capture, utilization, and storage (CCUS)

(5.5.7.2) Stage of development in the reporting year

Select from:

☒ Applied research and development

(5.5.7.3) Average % of total R&D investment over the last 3 years

20

(5.5.7.4) R&D investment figure in the reporting year (unit currency as selected in 1.2) (optional)

3702982312

(5.5.7.5) Average % of total R&D investment planned over the next 5 years

40

(5.5.7.6) Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

1) Emerging technologies for CO2 capture: A review of promising CO2 capture technologies was carried out to reduce the capture cost per CO2 ton, being this one of the greatest limiting issues for implementation. Cryogenic, advances solvents, membranes, sorbents (adsorption) have been considered. A study case it's been developed for a 30 TPD CO2 plant with selected companies, in order to compare with currently TRL 9 Technologies, this has been done through working with technologies proprietaries or licensors. 2) Emerging technologies for CO2 Use: a) Design and laboratory test of an acuuous mineralization process in order to capture of CO2 to reduce capture cost and support water reuse and treatment. b) Design and laboratory test of a bioconversion process in order to capture CO2 through microalgae species, that can be used to produce high value products, like bio-oil, bioplastics, etc.

Row 2

(5.5.7.1) Technology area

Select from:

☒ Other, please specify :Energy Generation

(5.5.7.2) Stage of development in the reporting year

Select from:

☒ Applied research and development

(5.5.7.3) Average % of total R&D investment over the last 3 years

20

(5.5.7.4) R&D investment figure in the reporting year (unit currency as selected in 1.2) (optional)

402155617

(5.5.7.5) Average % of total R&D investment planned over the next 5 years

40

(5.5.7.6) Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

The study has reviewed the state of the art of technologies available to generate renewable energy from the ocean, it has evaluated the energy potential of the ocean using different approaches from the use of numerical models of the ocean and atmosphere, the development of GIS methodology and the use of various programming languages (python, Matlab, R) for the analysis of temporal and spatial series. Likewise, hydrodynamic models of the ocean and atmosphere have been implemented, these provide information for the prospecting of offshore energy in the Colombian Caribbean and Pacific.

Row 3

(5.5.7.1) Technology area

Select from:

☒ Carbon capture, utilization, and storage (CCUS)

(5.5.7.2) Stage of development in the reporting year

Select from:

☒ Pilot demonstration

(5.5.7.3) Average % of total R&D investment over the last 3 years

(5.5.7.4) R&D investment figure in the reporting year (unit currency as selected in 1.2) (optional)

10995651974

(5.5.7.5) Average % of total R&D investment planned over the next 5 years

40

(5.5.7.6) Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

The study seeks to enhance Carbon Sequestration and value attributable to Natural Climate Solutions in strategic ecosystems in Colombia, through the following actions: Characterization of dynamics and Carbon Stocks in strategic and at-risk ecosystems in Colombia and the Ecopetrol Group; Developing new methodologies that enable and expand the portfolio of Natural Climate Solutions projects for Ecopetrol in its decarbonization strategy for the country; Incorporating new technologies for the advanced study of ecosystems, biodiversity, carbon flows, GHG emissions and digital technologies (IOT, Cloud Computing and Artificial Intelligence); and, Updating strategic information (coverage and ecosystems at risk, at country scale) and technological capabilities for the development of solutions against climate change.

Row 4**(5.5.7.1) Technology area**

Select from:

☒ Other, please specify :Geothermal technical studies**(5.5.7.2) Stage of development in the reporting year**

Select from:

☒ Applied research and development**(5.5.7.3) Average % of total R&D investment over the last 3 years**

(5.5.7.4) R&D investment figure in the reporting year (unit currency as selected in 1.2) (optional)

1284760886

(5.5.7.5) Average % of total R&D investment planned over the next 5 years

40

(5.5.7.6) Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

We develop technical studies integrating information from different geophysical and geological techniques to interpret the subsoil and identify heat anomalies, which allow us to formulate proposals to produce renewable energy from the use of heat from the bottom of the earth, through Geothermal wells and generation facilities of energy in areas of the Llanos Basin and the Central Cordillera.

Row 5

(5.5.7.1) Technology area

Select from:

☒ Hydrogen

(5.5.7.2) Stage of development in the reporting year

Select from:

☒ Pilot demonstration

(5.5.7.3) Average % of total R&D investment over the last 3 years

20

(5.5.7.4) R&D investment figure in the reporting year (unit currency as selected in 1.2) (optional)

14273404424

(5.5.7.5) Average % of total R&D investment planned over the next 5 years

40

(5.5.7.6) Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Research in different initiatives in order to produce low carbon hydrogen and support the hydrogen value chain: a) Ecopetrol developed a green hydrogen production pilot in the Cartagena refinery, using a 50 kW PEM electrolyser, integrated into a photovoltaic solar park. b) It has been developed a simulation model of Business scenarios for hydrogen production and commercialization. c) We are selecting technologies for develop a mobility test of light vehicles using hydrogen as fuel. d) identified the most promissory technologies for hydrogen production from biogas.]

Row 6

(5.5.7.1) Technology area

Select from:

☒ Carbon capture, utilization, and storage (CCUS)

(5.5.7.2) Stage of development in the reporting year

Select from:

☒ Applied research and development

(5.5.7.3) Average % of total R&D investment over the last 3 years

20

(5.5.7.4) R&D investment figure in the reporting year (unit currency as selected in 1.2) (optional)

11572014494

(5.5.7.5) Average % of total R&D investment planned over the next 5 years

40

(5.5.7.6) Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

In order to achieve decarbonization targets, Ecopetrol has evaluated several technological options, some of those are: a) CCUS potential identification and estimation; identifying potential in some production fields in Ecopetrol. b) vegetables oil coprocessing in refineries, in order to get renewable diesel and jet; in 2022 it was done an industrial pilot test in an Ecopetrol refinery. c) oxy-combustion technologies (flameless) potential evaluation in thermal generators. It was designed an oxy-combustion equipment, that was tested in 2023, d) It has been developed a simulation model of Business scenarios for CO2 capture and use for Ecopetrol.

[Add row]

(5.6) Break down, by fossil fuel expansion activity, your organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.

Exploration of new oil fields

(5.6.1) CAPEX in the reporting year for this expansion activity (unit currency as selected in 1.2)

1215901004684

(5.6.2) CAPEX in the reporting year for this expansion activity as % of total CAPEX in the reporting year

4

(5.6.3) CAPEX planned over the next 5 years for this expansion activity as % of total CAPEX planned over the next 5 years

3

(5.6.4) Explain your CAPEX calculations, including any assumptions

Assumptions Column A: Average exchange rate 2023: 4,325.05 Column B: Capex of the Ecopetrol Group aligned with the quarterly report including the ISA subsidiary for 27,197,853,295,430 Column C: Plan 2024 disclosed, the remaining 4 years are not including, 2025-2028 are not disclosure to the market.

Exploration of new natural gas fields

(5.6.1) CAPEX in the reporting year for this expansion activity (unit currency as selected in 1.2)

(5.6.2) CAPEX in the reporting year for this expansion activity as % of total CAPEX in the reporting year

3

(5.6.3) CAPEX planned over the next 5 years for this expansion activity as % of total CAPEX planned over the next 5 years

6

(5.6.4) Explain your CAPEX calculations, including any assumptions

Assumptions Column A: Average exchange rate 2023: 4,325.05 Column B: Capex of the Ecopetrol Group aligned with the quarterly report including the ISA subsidiary for 27,197,853,295,430 Column C: Plan 2024 disclosed, the remaining 4 years are not including, 2025-2028 are not disclosure to the market.

Expansion of existing oil fields**(5.6.1) CAPEX in the reporting year for this expansion activity (unit currency as selected in 1.2)**

14080192510314

(5.6.2) CAPEX in the reporting year for this expansion activity as % of total CAPEX in the reporting year

52

(5.6.3) CAPEX planned over the next 5 years for this expansion activity as % of total CAPEX planned over the next 5 years

48

(5.6.4) Explain your CAPEX calculations, including any assumptions

Assumptions Column A: Average exchange rate 2023: 4,325.05 Column B: Capex of the Ecopetrol Group aligned with the quarterly report including the ISA subsidiary for 27,197,853,295,430 Column C: Plan 2024 disclosed, the remaining 4 years are not including, 2025-2028 are not disclosure to the market.

Expansion of existing natural gas fields

(5.6.1) CAPEX in the reporting year for this expansion activity (unit currency as selected in 1.2)

2027461816984

(5.6.2) CAPEX in the reporting year for this expansion activity as % of total CAPEX in the reporting year

7

(5.6.3) CAPEX planned over the next 5 years for this expansion activity as % of total CAPEX planned over the next 5 years

6

(5.6.4) Explain your CAPEX calculations, including any assumptions

*Assumptions Column A: Average exchange rate 2023: 4,325.05 Column B: Capex of the Ecopetrol Group aligned with the quarterly report including the ISA subsidiary for 27,197,853,295,430 Column C: Plan 2024 disclosed, the remaining 4 years are not including, 2025-2028 are not disclosure to the market.
[Fixed row]*

(5.8) Disclose the breakeven price (US\$/BOE) required for cash neutrality during the reporting year, i.e. where cash flow from operations covers CAPEX and dividends paid / share buybacks.

61.2

(5.9) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

(5.9.1) Water-related CAPEX (+/- % change)

5.5

(5.9.2) Anticipated forward trend for CAPEX (+/- % change)

88.7

(5.9.3) Water-related OPEX (+/- % change)

0

(5.9.4) Anticipated forward trend for OPEX (+/- % change)

17.77

(5.9.5) Please explain

CAPEX expenditure increased during 2023 in comparison with 2022 due to an execution peak of water injection within Castilla field (secondary recovery) and PTAR project of Barrancabermeja's Refinery; it is also explained by the incorporation of new projects such as the water quality improvement for compliance of industrial water management regulation. It is expected an augment in 2024 due to the incorporation of new projects for secondary recovery through water injection, mainly on the fields of Acacias, Castilla (south and north) and CPO09

[Fixed row]

(5.10) Does your organization use an internal price on environmental externalities?

	Use of internal pricing of environmental externalities	Environmental externality priced
	Select from: <input checked="" type="checkbox"/> Yes	Select all that apply <input checked="" type="checkbox"/> Carbon

[Fixed row]

(5.10.1) Provide details of your organization's internal price on carbon.

Row 1

(5.10.1.1) Type of pricing scheme

Select from:

- ☒ Shadow price

(5.10.1.2) Objectives for implementing internal price

Select all that apply

- ☒ Drive energy efficiency
- ☒ Drive low-carbon investment
- ☒ Identify and seize low-carbon opportunities
- ☒ Other, please specify :Change internal behavior; Stakeholder expectations

(5.10.1.3) Factors considered when determining the price

Select all that apply

- ☒ Benchmarking against peers
- ☒ Cost of required measures to achieve climate-related targets
- ☒ Price with substantive impact on business decisions

(5.10.1.4) Calculation methodology and assumptions made in determining the price

The capital discipline framework of the Ecopetrol Group evolves with the long-term strategic vision, responding to the current challenges of the generation of sustainable value, and in this sense, establishes the considerations, premises and mechanisms that leverage the consolidation and growth of the group's three business lines, maximizing value, leveraging the fulfillment of strategic goals and ensuring synergies materialization. In this context, the company established as a capital discipline criterion, the setting of an internal carbon price, defined based on the following considerations: (i) analysis of trends and evolution of carbon pricing in the world in recent years, experiences of leading companies in energy transition in the Oil & Gas sector and the perspectives of the International Energy Agency, (ii) evaluation of the costs of emissions reduction initiatives associated with investment projects in the strategic levers of decarbonization prioritized by the company (Energy efficiency, renewable energies, reduction of fugitive emissions and venting, and reduction of flaring), taking into account the Marginal Abatement Cost Curve, and (iii) analysis of the impact on the financial flows of the investment portfolio.

(5.10.1.5) Scopes covered

Select all that apply

- ☒ Scope 1
- ☒ Scope 2

(5.10.1.6) Pricing approach used – spatial variance

Select from:

☒ Uniform

(5.10.1.8) Pricing approach used – temporal variance

Select from:

☒ Evolutionary

(5.10.1.9) Indicate how you expect the price to change over time

To leverage compliance with emission reduction targets and manage some of the climate-related risks to which the industry is exposed, Ecopetrol defined an internal price on carbon which considers three time periods: 25 USD/tCO₂e for 2023 and 2024; 40 USD/tCO₂e for 2025-2029; and 50 USD/tCO₂e for 2030 onwards.

(5.10.1.10) Minimum actual price used (currency per metric ton CO₂e)

108253.5

(5.10.1.11) Maximum actual price used (currency per metric ton CO₂e)

108253.5

(5.10.1.12) Business decision-making processes the internal price is applied to

Select all that apply

☒ Capital expenditure

(5.10.1.13) Internal price is mandatory within business decision-making processes

Select from:

☒ Yes, for all decision-making processes

(5.10.1.14) % total emissions in the reporting year in selected scopes this internal price covers

(5.10.1.15) Pricing approach is monitored and evaluated to achieve objectives

Select from:

☒ Yes

(5.10.1.16) Details of how the pricing approach is monitored and evaluated to achieve your objectives

The internal price of CO2 was established in 2021 as a parameter of capital discipline, which initially had to be applied as a sensitivity in the valuation of investment opportunities, in order to sensitize the organization in the adoption of this new methodology. Since 2023 it has been established as mandatory in the base scenario for the valuation of investment opportunities. Its application is monitored and evaluated in the different investment decision instances established by the company.

[Add row]

(5.11) Do you engage with your value chain on environmental issues?

	Engaging with this stakeholder on environmental issues	Environmental issues covered
Suppliers	Select from: <input checked="" type="checkbox"/> Yes	Select all that apply <input checked="" type="checkbox"/> Climate change <input checked="" type="checkbox"/> Water
Customers	Select from: <input checked="" type="checkbox"/> Yes	Select all that apply <input checked="" type="checkbox"/> Climate change
Investors and shareholders	Select from: <input checked="" type="checkbox"/> Yes	Select all that apply <input checked="" type="checkbox"/> Climate change <input checked="" type="checkbox"/> Water
Other value chain stakeholders	Select from: <input checked="" type="checkbox"/> Yes	Select all that apply <input checked="" type="checkbox"/> Climate change

	Engaging with this stakeholder on environmental issues	Environmental issues covered
		<input checked="" type="checkbox"/> Water

[Fixed row]

(5.11.1) Does your organization assess and classify suppliers according to their dependencies and/or impacts on the environment?

Climate change

(5.11.1.1) Assessment of supplier dependencies and/or impacts on the environment

Select from:

☒ Yes, we assess the dependencies and/or impacts of our suppliers

(5.11.1.2) Criteria for assessing supplier dependencies and/or impacts on the environment

Select all that apply

☒ Contribution to supplier-related Scope 3 emissions

☒ Other, please specify :Impact on Zero Net Deforestation,Impact on waste management

(5.11.1.3) % Tier 1 suppliers assessed

Select from:

☒ 76-99%

(5.11.1.4) Define a threshold for classifying suppliers as having substantive dependencies and/or impacts on the environment

The Supplier Environmental Screening identifies strategic suppliers that leverage the goals of decarbonization (classification according to the amount of tCO₂e generated), materials and waste (categories that leverage circularity), water management (where there is intensive use of materials that affect Ecopetrol's water footprint) and natural capital -biodiversity (categories with intensive use of wood), that prioritize strategic suppliers in environmental matters

(5.11.1.5) % Tier 1 suppliers meeting the thresholds for substantive dependencies and/or impacts on the environment

Select from:

☒ 1-25%

(5.11.1.6) Number of Tier 1 suppliers meeting the thresholds for substantive dependencies and/or impacts on the environment

948

Water

(5.11.1.1) Assessment of supplier dependencies and/or impacts on the environment

Select from:

☒ Yes, we assess the dependencies and/or impacts of our suppliers

(5.11.1.2) Criteria for assessing supplier dependencies and/or impacts on the environment

Select all that apply

☒ Dependence on water

☒ Impact on water availability

☒ Other, please specify :Impact on waste management

(5.11.1.3) % Tier 1 suppliers assessed

Select from:

☒ 1-25%

(5.11.1.4) Define a threshold for classifying suppliers as having substantive dependencies and/or impacts on the environment

In the case of water management, the Supplier Environmental Screening considers the impact of the procurement categories that affect water footprint, in terms of intensive use of raw materials as pipeline, cement, barite, and calcium carbonate; as well as waste management through bioremediation, landfill, incineration, and dump.

(5.11.1.5) % Tier 1 suppliers meeting the thresholds for substantive dependencies and/or impacts on the environment

Select from:

☒ 1-25%

(5.11.1.6) Number of Tier 1 suppliers meeting the thresholds for substantive dependencies and/or impacts on the environment

120

[Fixed row]

(5.11.2) Does your organization prioritize which suppliers to engage with on environmental issues?

Climate change

(5.11.2.1) Supplier engagement prioritization on this environmental issue

Select from:

☒ Yes, we prioritize which suppliers to engage with on this environmental issue

(5.11.2.2) Criteria informing which suppliers are prioritized for engagement on this environmental issue

Select all that apply

☒ In line with the criteria used to classify suppliers as having substantive dependencies and/or impacts relating to climate change

☒ Supplier performance improvement

(5.11.2.4) Please explain

The Supplier Environmental Screening identifies strategic suppliers that leverage the goals of decarbonization, according to the amount of tCO₂e generated in the operation of each contract

Water

(5.11.2.1) Supplier engagement prioritization on this environmental issue

Select from:

☒ Yes, we prioritize which suppliers to engage with on this environmental issue

(5.11.2.2) Criteria informing which suppliers are prioritized for engagement on this environmental issue

Select all that apply

- ☒ In line with the criteria used to classify suppliers as having substantive dependencies and/or impacts relating to water
- ☒ Product lifecycle
- ☒ Supplier performance improvement

(5.11.2.4) Please explain

Considering that the Supplier Environmental Screening for water management is based on the impact of the procurement categories that affect water footprint, its metrics of volume of water consumed for industrial purposes and industrial water discharges is part of product lifecycle. Additionally, the impact of each procurement category and the possibility to improve its performance by suppliers in Ecopetrol's water footprint is the main aspect in the prioritization for engagement.

[Fixed row]

(5.11.5) Do your suppliers have to meet environmental requirements as part of your organization's purchasing process?

Climate change

(5.11.5.1) Suppliers have to meet specific environmental requirements related to this environmental issue as part of the purchasing process

Select from:

- ☒ Yes, environmental requirements related to this environmental issue are included in our supplier contracts

(5.11.5.2) Policy in place for addressing supplier non-compliance

Select from:

- ☒ Yes, we have a policy in place for addressing non-compliance

(5.11.5.3) Comment

The prioritized contracts, according to the supplier screening for climate change, have clauses that looks to estimate greenhouse gas emissions generation, as well as a formulation of a decarbonization plan to reduce the emissions on the operation of each contract. Compliance of the emissions reduction according to the goal of

each contract is verified by Ecopetrol, and it is carried out by personnel involved in the implementation of the operations being verified. The contracts establish the procedure in case of non-compliance.

Water

(5.11.5.1) Suppliers have to meet specific environmental requirements related to this environmental issue as part of the purchasing process

Select from:

☒ Yes, environmental requirements related to this environmental issue are included in our supplier contracts

(5.11.5.2) Policy in place for addressing supplier non-compliance

Select from:

☒ Yes, we have a policy in place for addressing non-compliance

(5.11.5.3) Comment

Details and information available in 5.11.6

[Fixed row]

(5.11.6) Provide details of the environmental requirements that suppliers have to meet as part of your organization's purchasing process, and the compliance measures in place.

Climate change

(5.11.6.1) Environmental requirement

Select from:

☒ Implementation of emissions reduction initiatives

(5.11.6.2) Mechanisms for monitoring compliance with this environmental requirement

Select all that apply

☒ Supplier self-assessment

(5.11.6.3) % tier 1 suppliers by procurement spend required to comply with this environmental requirement

Select from:

☒ 1-25%

(5.11.6.4) % tier 1 suppliers by procurement spend in compliance with this environmental requirement

Select from:

☒ 100%

(5.11.6.7) % tier 1 supplier-related scope 3 emissions attributable to the suppliers required to comply with this environmental requirement

Select from:

☒ 1-25%

(5.11.6.8) % tier 1 supplier-related scope 3 emissions attributable to the suppliers in compliance with this environmental requirement

Select from:

☒ 100%

(5.11.6.9) Response to supplier non-compliance with this environmental requirement

Select from:

☒ Retain and engage

(5.11.6.10) % of non-compliant suppliers engaged

Select from:

☒ 100%

(5.11.6.11) Procedures to engage non-compliant suppliers

Select all that apply

- ☒ Providing information on appropriate actions that can be taken to address non-compliance

(5.11.6.12) Comment

Ecopetrol included environmental clauses for selection processes and contracts executions. For climate change the clauses are based on 1) Liability to periodically report activity data from emission sources to estimate GHG emissions generated in each contract, 2) Definition of an emission reduction target and plan to achieve it, including details on decarbonization initiatives related to the contract operation; and 3) Monitoring scheme focused on achieving the reduction target during the execution of the contract. The clauses entail suppliers to disclose the information mentioned above to Ecopetrol. Ecopetrol designed 3 kinds of clauses, recognizing different levels of appropriation of climate change strategies: 1) For mature markets the selection process incentivize the highest emissions reduction goal, 2) For markets with decarbonization mature and non-mature suppliers the clauses incentivize the suppliers to estimate their emissions and formulate a plan to reduce emissions during the contract, 3) For decarbonization non-mature suppliers, clauses incentivize the identification of emission sources and actions to start emissions reducing. Ecopetrol provided support to suppliers helping them to estimate their emissions and its reduction. In case there is a noncompliant supplier the decarbonization clauses established that Ecopetrol may end the purchasing relationship applying the specific consequences defined in the contract or affecting supplier rating.

Water

(5.11.6.1) Environmental requirement

Select from:

- ☒ Provision of fully-functioning, safely managed WASH services to all employees

(5.11.6.2) Mechanisms for monitoring compliance with this environmental requirement

Select all that apply

- ☒ First-party verification
☒ Supplier scorecard or rating
☒ Supplier self-assessment

(5.11.6.3) % tier 1 suppliers by procurement spend required to comply with this environmental requirement

Select from:

☒ 26-50%

(5.11.6.4) % tier 1 suppliers by procurement spend in compliance with this environmental requirement

Select from:

☒ 76-99%

(5.11.6.5) % tier 1 suppliers with substantive environmental dependencies and/or impacts related to this environmental issue required to comply with this environmental requirement

Select from:

☒ 1-25%

(5.11.6.6) % tier 1 suppliers with substantive environmental dependencies and/or impacts related to this environmental issue that are in compliance with this environmental requirement

Select from:

☒ 76-99%

(5.11.6.9) Response to supplier non-compliance with this environmental requirement

Select from:

☒ Retain and engage

(5.11.6.10) % of non-compliant suppliers engaged

Select from:

☒ 100%

(5.11.6.11) Procedures to engage non-compliant suppliers

Select all that apply

☒ Providing information on appropriate actions that can be taken to address non-compliance

(5.11.6.12) Comment

•Ecopetrol includes water-related obligations in the "HSE Aspects" for contracts classified as medium, high, and very-high risk, according to their risk assessment. Contractors are required to provide drinking water or hydrating beverages to their employees as well as to guarantee sanitation services in hygienic conditions. Contractors are also required to implement plans to ensure efficient water use according to national guidelines, and to disclose water-management relevant data to Ecopetrol. •Compliance evaluation with the HSE obligations is performed by Ecopetrol personnel based on the Internal procedure GAB-P-013 which includes evaluations, inspections, audits, etc. •% tier 1 required to comply with this requirement: this figure is estimated as the ratio between the cost of contracts related to well drilling, workover, general oil services, and operation and maintenance of production facilities, and Ecopetrol total procurement costs. According to 2019 and 2020 estimations, this percentage is between 26 and 50%. •%tier 1 in compliance: According to the 2023 supplier performance evaluation results, 97.46% of assessed suppliers were in compliance with the HSE aspects (Management Report 2023, page 282). •Supplier non-compliance: Contractors are requested to set, formalize, and comply with a corrective action plan; in 2023, 100% of suppliers with current/potential substantial negative impacts set a correction or improvement plan (Management Report 2023, page 282)

[Add row]

(5.11.7) Provide further details of your organization's supplier engagement on environmental issues.

Climate change

(5.11.7.2) Action driven by supplier engagement

Select from:

☒ Emissions reduction

(5.11.7.3) Type and details of engagement

Capacity building

- ☒ Develop or distribute resources on how to map upstream value chain
- ☒ Provide training, support and best practices on how to measure GHG emissions
- ☒ Provide training, support and best practices on how to mitigate environmental impact
- ☒ Support suppliers to develop public time-bound action plans with clear milestones
- ☒ Support suppliers to set their own environmental commitments across their operations

Information collection

- ☒ Collect GHG emissions data at least annually from suppliers

- ☒ Collect targets information at least annually from suppliers

Innovation and collaboration

- ☒ Collaborate with suppliers to develop reuse infrastructure and reuse models

(5.11.7.4) Upstream value chain coverage

Select all that apply

- ☒ Tier 1 suppliers

(5.11.7.5) % of tier 1 suppliers by procurement spend covered by engagement

Select from:

- ☒ 1-25%

(5.11.7.6) % of tier 1 supplier-related scope 3 emissions covered by engagement

Select from:

- ☒ 1-25%

(5.11.7.9) Describe the engagement and explain the effect of your engagement on the selected environmental action

Committed to sustainable Environmental Management, the supply chain has a training program on relevant topics for the different actors in the process: Supply Chain Officials, Suppliers and Contract Monitoring Officials, based on the four topics of the environmental sustainability strategy for the supply chain: Decarbonization, Waste and Materials, Zero water discharges and Natural capital. In the case of Climate Change, 948 suppliers were prioritized and 275 of them participate in three different trainings covering Ecopetrol's decarbonization strategy, GHG emissions inventory, decarbonization plan and reductions, and carbon markets. This training was based on the environmental sustainability segmentation, a methodology to analyze the whole universe of contracts, applying criteria like the potential of greenhouse gas -GHG- emissions generation in the operation of contracts, the possibility to incorporate circular economy business models, the impact on the Ecopetrol's indirect water footprint and the relation of each procurement category with Net Zero Deforestation commitment. This methodology allowed to define four groups of prioritized Suppliers for each one of the environmental sustainability topics, who were engaged in different training sessions. Building capacity, collecting information and incorporating climate change clauses in contracts allows GHG emissions reduction. At the end of 2023, 164.466 tCO₂e were reduced, 74% due to mitigation initiatives and 26% were reduced through compensation actions, based on the acquisition of carbon credits by suppliers, mainly in Nature based Solutions (NbS) projects, that also brought social co-benefits for Colombia. The total emissions reduction in 2023 corresponds to 11% of total GHG inventory of goods and services supply chain, 114% higher than 2022 GHG reduction. Besides, the GHG inventory for the supply chain of goods and services were improved: In 2023,

Ecopetrol collected GHG emissions data from 341 Suppliers and services, corresponded to 13% of total GHG emissions inventory of the supply chain of goods and services. All these efforts, allows to define the goal to reduce 231.297 tCO₂e at the end of 2030.

(5.11.7.10) Engagement is helping your tier 1 suppliers meet an environmental requirement related to this environmental issue

Select from:

☒ Yes, please specify the environmental requirement :GHG emission reduction

(5.11.7.11) Engagement is helping your tier 1 suppliers engage with their own suppliers on the selected action

Select from:

☒ Yes

Water

(5.11.7.2) Action driven by supplier engagement

Select from:

☒ Total water withdrawal volumes reduction

(5.11.7.3) Type and details of engagement

Information collection

☒ Collect water quality information at least annually from suppliers (e.g., discharge quality, pollution incidents, hazardous substances)

☒ Collect water quantity information at least annually from suppliers (e.g., withdrawal and discharge volumes)

(5.11.7.4) Upstream value chain coverage

Select all that apply

☒ Tier 1 suppliers

(5.11.7.5) % of tier 1 suppliers by procurement spend covered by engagement

Select from:

☒ Less than 1%

(5.11.7.7) % tier 1 suppliers with substantive impacts and/or dependencies related to this environmental issue covered by engagement

Select from:

☒ Less than 1%

(5.11.7.9) Describe the engagement and explain the effect of your engagement on the selected environmental action

Committed to sustainable Environmental Management, the supply chain has a training program on relevant topics for the different actors in the process: Supply Chain Officials, Suppliers and Contract Monitoring Officials, based on the four topics of the environmental sustainability strategy for the supply chain: Decarbonization, Waste and Materials, zero water discharges and Natural capital. In the case of Water, 121 suppliers were prioritized and 32 of them participate in trainings about water footprint. This training was based on the environmental sustainability segmentation, a methodology to analyze the whole universe of contracts, applying criteria like the potential of greenhouse gas -GHG- emissions generation in the operation of contracts, the possibility to incorporate circular economy business models, the impact on the Ecopetrol's indirect water footprint and the relation of each procurement category with Net Zero Deforestation commitment. This methodology allowed to define four groups of prioritized Suppliers for each one of the environmental sustainability topics, who were engaged in different training sessions.

(5.11.7.10) Engagement is helping your tier 1 suppliers meet an environmental requirement related to this environmental issue

Select from:

☒ Yes, please specify the environmental requirement :Water

(5.11.7.11) Engagement is helping your tier 1 suppliers engage with their own suppliers on the selected action

Select from:

☒ Yes

[Add row]

(5.11.9) Provide details of any environmental engagement activity with other stakeholders in the value chain.

Climate change

(5.11.9.1) Type of stakeholder

Select from:

☒ Customers

(5.11.9.2) Type and details of engagement

Education/Information sharing

- ☒ Educate and work with stakeholders on understanding and measuring exposure to environmental risks
- ☒ Share information about your products and relevant certification schemes
- ☒ Share information on environmental initiatives, progress and achievements

Innovation and collaboration

- ☒ Collaborate with stakeholders on innovations to reduce environmental impacts in products and services

(5.11.9.3) % of stakeholder type engaged

Select from:

☒ 51-75%

(5.11.9.4) % stakeholder-associated scope 3 emissions

Select from:

☒ 1-25%

(5.11.9.5) Rationale for engaging these stakeholders and scope of engagement

Ecopetrol is positively engaging with customers and suppliers to address carbon emissions and achieve decarbonization targets. Our strategy encompasses several key initiatives aimed at fostering transparency, collaboration, and innovation in carbon management: 1. Transparent Communication of Partial Product Carbon Footprint: We have made significant strides in measuring the carbon intensity of our products and crude oils. We are pleased to report that we now have estimated and verified the carbon intensity of 2 crudes and 3 refined products through third-party experts, including world's leading validation/verification bodies (VVBs). By openly sharing this information, we aim to empower our stakeholders with the knowledge needed to make informed decisions, thereby driving collective progress toward reduced emissions. 2. Service Contract Clauses for Emissions Reporting: Recognizing the importance of collaborative efforts, we have actively incorporated clauses in our service contracts that require our providers to share their carbon emissions and environmental impacts. This ensures that we maintain a comprehensive view of our value chain's environmental footprint and work together towards sustainable practices. 3. Offsetting Co-Strategies: In addition to the multiple efforts to reduce and mitigate carbon emissions, we participate in offsetting strategies with our clients by the sale of carbon compensate cargoes. These initiatives require the usage of carbon credits sourced from highly integrity projects and support our commitment to promote the development of sustainable projects

in Colombia. To achieve this, Ecopetrol has a robust process to evaluate the integrity of purchased carbon credits, through due diligence processes and integrity analysis tools. 4. Innovative Solutions with Industry Partners: We are continuously seeking innovative solutions with our industry partners to evidence the carbon intensity of commodities. By leveraging carbon intensity data, we can power decisions that drive sustainable practices across the industry. These efforts include the development of advanced tools and methodologies for accurately assessing and reporting carbon footprints.

(5.11.9.6) Effect of engagement and measures of success

• During 2023 Ecopetrol achieve the sale of 9M bls cargoes of carbon compensated crude oil, the carbon emissions of these cargoes are equivalent to approximately 342 thousand tons of CO₂e, were compensated with high-integrity carbon credits of nature-based climate solution projects in Latam. • Ecopetrol also structured and developed a strategy for offsetting carbon emissions of production of national premium gasoline. With the support of our customers, we successfully offset nearly 900,000 gallons of gasoline, equivalent to 126,000 tons of CO₂e. • We also achieved the commercialization of nearly 6,000 tons of carbon-compensated asphalt, representing approximately 1,800 tons CO₂e, which were acquired from Colombian projects, also contributing to the development of local communities.

Water

(5.11.9.1) Type of stakeholder

Select from:

☒ Other value chain stakeholder, please specify :Partners

(5.11.9.2) Type and details of engagement

Education/Information sharing

- ☒ Educate and work with stakeholders on understanding and measuring exposure to environmental risks
- ☒ Share information on environmental initiatives, progress and achievements

Innovation and collaboration

- ☒ Align your organization's goals to support customers' targets and ambitions
- ☒ Collaborate with stakeholders on innovations to reduce environmental impacts in products and services

(5.11.9.3) % of stakeholder type engaged

Select from:

☒ 51-75%

(5.11.9.5) Rationale for engaging these stakeholders and scope of engagement

Engaging our partners is a fundamental pillar of Corporate Strategy 2040, which focuses on sustainability and responsible management of resources. The main reason for this commitment is the recognition that sustainable water management cannot be achieved in isolation. By collaborating with partners, a diversity of knowledge and innovative ideas that are crucial to advancing water management practices are harnessed. The above ensures that we all share the responsibility and benefits of sustainable practices, fostering a sense of ownership and collective responsibility. The scope of our partner engagement activities is based on knowledge transfer and regulatory compliance. With some of our partners, collaborative sessions have been held on estimating the water footprint to evaluate and reduce water use, as well as on water risks in the basins where we operate. In addition, Comprehensive Water Management initiatives have been developed and implemented in collaboration with our partners, related to water recycling and reuse. These efforts are aligned with our commitment to sustainability and responsible water management. Working closely with our partners, we ensure that we meet the required standards and quality parameters in water management. By combining our knowledge, innovative solutions are developed and implemented that ensure the sustainability of our water resources.

(5.11.9.6) Effect of engagement and measures of success

Collaborative efforts with our partners on water management initiatives have led to significant positive results. A notable project is the performance testing of the Water Management Project in a Field on the Eastern Plains, which aims to reuse produced water for agricultural irrigation. This project demonstrated technical and economic viability, highlighting our commitment to innovative and sustainable solutions for water. In addition, we have been working with some of our partners to estimate their water footprint and have created spaces for socializing water risks. These efforts have resulted in increased awareness and proactive measures among our partners to minimize water use and waste. To measure the success of our engagement efforts, quarterly monitoring of key metrics such as intake, discharge, reuse, and recycling through sustainability formats shared among partners. The successful achievement of project milestones, like those of the abovementioned project, serves as a crucial indicator of our progress.

Climate change

(5.11.9.1) Type of stakeholder

Select from:

- ☒ Other value chain stakeholder, please specify :Business partners in Non-operated Joint Ventures

(5.11.9.2) Type and details of engagement

Education/Information sharing

- ☒ Educate and work with stakeholders on understanding and measuring exposure to environmental risks
- ☒ Run an engagement campaign to educate stakeholders about the environmental impacts about your products, goods and/or services
- ☒ Share information on environmental initiatives, progress and achievements

Innovation and collaboration

- ☒ Align your organization's goals to support customers' targets and ambitions
- ☒ Collaborate with stakeholders on innovations to reduce environmental impacts in products and services
- ☒ Run a campaign to encourage innovation to reduce environmental impacts

(5.11.9.3) % of stakeholder type engaged

Select from:

- ☒ 76-99%

(5.11.9.4) % stakeholder-associated scope 3 emissions

Select from:

- ☒ 76-99%

(5.11.9.5) Rationale for engaging these stakeholders and scope of engagement

Since 2022, Ecopetrol has been strengthening its relationship with the companies with which it has upstream assets in partnership in Colombia. For this purpose, Ecopetrol defined a work plan for each partner, aligned with Ecopetrol's decarbonization plan, which includes the following action lines: i) GHG emissions inventory, ii) GHG emissions reduction, and iii) methane emissions reporting and reduction. The collaboration provided by Ecopetrol to its partners refers to follow-up meetings, training workshops, sustainability fairs, support in the GHG emission reduction projects formulation, and support for methane top-down measurements. In 2023, Ecopetrol held several meetings for training and skills building. Also, there have been two meetings regarding Colombian regulation on methane to look for a joint understanding about resolutions 40066 (from 2022) and 40317 (from 2023). Besides that, in 2024, Ecopetrol has started working with one of its partners on the implementation of the Integrated Climate Change Management Plan (PIGCCe, for its Spanish acronym) which includes activities on mitigation and adaptation in order to avoid the prejudicial impacts on climate change.

(5.11.9.6) Effect of engagement and measures of success

Measures of success are based on: i) quality of GHG emissions granularity and reporting, and ii) implementation of emission reduction projects. Regarding quality of GHG emissions granularity and reporting, Ecopetrol engages on availability, accuracy, and completeness of GHG emissions inventory. In 2023, Ecopetrol delivered its third OGMP 2.0 report, in which 28 non-operated assets were reported at levels L2, L3, and L4. In 2024, Ecopetrol delivered its fourth OGMP 2.0 report, in which 28 assets were included, with reporting levels from L1 to L5. Assets from three of the prioritized partners that weren't included last year, were included at L3 reporting level, and information from another two partners improved in terms of granularity and level of reporting. Regarding implementation of emission reduction projects, in 2023, several projects of flaring reduction, energy efficiency, fugitive emissions reduction, and electrification were developed.

[Add row]

C6. Environmental Performance - Consolidation Approach

(6.1) Provide details on your chosen consolidation approach for the calculation of environmental performance data.

Climate change

(6.1.1) Consolidation approach used

Select from:

☒ Operational control

(6.1.2) Provide the rationale for the choice of consolidation approach

Ecopetrol has chosen the operational control approach to consolidate GHG emissions reporting. According to GHG Protocol, a company exercises operational control over an operation if that company has full authority to introduce and implement its operational policies in the operation. This does not mean that the company has the authority to make all decisions relating to a joint venture, for example, making decisions on capital investments is not included in its authority. In this sense, Ecopetrol's GHG emissions include all facilities where it performs day-to-day operations and maintenance, and where it consequently has decision-making control over occupational health and safety issues, irrespective of whether Ecopetrol's ownership of the facility is majority or not. Therefore, the report includes the facilities of Ecopetrol and Cartagena Refinery, one of its subsidiaries. This consolidation approach is maintained for the reporting of all Environmental performance data, such as water, waste and biodiversity. Ecopetrol has chosen this approach because: i) the company has easy access to the data needed to estimate emissions; and ii) the company has a greater degree of influence over both the monitoring of generated emissions and the implementation of GHG emissions reduction initiatives. However, Ecopetrol is currently in the process of implementing the International Financial Reporting Standards (IFRS) S1 (Sustainability disclosure) and IFRS S2 (Climate-related disclosure) for investors. In this process, the consolidation approach and requirements for reporting sustainability issues will be evaluated to align them with the Financial Statements.

Water

(6.1.1) Consolidation approach used

Select from:

☒ Operational control

(6.1.2) Provide the rationale for the choice of consolidation approach

The scope of water-related data disclosed in this report includes all facilities operated by Ecopetrol S.A. This includes Exploration and Production (E&P) assets in Colombia, and Barrancabermeja and Cartagena refineries.

Plastics

(6.1.1) Consolidation approach used

Select from:

☒ Operational control

(6.1.2) Provide the rationale for the choice of consolidation approach

The scope of plastic-related data disclosed in this report includes all facilities operated by Ecopetrol S.A: Plastic-production data includes only the Petrochemical plant of Barrancabermeja's refinery. Plastic-use data includes all Exploration and Production (E&P) assets in Colombia, and Barrancabermeja and Cartagena refineries (REFICAR).

Biodiversity

(6.1.1) Consolidation approach used

Select from:

☒ Other, please specify :Colombian Environmental Regulation

(6.1.2) Provide the rationale for the choice of consolidation approach

The scope of biodiversity-related data disclosed in this report includes all facilities operated by Ecopetrol S.A. This includes Exploration and Production (E&P) assets in Colombia, and Barrancabermeja and Cartagena refineries.
[Fixed row]

C7. Environmental performance - Climate Change

(7.1) Is this your first year of reporting emissions data to CDP?

Select from:

☒ No

(7.1.1) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

	Has there been a structural change?
	Select all that apply <input checked="" type="checkbox"/> No

[Fixed row]

(7.1.2) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

(7.1.2.1) Change(s) in methodology, boundary, and/or reporting year definition?

Select all that apply

- ☒ Yes, a change in methodology
- ☒ Yes, a change in boundary
- ☒ No, but we have discovered significant errors in our previous response(s)

(7.1.2.2) Details of methodology, boundary, and/or reporting year definition change(s)

Scope 1: (i) In 2022 the upstream fugitive and venting emissions calculation included the results associated with bottom-up and top-down methane measurements developed in 95% of Ecopetrol assets, as part of the company's plan to improve the detection, quantification and closure of fugitive emissions and venting, allowing the construction of Ecopetrol specific emission factors. However, in 2023 after a process of reviewing the quality of information, parameters of the vented and leaked gas were updated, aligned to the emission points, generating a decrease in the total emissions of the fugitive and venting categories of around 44%. (ii) Adjustment of mass balance methodology used to estimate CO2 emissions in stationary sources, modifying the reference conditions (temperature and pressure) to align it with the operational reality. Scope 3: C1: In 2023 Ecopetrol reviewed the spend database to align it to the different reports Ecopetrol has. This resulted in an adjustment in the annual spending and in the amount of procurement categories included in the calculation that had been used in the 2019-2022 historical series. Also, last year, the subcategory calculated with the spend-based methodology was calculated using EEIO database (Environmentally extended input-output). This year, this data base was updated to the Supply Chain GHG Emission Factors Based on USEEIO by the United States Environmental Protection Agency (EPA), recommended by IPIECA. Also, catering contracts were calculated using spend-based methodology. However, in 2022 and 2023 Ecopetrol began gathering information directly from the suppliers. With this information, Ecopetrol recalculated the historical data for 2019-2021. According to ICAT (Initiative for Climate Action Transparency), there are multiple ways to project the baseline GHG emissions scenario, ranging from simple to complex approaches, depending on the availability and quality of the data on which the forecast is based. Regression models are useful for projecting the baseline scenario in estimating GHG emissions over a period. These models are part of a broader approach to determine the most likely baseline scenario, which is essential to assess the potential impacts of a policy compared to what would have happened in the absence of a decarbonization policy intervention.

[Fixed row]

(7.1.3) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in 7.1.1 and/or 7.1.2?

(7.1.3.1) Base year recalculation

Select from:

☒ Yes

(7.1.3.2) Scope(s) recalculated

Select all that apply

☒ Scope 1

☒ Scope 2, location-based

☒ Scope 2, market-based

☒ Scope 3

(7.1.3.3) Base year emissions recalculation policy, including significance threshold

Ecopetrol's recalculation policy is aligned with recommendations by both ISO 14064-1 and GHG Protocol. Base year emissions are recalculated every time the company undergoes major changes such as acquisitions, divestitures, and mergers, as well as significant changes in the emissions estimation methodology. Also, Ecopetrol updates IPCC's GWP (Global Warming Potential) aligned to Colombia National GHG Inventory. This recalculation process is developed for both the base year and the historical series, to maintain consistency in the reported data.

(7.1.3.4) Past years' recalculation

Select from:

☒ Yes

[Fixed row]

(7.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Select all that apply

☒ ISO 14064-1

☒ The Greenhouse Gas Protocol: Scope 2 Guidance

☒ IPCC Guidelines for National Greenhouse Gas Inventories, 2006

☒ The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Standard

☒ The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

☒ American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, 2009

☒ Other, please specify :- American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, 2021 - The GHG Protocol: Technical Guidance for Calculating Scope 3 Emissions

(7.3) Describe your organization's approach to reporting Scope 2 emissions.

(7.3.1) Scope 2, location-based

Select from:

☒ We are reporting a Scope 2, location-based figure

(7.3.2) Scope 2, market-based

Select from:

☒ We are reporting a Scope 2, market-based figure

(7.3.3) Comment

Ecopetrol reports Scope 2 emissions using the market-based method, which includes: i) emissions generated by energy purchased from the National Interconnected System (SIN, for its Spanish acronym); and ii) emissions generated by local generation centers (the emission factors are estimated with the generated energy and fuel consumption). Although Ecopetrol also calculates Scope 2 emissions by the location-based method, which is estimated using only the SIN emission factor for all purchased energy, it was decided to report emissions using the market-based method, due to the behavior of the Colombian energy basket, which is mostly composed of hydraulic energy, and therefore generates less emissions than local suppliers; thus, the market-based method is the one that offers a higher result and better describes the operational reality. It should be emphasized that the electricity purchased from local suppliers is favored by causes such as the location of facilities in areas with a deficiency of national electrification, the low reliability of the system or in some cases the use of gas within the decarbonization plan framework.

[Fixed row]

(7.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

Select from:

☒ Yes

(7.4.1) Provide details of the sources of Scope 1, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Row 1

(7.4.1.1) Source of excluded emissions

Administrative Areas (office building facilities)

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

- ☒ Scope 1
- ☒ Scope 2 (market-based)

(7.4.1.3) Relevance of Scope 1 emissions from this source

Select from:

- ☒ Emissions are not relevant

(7.4.1.5) Relevance of market-based Scope 2 emissions from this source

Select from:

- ☒ Emissions are not relevant

(7.4.1.8) Estimated percentage of total Scope 1+2 emissions this excluded source represents

0

(7.4.1.10) Explain why this source is excluded

The contribution of Administrative Areas owned by Ecopetrol is not significant as compared to the total scope 1 and 2 inventory. These areas are not related to Ecopetrol's core business. For this reason, these are not included as part of scopes 1 and 2 emissions. However, these areas are included in scope 3, as part of category 8.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

Emissions of Administrative areas owned by Ecopetrol are estimated as part of scope 3 category 8, based on energy consumption. The percentage of emissions is calculated by dividing those scope 3 category 8 emissions by total scopes 1 and 2 emissions.

Row 2

(7.4.1.1) Source of excluded emissions

Emissions due to refrigerants and extinguishers

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

☒ Scope 1

(7.4.1.3) Relevance of Scope 1 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.10) Explain why this source is excluded

The Ozone Depleting Substances (ODS) inventory, for the 2018-2021 period, maintains the results on percentages under 0.13% compared to Ecopetrol GHG emissions inventory. ODS (Ozone Depleting Substances) emissions are reported using the advanced method level 2a from the IPCC, alongside the Ozone Depletion Potentials outlined in the Montreal Protocol manual. Further information on ODS inventory can be found on the 2023 Integrated Management Report page 225, table 6.7.2.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

To calculate ODS emissions, we consider the emission factors recommended by the Intergovernmental Panel on Climate Change (IPCC), distinguishing between a 1% EF for units with a charge of less than 5 lbs and a 17% EF for units with a charge greater than 5 lbs. The ODS substances used for the calculation include CFC-12 and HCFC-22. Notably, substitute substances for ODS, employed in refrigeration and fire suppression systems, are excluded from the calculation due to their zero-ozone depletion potential. The calculation was done by dividing the ODS emissions by Ecopetrol's scope 1 and 2 emissions.

Row 3

(7.4.1.1) Source of excluded emissions

Non-routine or emergency activities, such as pipeline pigging operations and, well testing.

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

☒ Scope 1

☒ Scope 2 (location-based)

☒ Scope 2 (market-based)

(7.4.1.3) Relevance of Scope 1 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.4) Relevance of location-based Scope 2 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.5) Relevance of market-based Scope 2 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.8) Estimated percentage of total Scope 1+2 emissions this excluded source represents

0

(7.4.1.10) Explain why this source is excluded

Currently, the operational boundary for the inventory covers routinary operations in facilities under Ecopetrol's operational control.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

An initial estimation for well testing activities showed emissions are around 8000 tCO₂e per year. The percentage is calculated based on Ecopetrol's current GHG emissions inventory.

Row 4

(7.4.1.1) Source of excluded emissions

Emissions from rented or leased vehicles

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

☒ Scope 1

(7.4.1.3) Relevance of Scope 1 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.10) Explain why this source is excluded

Ecopetrol is updating its GHG inventory according to NTC ISO 14064-1:2020, which mentions in Annex B that, if the transportation vehicles are owned or controlled by the organization, GHG emissions should be considered as direct emissions. When an organization develops the GHG inventory under operational control and leases the transport fleet (as a lessee), these emissions are reported as direct. Ecopetrol leases some vehicles for commuting of people with any security condition and/or workers who need to mobilize due to operational conditions. This includes: i) The President; ii) all the Vice presidents; iii) some management positions; and iv) workers from operative areas. Ecopetrol does not report those emissions in scope 1 because the contribution of rented or leased vehicles is not significant compared to the total scope 1 emissions. However, Ecopetrol accounts for these emissions in Scope 3, as part of Category 7. Also, Ecopetrol has found that there are potential emissions reductions that could be influenced by Ecopetrol.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

Emissions of vehicles rented or leased by Ecopetrol are estimated as part of scope 3 category 7, based on fuel consumption. The percentage of emissions is calculated by dividing those specific emissions by total scope 1 emissions, for 2023.

Row 5

(7.4.1.1) Source of excluded emissions

Polymer and recycled plastic processing

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

☒ Scope 3: Use of sold products

(7.4.1.6) Relevance of Scope 3 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.9) Estimated percentage of total Scope 3 emissions this excluded source represents

0

(7.4.1.10) Explain why this source is excluded

In 2020, when Ecopetrol develop the first Scope 3 emissions calculation, these emissions were estimated as less than 400 tCO₂e. Ecopetrol does not report those emissions in scope 3 because the contribution is not significant compared to the total scope 3 emissions.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

To have an estimate of the percentage of emissions that are being excluded, the first calculation (400 tCO₂e) was used, divided by total scope 3 emissions

Row 6

(7.4.1.1) Source of excluded emissions

Oil pipeline transportation

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

☒ Scope 3: Downstream transportation and distribution

(7.4.1.6) Relevance of Scope 3 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.9) Estimated percentage of total Scope 3 emissions this excluded source represents

(7.4.1.10) Explain why this source is excluded

Until 2021, Ecopetrol's operational control covered upstream, midstream, and downstream. For this reason, all the emissions were reported in Scope 1 and 2. Since 2021, midstream activities left Ecopetrol's operational control. There are five companies in midstream, and all of them develop GHG emissions inventories. Also, those companies are carbon neutral, using the criteria of the "Guide for the Verification and Certification of Carbon Neutrality" developed by Colombian Institute of Technical Standards and Certification (ICONTEC, for its Spanish acronym). Currently, Ecopetrol is analyzing the reporting requirements for sustainability issues under International Financial Reporting Standards (IFRS) S1 (Sustainability disclosure) and IFRS S2 (Climate-related disclosure) to determine whether the consolidation approach should be changed to align with financial reporting. In this case, midstream emissions would be reported in scopes 1 and 2.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

To have an estimate of the percentage of emissions that are being excluded, it is considered that the whole Scopes 1 and 2 emissions from all five companies in midstream are part of Ecopetrol's scope 3 category 9 emissions. The scopes 1 and 2 emissions were obtained from the Integrated Management Report from each company. These emissions were divided by total scope 3 emissions, for 2023.

Row 7

(7.4.1.1) Source of excluded emissions

Gas pipeline transportation

(7.4.1.2) Scope(s) or Scope 3 category(ies)

Select all that apply

☒ Scope 3: Downstream transportation and distribution

(7.4.1.6) Relevance of Scope 3 emissions from this source

Select from:

☒ Emissions are not relevant

(7.4.1.9) Estimated percentage of total Scope 3 emissions this excluded source represents

(7.4.1.10) Explain why this source is excluded

In 2020, when Ecopetrol develop the first calculation for Scope 3 emissions, these emissions were estimated as less than 7,000 tCO2e. Ecopetrol does not report those emissions in scope 3 because the contribution is not significant compared to the total scope 3 emissions.

(7.4.1.11) Explain how you estimated the percentage of emissions this excluded source represents

To have an estimate of the percentage of emissions that are being excluded, the first calculation (7,000 tCO2e) was used, divided by total scope 3 emissions.
[Add row]

(7.5) Provide your base year and base year emissions.

Scope 1

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

13008774

(7.5.3) Methodological details

Scope 1 (direct) GHG emissions include all activities under operation control. The reported GHG emissions include CO2, CH4 and N2O. Other GHGs are not included as they are not material to our operations. The global warming potentials used are from the Fifth Assessment Report (AR5). The main calculation methodologies are mass balance, and emission factors. Scope 1 emissions accounted for 95% of Ecopetrol's scopes 1 and 2 total emissions. For base year recalculation, the carbon intensity data of the year in which the acquired asset began its operation in Ecopetrol is taken and extrapolated to the base year using the asset's historical production reported in the National Hydrocarbons Agency.

Scope 2 (location-based)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

386525

(7.5.3) Methodological details

Scope 2 (indirect) GHG emissions are those associated with the consumption of purchased electricity. Scope 2 follow-up and targets are based on market-based method because supplier-specific emission factors are used. However, data for both methodologies are presented in this report. Scope 2 emissions (location-based) were calculated using the national electrical grid emission factor for 2019, calculated by UPME.

Scope 2 (market-based)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

697337

(7.5.3) Methodological details

Scope 2 (indirect) GHG emissions are those associated with the consumption of purchased electricity. Scope 2 emissions accounted for 5% of Ecopetrol's scopes 1 and 2 total emissions. For base year recalculation, the carbon intensity data of the year in which the acquired asset began its operation in Ecopetrol is taken and extrapolated to the base year using the asset's historical production reported in the National Hydrocarbons Agency. Once total emissions are calculated, scope 2 emissions are calculated using the average of Scope 2 proportion in the last 4 years of Ecopetrol's GHG emissions inventory. Ecopetrol uses market-based method because supplier-specific emission factors are used. It gives a higher value than the one obtained with location-based method because the national electrical grid has a high hydric component, so the emission factor for electricity provided by the national grid is relatively low compared to emission factors for electricity from other countries. It is important to notice that electrical energy purchase from local suppliers is favored by issues such as facilities located in areas with deficiencies in national electrification and low reliability of the national system, which forces the company to acquire electricity from local suppliers. These suppliers have higher emissions factors than the ones for the national electrical grid.

Scope 3 category 1: Purchased goods and services

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

7657997

(7.5.3) Methodological details

Category 1 is Ecopetrol's second most significant emissions contributor, accounting for 5.33% of total scope 3 emissions, in 2019. Ecopetrol groups all purchases of goods and services (C1) and capital goods (C2) into a single quantification in C1; it also covers all contracts related to oil and fuels purchases. Emissions for purchased goods and services were estimated using 4 methods: i) Supplier specific, used for some suppliers classified as relevant by the supply area; ii) Data-average, used for oil and fuels suppliers, using DEFRA emissions factors; iii) Spend-based, used breaking down Ecopetrol's spend data allocated to the most appropriate product group category available within the Supply Chain GHG Emission Factors Based on USEEIO by EPA; iv) Hybrid, used when a relevant supplier had an inventory of GHG emissions but the purchased good or service did not account for a relevant volume or mass. In this case, carbon intensity revenue-based was used.

Scope 3 category 2: Capital goods

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0.0

(7.5.3) Methodological details

Ecopetrol groups all purchases of goods and services category 1 and capital goods category 2 into a single quantification under category 1

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

30769

(7.5.3) Methodological details

Category 3 emissions accounted for 0.02% of Ecopetrol's total scope 3 emissions in 2019. In this category "Transmission and distribution TD" losses and surplus energy sales are included. Emissions for TD losses are calculated using the national electric grid emission factor and the percentage of losses which are updated annually emissions for surplus energy sales are calculated using supplier specific emission factor.

Scope 3 category 4: Upstream transportation and distribution

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

235375

(7.5.3) Methodological details

Category 4 emissions accounted for 0.16% of Ecopetrol's total scope 3 emissions in 2019. Ecopetrol divided this category into three 3 subcategories: river, marine, and land transportation. Both river and land transportation occur locally in Colombia, thus the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason, these two subcategories are already included in category 11- use of sold product. The reported value corresponds to the whole category divided as follows 5.928 tCO2e refer to subcategories accounted for in category 11 and 229.447 tCO2e refer to the one subcategory which is not accounted for in category 11 that is marine transportation. Most of these activities are calculated with distance-based method.

Scope 3 category 5: Waste generated in operations

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

(7.5.3) Methodological details

Category 5 emissions accounted for 00.2% of Ecopetrol's total scope 3 emissions. In 2019, Ecopetrol divided this category into four subcategories: waste sent to incineration, landfill, composting, and scrap sold to a third-party that produces steel. The first three subcategories are calculated using waste-type-specific method the last one is calculated using supplier-specific information.

Scope 3 category 6: Business travel

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

4752

(7.5.3) Methodological details

Category 6 emissions accounted for 0.003% of Ecopetrol's total scope 3 emissions in 2019. This category refers to air transportation and hotel nights related to business travel. Since all travel activities begin in Colombia the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason, this category is already included in category 11 use of sold product. The reported value corresponds to the whole category divided as follows: 4.375 tCO₂e refer to the activity already accounted for in category 11, and 376 tCO₂e refer to the emissions related to hotel nights. Air travel emissions are calculated with distance-based methodology following the International Civil Aviation Organization (ICAO) recommendation, which establishes the average emission per passenger according to the route type of aircraft, and cabin on each journey. Hotel nights are calculated using average-data methodology with DEFRA emission factors.

Scope 3 category 7: Employee commuting

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

16415

(7.5.3) Methodological details

Category 7 emissions accounted for 0.01% of Ecopetrol's total scope 3 emissions in 2019. This category refers to both air and ground commuting. Since all activities occur in national territory, the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason, this category is already accounted for in category 11 (use of sold product). Some activities are calculated with distance-based method and others with fuel-based method using national fuel emissions factors.

Scope 3 category 8: Upstream leased assets

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

782

(7.5.3) Methodological details

Category 8 includes emissions associated with non-industrial leased assets, and Ecopetrol's non-industrial own assets. Both subcategories are calculated using the national electrical grid emission factor and the energy consumption in each non-industrial asset. If this information is not available, then spend-based emission factors are used.

Scope 3 category 9: Downstream transportation and distribution

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

1214033.0

(7.5.3) Methodological details

Category 9 emissions accounted for 0.84% of Ecopetrol's total scope 3 emissions in 2019. Ecopetrol divided this category into two (2) subcategories: river, and marine transportation. River transportation occurs locally (in Colombia), thus, the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason,

this subcategory is already accounted for in category 11 (used of sold product). Regarding marine transportation, most of the exports begin in Colombia. Only one product is sometimes exported from Ecuador. If the marine transport begins in Colombia, the fuel used in these activities corresponds to fuel sold by Ecopetrol, thus this subcategory is already accounted for in category 11 (used of sold product). If the marine transport starts from Ecuador, the fuel used in the activity would not correspond to fuel sold by Ecopetrol, thus, this part of the subcategory would not be already accounted for in category 11 (used of sold product). The reported value corresponds to the whole category, divided as follows: 1,211,602 tCO₂e refer to the activities already accounted for in category 11, and 2,431 tCO₂e refer to the emissions related to exports from Ecuador. This category is calculated with distance-based method considering the transported load.

Scope 3 category 10: Processing of sold products

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

5869626

(7.5.3) Methodological details

Category 10 emissions accounted for 4.08% of Ecopetrol's total scope 3 emissions in 2019. This category includes the processing of intermediate products that are sold by Ecopetrol such as crude oil. For processing crude oil, average-data method was used. The secondary data used was the carbon intensity of an average refining process. This category is accounted for in category 11 (use of sold products), following GHG Protocol recommendations, where direct use-phase emissions of the product are included considering all crude oil is burned.

Scope 3 category 11: Use of sold products

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

134123150

(7.5.3) Methodological details

Category 11 accounted for 93.3% of Ecopetrol's total scope 3 emissions in 2019. The minimum limit, recommended by the GHG Protocol and adopted by Ecopetrol, corresponds to the end-use of both products (such as liquid fuels and petrochemicals) and intermediate products (such as crude oil). The methodology uses net volume in commercial operations where Ecopetrol has the largest total amount of potential sold products. To estimate emissions from fuels based on the final products, the quantities of fuels were multiplied by national combustion emission factor for each type of fuel. Emission factors for CO₂, CH₄, and N₂O were used. National statistics were used to determine the percentage of fuel burned from stationary and mobile sources and the most representative source was used. Finally, for non-energy final product such as lubricants and paraffins, CO₂ emissions were estimated using the IPCC default oxidation fraction.

Scope 3 category 12: End of life treatment of sold products

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

37218

(7.5.3) Methodological details

Category 12 emissions accounted for 0.03% of Ecopetrol's total scope 3 emissions in 2019. It includes the emissions associated with end-of-life treatment of lubricants and paraffins. It is assumed that both products are incinerated, so the waste-type-specific method is used.

Scope 3 category 13: Downstream leased assets

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

928

(7.5.3) Methodological details

Category 13 refers to assets leased to others. Emissions are calculated using either the national electrical grid emission factor and the energy consumption in each non-industrial asset, or with spend-based method and the Supply Chain GHG Emission Factors Based on USEEIO by the United States Environmental Protection Agency (EPA), recommended by IPIECA.

Scope 3 category 14: Franchises

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

0.0

(7.5.3) Methodological details

This category is not calculated because Ecopetrol does not have any franchises.

Scope 3 category 15: Investments

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO₂e)

1655760

(7.5.3) Methodological details

Category 15 emissions accounted for 1.15% of Ecopetrol's total scope 3 emissions in 2019. This category is the company's third most significant emissions contributor, and it includes assets with equity share. This category is calculated with the average data method considering the operator's upstream carbon intensity if information is publicly available. If not, then Ecopetrol's average upstream carbon intensity is used.

Scope 3: Other (upstream)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0.0

(7.5.3) Methodological details

No other upstream category is considered because all indirect Ecopetrol activities are considered in the above categories.

Scope 3: Other (downstream)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0.0

(7.5.3) Methodological details

No other downstream category is considered because all indirect Ecopetrol activities are considered in the above categories.

[Fixed row]

(7.6) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

	Gross global Scope 1 emissions (metric tons CO2e)	End date	Methodological details
Reporting year	12005388	Date input [must be between [10/01/2015 - 10/01/2023]	Scope 1 emissions accounted for 94% of Ecopetrol's scopes 1 and 2 total emissions.
Past year 1	11950341	12/31/2022	Scope 1 emissions accounted for 96% of Ecopetrol's scopes 1 and 2 total emissions.
Past year 2	11960008	12/31/2021	Scope 1 emissions accounted for 95% of Ecopetrol's scopes 1 and 2 total emissions.
Past year 3	11976199	12/31/2020	Scope 1 emissions accounted for 93% of Ecopetrol's scopes 1 and 2 total emissions.

[Fixed row]

(7.7) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

532767

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

744264

(7.7.4) Methodological details

Scope 2 emissions accounted for 6% of Ecopetrol's scopes 1 and 2 total emissions. Considering in scope 2 market-based.

Past year 1

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

260788

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

506447

(7.7.3) End date

12/31/2022

(7.7.4) Methodological details

Scope 2 emissions accounted for 4% of Ecopetrol's scopes 1 and 2 total emissions. Considering in scope 2 market-based.

Past year 2

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

297899

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

580516

(7.7.3) End date

12/31/2021

(7.7.4) Methodological details

Scope 2 emissions accounted for 5% of Ecopetro's scopes 1 and 2 total emissions. Considering in scope 2 market-based.

Past year 3

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

505669

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

861978

(7.7.3) End date

12/31/2020

(7.7.4) Methodological details

Scope 2 emissions accounted for 7% of Ecopetrol's scopes 1 and 2 total emissions. Considering in scope 2 market-based.
[Fixed row]

(7.8) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

(7.8.1) Evaluation status

Select from:

☒ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

7998468

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Supplier-specific method

- ☒ Hybrid method
- ☒ Average data method
- ☒ Spend-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

20

(7.8.5) Please explain

In 2023, Categories 1&2 accounted for 5.16% of Ecopetrol's total scope 3 emissions. These categories are the company's second most significant emissions contributor. It is also relevant because Ecopetrol has identified that there are potential emissions reductions that could be undertaken or influenced by Ecopetrol, especially in the supply chain. Reported data for the percentage of emissions calculated using data obtained from suppliers or value chain partners include supplier engagement through both supply chain and sales. The percentage of emissions calculated using data obtained from suppliers decreased comparing to last year's report because emissions factors based on spend were updated, increasing total categories 1&2 emissions, and thus, decreasing the ratio between data obtained from suppliers and categories 1&2 total emissions.

Capital goods

(7.8.1) Evaluation status

Select from:

- ☒ Not relevant, explanation provided

(7.8.5) Please explain

Ecopetrol groups all purchases of goods and services (category 1) and capital goods (category 2) into a single quantification under category 1.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

(7.8.1) Evaluation status

Select from:

- ☒ Not relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

73068

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Supplier-specific method

☒ Average data method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

48

(7.8.5) Please explain

In this category Transmission and distribution (T&D) losses, and surplus energy sales are included. Emissions for T&D losses are calculated using the national electric grid emission factor, which is updated annually; emissions for surplus energy sales are calculated using supplier-specific emission factor. This category is considered as not relevant because of its low contribution to the total scope 3 inventory. The percentage of emissions calculated using data obtained from suppliers decreased comparing to last year's report because T&D emissions increased due to an increase in the national grid emission factor.

Upstream transportation and distribution

(7.8.1) Evaluation status

Select from:

☒ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

236356

(7.8.3) Emissions calculation methodology

Select all that apply

- ☒ Average data method
- ☒ Fuel-based method
- ☒ Distance-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

1

(7.8.5) Please explain

Ecopetrol divided this category into three (3) subcategories: river, marine, and land transportation. Both river and land transportation occur locally, in Colombia, thus, the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason, these two (2) subcategories are already accounted for in category 11 (use of sold product). The reported value corresponds to the whole category, divided as follows: 183,235 tCO₂e refers to the activities that are not double counted, and 53,122 refers to the activities already accounted for in Category 11. Most of these activities are calculated with distance-based method, for which the value chain partner is contacted for the information. This category is considered relevant because Ecopetrol has identified that there are potential emissions reductions that could be undertaken or influenced by Ecopetrol. Since 2022, through supplier engagement, Ecopetrol has started obtaining fuel volume used in each transport activity and is working on completing the historical series data so that emissions could be compared. For one road transport contract, fuel consumption information provided directly from the supplier is available for 2023 and the whole historical series (2019-2022), and emissions were calculated using national fuel emission factors.

Waste generated in operations

(7.8.1) Evaluation status

Select from:

- ☒ Not relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO₂e)

26897

(7.8.3) Emissions calculation methodology

Select all that apply

- ☒ Supplier-specific method
- ☒ Waste-type-specific method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

33

(7.8.5) Please explain

Ecopetrol divided this category into four subcategories: waste sent to incineration, landfill, and composting, and scrap sold to a third-party. The first three subcategories are calculated using waste-type-specific method. The information source is E-Mars, an Ecopetrol internal analytical tool for waste management. The last category is calculated using information directly from the third party. This category is considered not relevant because of its low contribution to the total scope 3 inventory.

Business travel

(7.8.1) Evaluation status

Select from:

☒ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

3079

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Average data method

☒ Distance-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

Ecopetrol divides this category in two subcategories: air transportation, and nights spend at hotels. Nights in hotels emissions are calculated using average data method. Air transportation emissions are calculated with distance-based method. Since all travel activities begin in Colombia, the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason, the first subcategory is already accounted for in category 11 (use of sold product). This subcategory is calculated following the International Civil Aviation Organization (ICAO) recommendation which establishes the average emission per passenger according to the route, type of aircraft and cabin on each journey. Hotel nights are calculated using average-data methodology with DEFRA emission factors. The reported value corresponds to the whole category, divided as follows: 2,735 tCO₂e refer to the activity already accounted for in category 11, and 344 tCO₂e refer to the emissions related to hotel nights. This category is considered relevant because Ecopetrol has identified that there are potential emissions reductions that could be undertaken or influenced by Ecopetrol, and currently mitigation and offsetting initiatives are being developed. Last year, the percentage of emissions calculated using data obtained from suppliers was reported as 100% because it included emissions calculations with distance-based method. This year, the percentage of emissions calculated using data obtained from suppliers includes only the emissions calculations with fuel use and national fuel emission factors. Although suppliers from this category are contacted through the engagement on C5 Business Strategy, they do not make the calculation with fuel use because of ICAO's recommendation.

Employee commuting

(7.8.1) Evaluation status

Select from:

☒ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO₂e)

11956

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Fuel-based method

☒ Distance-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

93

(7.8.5) Please explain

This category refers to both air and land commuting. Since all activities occur in national territory, the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason, this category is already accounted for in category 11 (use of sold product). Some activities are calculated with distance-based method and others using national fuel emissions factors. For both activities, the value chain partner is contacted to obtain information about distance and fuel consumption. This category is considered relevant because Ecopetrol has identified that there are potential emissions reductions that could be undertaken or influenced by Ecopetrol. This activity is calculated with national fuel emissions factors.

Upstream leased assets

(7.8.1) Evaluation status

Select from:

☒ Not relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO₂e)

688

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Average data method

☒ Spend-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

Category 8 includes emissions associated with non-industrial leased assets, and Ecopetrol's non-industrial own assets. Both subcategories are calculated using the national electrical grid emission factor and the energy consumption in each non-industrial asset, or with spend-based methodology using the annual rental fee. This category is considered as not relevant because of its low contribution to the total scope 3 inventory.

Downstream transportation and distribution

(7.8.1) Evaluation status

Select from:

☒ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO₂e)

919306

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Fuel-based method

☒ Distance-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

Ecopetrol divided this category into two (2) subcategories: river, and marine transportation. River transportation occurs locally (in Colombia), thus, the fuel used in these activities corresponds to fuel sold by Ecopetrol. For this reason, this subcategory is already accounted for in category 11 (used of sold product). Regarding marine transportation, most of the exports begin in Colombia. Only one product is sometimes exported from Ecuador. If the marine transport begins in Colombia, the fuel used in these activities corresponds to fuel sold by Ecopetrol, thus this subcategory is already accounted for in category 11 (used of sold product). If the marine transport starts from Ecuador, the fuel used in the activity would not correspond to fuel sold by Ecopetrol, thus, this part of the subcategory would not be already accounted for in category 11 (used of sold product). The reported value corresponds to the whole category, divided as follows: 918,108 tCO₂e refer to the activities already accounted for in category 11, and 1,197 tCO₂e refer to the emissions related to exports from Ecuador. This category is calculated with distance-based method considering the transported load. Since 2022, through supplier engagement, Ecopetrol has started obtaining fuel volume for the river transportation and currently is working on completing the historical series data so that emissions could be compared. This category is considered as relevant because Ecopetrol has identified that there are potential emissions reductions that could be undertaken or influenced by Ecopetrol.

Processing of sold products

(7.8.1) Evaluation status

Select from:

☒ Not relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

6013538

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Average data method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

This category includes the processing of intermediate products that are sold by Ecopetrol such as crude oil. For processing crude oil Average-data method was used. The secondary data used was the carbon intensity of an average refining process. This category is already accounted for in category 11 (use of sold product). For this reason, it is considered not relevant.

Use of sold products

(7.8.1) Evaluation status

Select from:

☒ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

146056162

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Methodology for direct use phase emissions, please specify :Direct use-phase emissions are calculated considering fossil fuels combustion, using national fuels emission factors.

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

Category 11 emissions accounted for more than 94% of Ecopetrol's total scope 3 emissions. For this reason, this is the most relevant category. Use of sold product emissions for Ecopetrol includes the direct end-use phase emissions of final products such as liquid fuels and natural gas. Also, this category includes end-use phase emissions of sold intermediate products such as crude oil. The methodology uses net volume in commercial operations where Ecopetrol has the largest total amount of potential sold products (results are the same using total volume). To estimate emissions from fuels based on the final products, the quantities of fuels were multiplied by national combustion emission factor for each type of fuel. Emission factors for CO₂, CH₄ and N₂O were used. National statistics were used to determine the percentage of fuel burned from stationary and mobile sources and the most representative source was used. Finally, for nonenergy product final such as lubricants and paraffins, CO₂ emissions were estimated using the IPCC (Intergovernmental Panel on Climate Change) default oxidation fraction.

End of life treatment of sold products

(7.8.1) Evaluation status

Select from:

☒ Not relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO₂e)

39692

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Waste-type-specific method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

This category includes the emissions associated with end-of-life treatment of lubricants and paraffins. It is assumed that both products are incinerated, so the waste-type specific method is used. This category is considered not relevant because of its low contribution to the total scope 3 inventory.

Downstream leased assets

(7.8.1) Evaluation status

Select from:

☒ Not relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO₂e)

388

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Average data method

☒ Spend-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

This category refers to assets leased to others. Emissions are calculated using the national electrical grid emission factor and the energy consumption in each non-industrial asset, or with spend-based methodology using the annual rental fee. This category is considered as not relevant because of its low contribution to the total scope 3 inventory.

Franchises

(7.8.1) Evaluation status

Select from:

☒ Not relevant, explanation provided

(7.8.5) Please explain

This category is not calculated because Ecopetrol does not have any franchises.

Investments

(7.8.1) Evaluation status

Select from:

☒ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

725502

(7.8.3) Emissions calculation methodology

Select all that apply

☒ Average data method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

This category is the company's third most significant emissions contributor. Also, Ecopetrol has identified that there are potential emissions reductions that could be undertaken or influenced by Ecopetrol. For these reasons, it is considered relevant. In this category assets with equity share are included. This category is calculated with the average data method considering the operator upstream carbon intensity if information is publicly available. If not, then Ecopetrol's average upstream carbon intensity is used. Since 2022, Ecopetrol has been strengthening its relationship with the companies with which it has upstream assets in partnership in Colombia, covering more than 70% of scope 3 category 15 emissions. For this purpose, Ecopetrol defined a work plan for each partner, aligned with Ecopetrol's decarbonization plan, which includes the following action lines: i) GHG emissions inventory for the whole historical series (2019-2023), ii) GHG emissions reduction, and iii) methane emissions reporting and reduction. Although value chain partners are contacted, Percentage of emissions calculated using data obtained from value chain partners is still zero because the whole historical series is not complete.

Other (upstream)

(7.8.1) Evaluation status

Select from:

☒ Not evaluated

(7.8.5) Please explain

No other upstream category is considered because all indirect Ecopetrol activities are considered in the above categories.

Other (downstream)

(7.8.1) Evaluation status

Select from:

☒ Not evaluated

(7.8.5) Please explain

No other downstream category is considered because all indirect Ecopetrol activities are considered in the above categories.
[Fixed row]

(7.8.1) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

(7.8.1.1) End date

12/31/2022

(7.8.1.2) Scope 3: Purchased goods and services (metric tons CO2e)

8750863

(7.8.1.3) Scope 3: Capital goods (metric tons CO2e)

0

(7.8.1.4) Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

93663

(7.8.1.5) Scope 3: Upstream transportation and distribution (metric tons CO2e)

245015

(7.8.1.6) Scope 3: Waste generated in operations (metric tons CO2e)

176160

(7.8.1.7) Scope 3: Business travel (metric tons CO2e)

2825

(7.8.1.8) Scope 3: Employee commuting (metric tons CO2e)

11462

(7.8.1.9) Scope 3: Upstream leased assets (metric tons CO2e)

455

(7.8.1.10) Scope 3: Downstream transportation and distribution (metric tons CO2e)

905813

(7.8.1.11) Scope 3: Processing of sold products (metric tons CO2e)

5791370

(7.8.1.12) Scope 3: Use of sold products (metric tons CO2e)

140785917

(7.8.1.13) Scope 3: End of life treatment of sold products (metric tons CO2e)

37437

(7.8.1.14) Scope 3: Downstream leased assets (metric tons CO2e)

288

(7.8.1.15) Scope 3: Franchises (metric tons CO2e)

0

(7.8.1.16) Scope 3: Investments (metric tons CO2e)

904847

(7.8.1.17) Scope 3: Other (upstream) (metric tons CO2e)

0

(7.8.1.18) Scope 3: Other (downstream) (metric tons CO2e)

0

(7.8.1.19) Comment

The main emissions sources are: Use of sold product, purchase of goods and services, and investments. As in previous questions, the figures for categories 4, 6 and 9 include both the activities that are already included in category 11 and activities that are not included in category 11.

Past year 2

(7.8.1.1) End date

12/31/2021

(7.8.1.2) Scope 3: Purchased goods and services (metric tons CO2e)

7707872

(7.8.1.3) Scope 3: Capital goods (metric tons CO2e)

0

(7.8.1.4) Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

71102

(7.8.1.5) Scope 3: Upstream transportation and distribution (metric tons CO2e)

211205

(7.8.1.6) Scope 3: Waste generated in operations (metric tons CO2e)

156498

(7.8.1.7) Scope 3: Business travel (metric tons CO2e)

1202

(7.8.1.8) Scope 3: Employee commuting (metric tons CO2e)

9021

(7.8.1.9) Scope 3: Upstream leased assets (metric tons CO2e)

661

(7.8.1.10) Scope 3: Downstream transportation and distribution (metric tons CO2e)

1130378

(7.8.1.11) Scope 3: Processing of sold products (metric tons CO2e)

5321484

(7.8.1.12) Scope 3: Use of sold products (metric tons CO2e)

131756864

(7.8.1.13) Scope 3: End of life treatment of sold products (metric tons CO2e)

29944

(7.8.1.14) Scope 3: Downstream leased assets (metric tons CO2e)

334

(7.8.1.15) Scope 3: Franchises (metric tons CO2e)

0

(7.8.1.16) Scope 3: Investments (metric tons CO2e)

969101

(7.8.1.17) Scope 3: Other (upstream) (metric tons CO2e)

0

(7.8.1.18) Scope 3: Other (downstream) (metric tons CO2e)

0

(7.8.1.19) Comment

The main emissions sources are: Use of sold product, purchase of goods and services, and investments. As in previous questions, the figures for categories 4, 6 and 9 include both the activities that are already included in category 11 and activities that are not included in category 11.

Past year 3

(7.8.1.1) End date

12/31/2020

(7.8.1.2) Scope 3: Purchased goods and services (metric tons CO2e)

6464002

(7.8.1.3) Scope 3: Capital goods (metric tons CO2e)

0

(7.8.1.4) Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

61480

(7.8.1.5) Scope 3: Upstream transportation and distribution (metric tons CO2e)

157977

(7.8.1.6) Scope 3: Waste generated in operations (metric tons CO2e)

205158

(7.8.1.7) Scope 3: Business travel (metric tons CO2e)

1064

(7.8.1.8) Scope 3: Employee commuting (metric tons CO2e)

6274

(7.8.1.9) Scope 3: Upstream leased assets (metric tons CO2e)

700

(7.8.1.10) Scope 3: Downstream transportation and distribution (metric tons CO2e)

1241206

(7.8.1.11) Scope 3: Processing of sold products (metric tons CO2e)

6081648

(7.8.1.12) Scope 3: Use of sold products (metric tons CO2e)

130585168

(7.8.1.13) Scope 3: End of life treatment of sold products (metric tons CO2e)

36996

(7.8.1.14) Scope 3: Downstream leased assets (metric tons CO2e)

845

(7.8.1.15) Scope 3: Franchises (metric tons CO2e)

0

(7.8.1.16) Scope 3: Investments (metric tons CO2e)

1232038

(7.8.1.17) Scope 3: Other (upstream) (metric tons CO2e)

0

(7.8.1.18) Scope 3: Other (downstream) (metric tons CO2e)

0

(7.8.1.19) Comment

The main emissions sources are: Use of sold product, purchase of goods and services, and investments. As in previous questions, the figures for categories 4, 6 and 9 include both the activities that are already included in category 11 and activities that are not included in category 11.
[Fixed row]

(7.9) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Select from: <input checked="" type="checkbox"/> Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Select from: <input checked="" type="checkbox"/> Third-party verification or assurance process in place
Scope 3	Select from: <input checked="" type="checkbox"/> Third-party verification or assurance process in place

[Fixed row]

(7.9.1) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Row 1

(7.9.1.1) Verification or assurance cycle in place

Select from:

☒ Annual process

(7.9.1.2) Status in the current reporting year

Select from:

☒ Complete

(7.9.1.3) Type of verification or assurance

Select from:

☒ Limited assurance

(7.9.1.4) Attach the statement

EY_Verification_Report_GHG.pdf

(7.9.1.5) Page/section reference

Page document (596-599): Scope, Criteria and EY's responsibilities. Page document (600):305-1 Scope1 Page 597: International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ISAE 3000 (Revised)')

(7.9.1.6) Relevant standard

Select from:

☒ ISAE3000

(7.9.1.7) Proportion of reported emissions verified (%)

100

[Add row]

(7.9.2) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Row 1

(7.9.2.1) Scope 2 approach

Select from:

☒ Scope 2 market-based

(7.9.2.2) Verification or assurance cycle in place

Select from:

☒ Annual process

(7.9.2.3) Status in the current reporting year

Select from:

☒ Complete

(7.9.2.4) Type of verification or assurance

Select from:

☒ Limited assurance

(7.9.2.5) Attach the statement

EY_Verification_Report_GHG.pdf

(7.9.2.6) Page/ section reference

Page document (596-599): Scope, Criteria and EY's responsibilities. Page document (600):305-1 Scope2 Page 597: International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ISAE 3000 (Revised)')

(7.9.2.7) Relevant standard

Select from:

☒ ISAE3000

(7.9.2.8) Proportion of reported emissions verified (%)

100

[Add row]

(7.9.3) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Row 1

(7.9.3.1) Scope 3 category

Select all that apply

☒ Scope 3: Purchased goods and services

☒ Scope 3: Use of sold products

(7.9.3.2) Verification or assurance cycle in place

Select from:

☒ Annual process

(7.9.3.3) Status in the current reporting year

Select from:

☒ Complete

(7.9.3.4) Type of verification or assurance

Select from:

☒ Limited assurance

(7.9.3.5) Attach the statement

(7.9.3.6) Page/section reference

Page 596: Scope, Criteria and EY's responsibilities Page 597: ISAE 3000 Page 599: Conclusion Page 616-619: 2.2.3 DJSI Indirect Greenhouse Gas Emissions (Scope 3) Full report: https://files.ecopetrol.com.co/web/eng/Ecopetrol_IS2023_ENG_20240527.pdf

(7.9.3.7) Relevant standard

Select from:

☒ ISAE3000

(7.9.3.8) Proportion of reported emissions verified (%)

99

[Add row]

(7.10) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Select from:

☒ Increased

(7.10.1) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

Change in renewable energy consumption

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☒ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

N.A

Other emissions reduction activities

(7.10.1.1) Change in emissions (metric tons CO2e)

547416

(7.10.1.2) Direction of change in emissions

Select from:

☒ Decreased

(7.10.1.3) Emissions value (percentage)

4.4

(7.10.1.4) Please explain calculation

Ecopetrol has a climate change roadmap that has defined 4 programs for the reduction of greenhouse gas emissions (energy efficiency, fugitive emissions and venting, optimization of flaring and renewable energies). The reported reductions were estimated using the immediately preceding year as the reference year. For energy efficiency projects, fugitive emissions and venting, optimization of flaring are scope 1 reductions and for renewable energy are scope 2 reductions. The percentage was calculated as the emissions change divided by 2022 scope 1 and 2 emissions.

Divestment

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☒ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

N.A

Acquisitions

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☒ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

N.A

Mergers

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☒ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

N.A

Change in output

(7.10.1.1) Change in emissions (metric tons CO2e)

510099

(7.10.1.2) Direction of change in emissions

Select from:

☒ Increased

(7.10.1.3) Emissions value (percentage)

4.1

(7.10.1.4) Please explain calculation

The following changes were identified in this ratio: 1. Increase in emissions in the refining segment associated with a 15% load increase (Emissions change of 463029 tons CO2e). 2. Increase in emissions due to higher production in the eastern production area (Change in emissions of 2 32274 tons of CO2e). 3. Decrease in production in the other operating fields of 10% (Change in emissions 185215 tons of CO2e). The percentage was calculated as the emissions change divided by 2022 scope 1 and 2 emissions.

Change in methodology

(7.10.1.1) Change in emissions (metric tons CO2e)

153402

(7.10.1.2) Direction of change in emissions

Select from:

☒ Increased

(7.10.1.3) Emissions value (percentage)

1.2

(7.10.1.4) Please explain calculation

The national electricity grid emission factor for 2023 was updated by XM (system operator and energy market manager) after the Integrated Management Report publication. The emission factor increased 54% because of El Niño Southern Oscillation (ENSO) that affect the composition of the country's energy generation matrix, decreasing the hydraulic supply and increasing the thermal energy requirement. It increased from 0.112 in 2022 to 0.173 tCO2e/MWh in 2023. The percentage was calculated as the change emissions divided by 2022 scope 1 and 2 emissions.

Change in boundary

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☒ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

N.A

Change in physical operating conditions

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☒ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

N.A

Unidentified

(7.10.1.1) Change in emissions (metric tons CO2e)

176782

(7.10.1.2) Direction of change in emissions

Select from:

☒ Increased

(7.10.1.3) Emissions value (percentage)

1.4

(7.10.1.4) Please explain calculation

The overall change in Scope 1 and 2 emissions in 2023 compared to 2022 compared to the identified changes (change in production, change in methodology and other reduction activities). The percentage was calculated as the emissions change divided by 2022 scope 1 and 2 emissions.

Other

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☒ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

N.A

[Fixed row]

(7.10.2) Are your emissions performance calculations in 7.10 and 7.10.1 based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Select from:

☒ Market-based

(7.12) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

Select from:

☒ Yes

(7.12.1) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.

(7.12.1.1) CO2 emissions from biogenic carbon (metric tons CO2)

852

(7.12.1.2) Comment

Direct biogenic CO2 (scope 1): 852, Indirect biogenic CO2 (scope 3): 354,641.55 Scope 3 biogenic emissions occur from biofuels combustion. Diesel sold by Ecopetrol S.A. has a percentage of Biodiesel (Biofuel produced from Palm Oil), in line with Colombia's Law 939 of 2004. The blend marketed by Ecopetrol from the Barrancabermeja Refinery is known as B2E Diesel (98% Fossil Diesel and 2% Biodiesel). Wholesale distributors mix B2E with Biodiesel, generating a B10 mixture (90% Fossil Diesel and 10% Biodiesel), which is the one consumed in the Colombian market. These emissions are calculated but are not relevant to the company. [Fixed row]

(7.15) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Select from:

☒ Yes

(7.15.1) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used global warming potential (GWP).

Row 1

(7.15.1.1) Greenhouse gas

Select from:

☒ CO2

(7.15.1.2) Scope 1 emissions (metric tons of CO2e)

10505994

(7.15.1.3) GWP Reference

Select from:

☒ IPCC Fifth Assessment Report (AR5 – 100 year)

Row 2

(7.15.1.1) Greenhouse gas

Select from:

☒ CH4

(7.15.1.2) Scope 1 emissions (metric tons of CO2e)

1467451

(7.15.1.3) GWP Reference

Select from:

☒ IPCC Fifth Assessment Report (AR5 – 100 year)

Row 3

(7.15.1.1) Greenhouse gas

Select from:

☒ N2O

(7.15.1.2) Scope 1 emissions (metric tons of CO2e)

31943

(7.15.1.3) GWP Reference

Select from:

☒ IPCC Fifth Assessment Report (AR5 – 100 year)

[\[Add row\]](#)

(7.15.4) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.

Row 1

(7.15.4.1) Emissions category

Select from:

☒ Flaring

(7.15.4.2) Value chain

Select all that apply

☒ Upstream

☒ Downstream

(7.15.4.3) Product

Select from:

☒ Unable to disaggregate

(7.15.4.4) Gross Scope 1 CO2 emissions (metric tons CO2)

806960

(7.15.4.5) Gross Scope 1 methane emissions (metric tons CH4)

1846

(7.15.4.6) Total gross Scope 1 emissions (metric tons CO2e)

860446

(7.15.4.7) Comment

Ecopetrol also quantifies N2O emissions, that is included in the total CO2e figures. For this reason, the sum between CO2 emissions and CH4 emissions evaluated in CO2e has an insignificant difference (1.799 tCO2e).

Row 2

(7.15.4.1) Emissions category

Select from:

☒ Venting

(7.15.4.2) Value chain

Select all that apply

☒ Upstream

☒ Downstream

(7.15.4.3) Product

Select from:

☒ Unable to disaggregate

(7.15.4.4) Gross Scope 1 CO2 emissions (metric tons CO2)

1338649

(7.15.4.5) Gross Scope 1 methane emissions (metric tons CH4)

45800

(7.15.4.6) Total gross Scope 1 emissions (metric tons CO2e)

2621052

(7.15.4.7) Comment

Includes direct measurements of tanks and wells in the upstream segment.

Row 4

(7.15.4.1) Emissions category

Select from:

☒ Fugitives

(7.15.4.2) Value chain

Select all that apply

☒ Upstream

☒ Downstream

(7.15.4.3) Product

Select from:

☒ Unable to disaggregate

(7.15.4.4) Gross Scope 1 CO2 emissions (metric tons CO2)

3678

(7.15.4.5) Gross Scope 1 methane emissions (metric tons CH4)

3922

(7.15.4.6) Total gross Scope 1 emissions (metric tons CO2e)

114134

(7.15.4.7) Comment

Includes direct fugitive measurements in upstream segment. Ecopetrol also quantifies N2O emissions, that is included in the total CO2e figures. For this reason, the sum between CO2 emissions and CH4 emissions evaluated in CO2e has an insignificant difference (645 tCO2e).

Row 5

(7.15.4.1) Emissions category

Select from:

☒ Combustion (excluding flaring)

(7.15.4.2) Value chain

Select all that apply

☒ Upstream

☒ Downstream

(7.15.4.3) Product

Select from:

☒ Unable to disaggregate

(7.15.4.4) Gross Scope 1 CO2 emissions (metric tons CO2)

8356707

(7.15.4.5) Gross Scope 1 methane emissions (metric tons CH4)

841

(7.15.4.6) Total gross Scope 1 emissions (metric tons CO2e)

8409757

(7.15.4.7) Comment

These include emissions from stationary sources and mobile sources. Ecopetrol also quantifies N2O emissions, that is included in the total CO2e figures. For this reason, the sum between CO2 emissions and CH4 emissions evaluated in CO2e has an insignificant difference (29.499 tCO2e).

[Add row]

(7.16) Break down your total gross global Scope 1 and 2 emissions by country/area.

	Scope 1 emissions (metric tons CO2e)	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Colombia	12005388	532767	744264

[Fixed row]

(7.17) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

Select all that apply

- ☒ By business division
- ☒ By facility

(7.17.1) Break down your total gross global Scope 1 emissions by business division.

	Business division	Scope 1 emissions (metric ton CO2e)
Row 1	Downstream	5653070
Row 2	Upstream	6352318

[Add row]

(7.17.2) Break down your total gross global Scope 1 emissions by business facility.

Row 1

(7.17.2.1) Facility

Rio Production Area (GRI, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

235775

(7.17.2.3) Latitude

7.384778

(7.17.2.4) Longitude

-73.895538

Row 2

(7.17.2.1) Facility

Andina Production Area, Putumayo Production Department (GPA_P, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

160831

(7.17.2.3) Latitude

0.550178

(7.17.2.4) Longitude

-77.097228

Row 3

(7.17.2.1) Facility

Barrancabermeja Refinery. Emissions correspond to the Barrancabermeja Refinery and its river terminal. The coordinates reported correspond to the Barrancabermeja Refinery.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

3169045

(7.17.2.3) Latitude

7.076573

(7.17.2.4) Longitude

-73.873751

Row 4

(7.17.2.1) Facility

La Cira Infantas Production Area (GCT, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

60450

(7.17.2.3) Latitude

6.991787

(7.17.2.4) Longitude

-73.781754

Row 5

(7.17.2.1) Facility

Castilla Production Area (GDT, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

627050

(7.17.2.3) Latitude

3.852624

(7.17.2.4) Longitude

-73.674399

Row 6

(7.17.2.1) Facility

Cartagena Refinery. Emissions correspond to those from the Cartagena Refinery, and both its terminals (river and maritime). The reported coordinates correspond to the Cartagena Refinery.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

2484026

(7.17.2.3) Latitude

10.31625

(7.17.2.4) Longitude

-75.492614

Row 7

(7.17.2.1) Facility

Mares Production Area (GMA, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

194982

(7.17.2.3) Latitude

7.037186

(7.17.2.4) Longitude

-73.556775

Row 8

(7.17.2.1) Facility

GTA Production Area, Catatumbo Production Department (GTA_Catatumbo, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

15376

(7.17.2.3) Latitude

8.710475

(7.17.2.4) Longitude

-72.72546

Row 9

(7.17.2.1) Facility

CP09 Production Area (GLC, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

29510

(7.17.2.3) Latitude

3.881468

(7.17.2.4) Longitude

-73.785302

Row 10

(7.17.2.1) Facility

Andina Production Area, Huila Production Department (GPA_H, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

400103

(7.17.2.3) Latitude

3.077244

(7.17.2.4) Longitude

-75.273188

Row 11

(7.17.2.1) Facility

Oriente Production Area (GOR, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

936701

(7.17.2.3) Latitude

3.803647

(7.17.2.4) Longitude

-71.445118

Row 12

(7.17.2.1) Facility

GTA-Catenare Production Area, Teca-Nare Production Department (GTA_Catenare, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

960217

(7.17.2.3) Latitude

6.032055

(7.17.2.4) Longitude

-74.611959

Row 13

(7.17.2.1) Facility

Piedemonte Production Area (GDP, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

2150332

(7.17.2.3) Latitude

5.426085

(7.17.2.4) Longitude

-72.448688

Row 14

(7.17.2.1) Facility

Apiay Production Area (GDA, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

129334

(7.17.2.3) Latitude

4.066909

(7.17.2.4) Longitude

-73.42461

Row 15

(7.17.2.1) Facility

Chichimene Production Area (GCH, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.17.2.2) Scope 1 emissions (metric tons CO2e)

451656

(7.17.2.3) Latitude

3.933415

(7.17.2.4) Longitude

-73.685159

[Add row]

(7.19) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Oil and gas production activities (upstream)	6352318	6352318	Gross and net emissions are equal because there is no credit reduction for indirect GHG savings.
Oil and gas production activities (downstream)	5653070	5653070	Gross and net emissions are equal because there is no credit reduction for indirect GHG savings.

[Fixed row]

(7.20) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

Select all that apply

☒ By business division

☒ By facility

(7.20.1) Break down your total gross global Scope 2 emissions by business division.

	Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Row 1	Downstream	2628	2628
Row 2	Upstream	530139	741636

[Add row]

(7.20.2) Break down your total gross global Scope 2 emissions by business facility.

Row 1

(7.20.2.1) Facility

Cartagena Refinery. Emissions correspond to those from the Cartagena Refinery, and both its terminals (river and maritime). The reported coordinates correspond to the Cartagena Refinery.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

0

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

0

Row 2

(7.20.2.1) Facility

Andina Production Area, Huila Production Department (GPA_H, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

43067

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

89678

Row 3

(7.20.2.1) Facility

Castilla Production Area (GDT, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

117040

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

107241

Row 4

(7.20.2.1) Facility

Chichimene Production Area (GCH, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

34921

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

31998

Row 5

(7.20.2.1) Facility

Apiay Production Area (GDA, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

14817

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

13576

Row 6

(7.20.2.1) Facility

La Cira Infantas Production Area (GCT, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

94664

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

162476

Row 7

(7.20.2.1) Facility

GTA Production Area, Catatumbo Production Department (GTA_Catatumbo, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

3584

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

3584

Row 8

(7.20.2.1) Facility

Mares Production Area (GMA, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

8003

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

17587

Row 9

(7.20.2.1) Facility

GTA-Catenare Production Area, Teca-Nare Production Department (GTA_Catenare, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

20654

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

20654

Row 10

(7.20.2.1) Facility

Piedemonte Production Area (GDP, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

0

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

0

Row 11

(7.20.2.1) Facility

Andina Production Area, Putumayo Production Department (GPA_P, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

1976

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

20588

Row 12

(7.20.2.1) Facility

Rio Production Area (GRI, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

40338

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

91137

Row 13

(7.20.2.1) Facility

Oriente Production Area (GOR, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

146164

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

178618

Row 14

(7.20.2.1) Facility

CP09 Production Area (GLC, for its Spanish acronym). The geographic coordinates correspond to a representative point of the reported area.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

4910

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

4499

Row 15

(7.20.2.1) Facility

Barrancabermeja Refinery. Emissions correspond to those from the Barrancabermeja Refinery and its river terminal. The reported coordinates correspond to the Barrancabermeja Refinery.

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

2628

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

2628

[Add row]

(7.21) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

Oil and gas production activities (upstream)

(7.21.1) Scope 2, location-based, metric tons CO2e

530139

(7.21.2) Scope 2, market-based (if applicable), metric tons CO2e

741636

(7.21.3) Comment

Scope 2 (indirect) GHG emissions are those associated with the consumption of purchased electricity. Scope 2 follow-up and targets are based on market-based method because supplier-specific emission factors are used. However, data for both methodologies are presented in this report. Scope 2 emissions (location-based) were calculated using the national electrical grid emission factor for 2023, calculated by XM

Oil and gas production activities (midstream)

(7.21.1) Scope 2, location-based, metric tons CO2e

0

(7.21.2) Scope 2, market-based (if applicable), metric tons CO2e

0

(7.21.3) Comment

Not applicable, because in question 1.19 midstream was not selected. As can be seen in question 7.19, this row should be blocked.

Oil and gas production activities (downstream)

(7.21.1) Scope 2, location-based, metric tons CO2e

2628

(7.21.2) Scope 2, market-based (if applicable), metric tons CO2e

2628

(7.21.3) Comment

*Scope 2 emissions (location-based) and emissions (market-based) were calculated using the national electrical grid emission factor for 2023, calculated by XM
[Fixed row]*

(7.22) Break down your gross Scope 1 and Scope 2 emissions between your consolidated accounting group and other entities included in your response.

Consolidated accounting group

(7.22.1) Scope 1 emissions (metric tons CO2e)

12005388

(7.22.2) Scope 2, location-based emissions (metric tons CO2e)

532767

(7.22.3) Scope 2, market-based emissions (metric tons CO2e)

744264

(7.22.4) Please explain

Currently, Ecopetrol reports environmental performance data (climate, water, biodiversity, and waste) from facilities operated by Ecopetrol, which includes Cartagena Refinery, one of its subsidiaries (which means that the consolidation approach is operational control). Currently, Ecopetrol Business Group is in the process of implementing the International Financial Reporting Standards (IFRS) S1 (Sustainability disclosure) and IFRS S2 (Climate-related disclosure) for investors. In this process, the consolidation approach and requirements for reporting sustainability issues will be evaluated to align them with the Financial Statements.

All other entities

(7.22.1) Scope 1 emissions (metric tons CO2e)

0

(7.22.2) Scope 2, location-based emissions (metric tons CO2e)

0

(7.22.3) Scope 2, market-based emissions (metric tons CO2e)

0

(7.22.4) Please explain

Currently, Ecopetrol reports environmental performance data (climate, water, biodiversity and waste) for the facilities operated by Ecopetrol, which includes the Cartagena Refinery, one of its subsidiaries (which means that the focus of consolidation is operational control). It does not include other entities in its reports.
[Fixed row]

(7.23) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Select from:

☒ Yes

(7.23.1) Break down your gross Scope 1 and Scope 2 emissions by subsidiary.

Row 1

(7.23.1.1) Subsidiary name

Cartagena Refinery

(7.23.1.2) Primary activity

Select from:

☒ Oil & gas refining

(7.23.1.3) Select the unique identifier you are able to provide for this subsidiary

Select all that apply

☒ Other unique identifier, please specify :Colombian Tax ID Number (NIT in Spanish)

(7.23.1.11) Other unique identifier

900.112.515-7

(7.23.1.12) Scope 1 emissions (metric tons CO2e)

2484026

(7.23.1.13) Scope 2, location-based emissions (metric tons CO2e)

0

(7.23.1.14) Scope 2, market-based emissions (metric tons CO2e)

0

(7.23.1.15) Comment

Currently, Ecopetrol reports environmental performance data (climate, water, biodiversity, and waste) from facilities operated by Ecopetrol, which includes Cartagena Refinery and its process facilities and the marine and river terminals.

[Add row]

(7.24) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.

Row 1

(7.24.1) Oil and gas business division

Select all that apply

☒ Upstream

(7.24.2) Estimated total methane emitted expressed as % of natural gas production or throughput at given division

1.06

(7.24.3) Estimated total methane emitted expressed as % of total hydrocarbon production or throughput at given division

0.17

(7.24.4) Indicate whether your methane emissions figure is based on observational data

Select from:

☒ Both observational data and estimated or modelled data

(7.24.5) Details of methodology

To estimate the reported percentages, we start from the results of total methane emissions for scopes 1, where Ecopetrol has operational control. Tons of methane are converted to KPC and BOE units, and divided by the following: i) In the case of methane emissions (Converted to KPC) as percentage of natural gas production, we use, as denominator, the total gas produced in the upstream fields in KPC units. If sales gas (net) were used, the ratio of methane emissions to gas sold would be 0.07%. ii) In the case of methane emissions (Converted to BOE) as percentage of total hydrocarbon production, we use, as denominator, the total production (crude oil and gas) in BOE units.

[Add row]

(7.29) What percentage of your total operational spend in the reporting year was on energy?

Select from:

☒ More than 50% but less than or equal to 55%

(7.30) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Select from: <input checked="" type="checkbox"/> Yes
Consumption of purchased or acquired electricity	Select from: <input checked="" type="checkbox"/> Yes
Consumption of purchased or acquired heat	Select from: <input checked="" type="checkbox"/> No
Consumption of purchased or acquired steam	Select from: <input checked="" type="checkbox"/> No
Consumption of purchased or acquired cooling	Select from: <input checked="" type="checkbox"/> No
Generation of electricity, heat, steam, or cooling	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(7.30.1) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

Consumption of fuel (excluding feedstock)

(7.30.1.1) Heating value

Select from:

☒ HHV (higher heating value)

(7.30.1.2) MWh from renewable sources

0

(7.30.1.3) MWh from non-renewable sources

36471202

(7.30.1.4) Total (renewable and non-renewable) MWh

36471202

Consumption of purchased or acquired electricity

(7.30.1.1) Heating value

Select from:

☒ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

1990593

(7.30.1.3) MWh from non-renewable sources

1025215

(7.30.1.4) Total (renewable and non-renewable) MWh

3015809

Consumption of self-generated non-fuel renewable energy

(7.30.1.1) Heating value

Select from:

☒ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

63768

(7.30.1.4) Total (renewable and non-renewable) MWh

63768

Total energy consumption

(7.30.1.1) Heating value

Select from:

☒ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

2054362

(7.30.1.3) MWh from non-renewable sources

37496417

(7.30.1.4) Total (renewable and non-renewable) MWh

39550779

[Fixed row]

(7.30.6) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	<i>Select from:</i> <input checked="" type="checkbox"/> Yes
Consumption of fuel for the generation of heat	<i>Select from:</i> <input checked="" type="checkbox"/> Yes
Consumption of fuel for the generation of steam	<i>Select from:</i> <input checked="" type="checkbox"/> Yes
Consumption of fuel for the generation of cooling	<i>Select from:</i> <input checked="" type="checkbox"/> No
Consumption of fuel for co-generation or tri-generation	<i>Select from:</i> <input checked="" type="checkbox"/> Yes

[Fixed row]

(7.30.7) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

(7.30.7.1) Heating value

Select from:

☒ Unable to confirm heating value

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

0

(7.30.7.8) Comment

N/A

Other biomass

(7.30.7.1) Heating value

Select from:

☒ Unable to confirm heating value

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

0

(7.30.7.8) Comment

N/A

Other renewable fuels (e.g. renewable hydrogen)

(7.30.7.1) Heating value

Select from:

☒ Unable to confirm heating value

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

0

(7.30.7.8) Comment

N/A

Coal

(7.30.7.1) Heating value

Select from:

☒ Unable to confirm heating value

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

0

(7.30.7.5) MWh fuel consumed for self-generation of steam

0

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

0

(7.30.7.8) Comment

N/A

Oil

(7.30.7.1) Heating value

Select from:

☒ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

178514

(7.30.7.3) MWh fuel consumed for self-generation of electricity

0

(7.30.7.4) MWh fuel consumed for self-generation of heat

1

(7.30.7.5) MWh fuel consumed for self-generation of steam

178512

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

0

(7.30.7.8) Comment

Ecopetrol consumes crude oil as fuel in areas with difficult access locations.

Gas

(7.30.7.1) Heating value

Select from:

☒ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

33140229

(7.30.7.3) MWh fuel consumed for self-generation of electricity

5330098

(7.30.7.4) MWh fuel consumed for self-generation of heat

15838460

(7.30.7.5) MWh fuel consumed for self-generation of steam

8057227

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

3914444

(7.30.7.8) Comment

Ecopetrol consumes: Refinery Gas (LHV), Natural Gas (HHV) and field-produced gas (HHV).

Other non-renewable fuels (e.g. non-renewable hydrogen)

(7.30.7.1) Heating value

Select from:

☒ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

3152459

(7.30.7.3) MWh fuel consumed for self-generation of electricity

2583155

(7.30.7.4) MWh fuel consumed for self-generation of heat

475291

(7.30.7.5) MWh fuel consumed for self-generation of steam

94013

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

0

(7.30.7.8) Comment

Non-renewable fuels include ACPM, LPG, Fuel Oil #4.

Total fuel

(7.30.7.1) Heating value

Select from:

☒ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

36471202

(7.30.7.3) MWh fuel consumed for self-generation of electricity

7913253

(7.30.7.4) MWh fuel consumed for self-generation of heat

16313752

(7.30.7.5) MWh fuel consumed for self-generation of steam

8329753

(7.30.7.6) MWh fuel consumed for self-generation of cooling

0

(7.30.7.7) MWh fuel consumed for self- cogeneration or self-trigeneration

3914444

(7.30.7.8) Comment

The MWh consumed for each type of fuel were calculated by taking the consumed fuel volume (ft3), multiplied by the calorific value (BTU/ft3), and finally multiplied by the conversion factor 0.0002937 to get MWh.

[Fixed row]

(7.30.9) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

Electricity

(7.30.9.1) Total Gross generation (MWh)

4220254

(7.30.9.2) Generation that is consumed by the organization (MWh)

3971883

(7.30.9.3) Gross generation from renewable sources (MWh)

63768

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

63768

Heat

(7.30.9.1) Total Gross generation (MWh)

16313752

(7.30.9.2) Generation that is consumed by the organization (MWh)

16313752

(7.30.9.3) Gross generation from renewable sources (MWh)

0

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

0

Steam

(7.30.9.1) Total Gross generation (MWh)

8329753

(7.30.9.2) Generation that is consumed by the organization (MWh)

8329753

(7.30.9.3) Gross generation from renewable sources (MWh)

0

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

0

Cooling

(7.30.9.1) Total Gross generation (MWh)

0

(7.30.9.2) Generation that is consumed by the organization (MWh)

0

(7.30.9.3) Gross generation from renewable sources (MWh)

0

(7.30.9.4) Generation from renewable sources that is consumed by the organization (MWh)

0

[Fixed row]

(7.30.14) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in 7.7.

Row 1

(7.30.14.1) Country/area

Select from:

☒ Colombia

(7.30.14.2) Sourcing method

Select from:

☒ Direct line to an off-site generator owned by a third party with no grid transfers (direct line PPA)

(7.30.14.3) Energy carrier

Select from:

☒ Electricity

(7.30.14.4) Low-carbon technology type

Select from:

☒ Solar

(7.30.14.5) Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

27122

(7.30.14.6) Tracking instrument used

Select from:

☒ Contract

(7.30.14.7) Country/area of origin (generation) of the low-carbon energy or energy attribute

Select from:

☒ Colombia

(7.30.14.8) Are you able to report the commissioning or re-powering year of the energy generation facility?

Select from:

☒ Yes

(7.30.14.9) Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2019

(7.30.14.10) Comment

Solar Generation Plant Castilla

Row 2

(7.30.14.1) Country/area

Select from:

☒ Colombia

(7.30.14.2) Sourcing method

Select from:

☒ Direct line to an off-site generator owned by a third party with no grid transfers (direct line PPA)

(7.30.14.3) Energy carrier

Select from:

☒ Electricity

(7.30.14.4) Low-carbon technology type

Select from:

☒ Solar

(7.30.14.5) Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

55964

(7.30.14.6) Tracking instrument used

Select from:

☒ Contract

(7.30.14.7) Country/area of origin (generation) of the low-carbon energy or energy attribute

Select from:

☒ Colombia

(7.30.14.8) Are you able to report the commissioning or re-powering year of the energy generation facility?

Select from:

☒ Yes

(7.30.14.9) Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2021

(7.30.14.10) Comment

Solar Generation Plant San Fernando

Row 3

(7.30.14.1) Country/area

Select from:

☒ Colombia

(7.30.14.2) Sourcing method

Select from:

☒ Direct line to an off-site generator owned by a third party with no grid transfers (direct line PPA)

(7.30.14.3) Energy carrier

Select from:

☒ Electricity

(7.30.14.4) Low-carbon technology type

Select from:

☒ Solar

(7.30.14.5) Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

36646

(7.30.14.6) Tracking instrument used

Select from:

☒ Contract

(7.30.14.7) Country/area of origin (generation) of the low-carbon energy or energy attribute

Select from:

☒ Colombia

(7.30.14.8) Are you able to report the commissioning or re-powering year of the energy generation facility?

Select from:

☒ Yes

(7.30.14.9) Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2022

(7.30.14.10) Comment

Row 4

(7.30.14.1) Country/area

Select from:

☒ Colombia

(7.30.14.2) Sourcing method

Select from:

☒ Other, please specify :Default delivered electricity from a grid that is 80% low-carbon and where there is no mechanism for specifically allocating low-carbon electricity .

(7.30.14.3) Energy carrier

Select from:

☒ Electricity

(7.30.14.4) Low-carbon technology type

Select from:

☒ Hydropower (capacity unknown)

(7.30.14.5) Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

2514792

(7.30.14.6) Tracking instrument used

Select from:

☒ Contract

(7.30.14.7) Country/area of origin (generation) of the low-carbon energy or energy attribute

Select from:

☒ Colombia

(7.30.14.8) Are you able to report the commissioning or re-powering year of the energy generation facility?

Select from:

☒ Yes

(7.30.14.9) Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2018

(7.30.14.10) Comment

Renewable Energy of the National Interconnected System. Colombia has an energy basket with a high component of generation from renewable sources (84%). As a consequence, the emission factor associated with the grid is relatively low (Emission Factor 2023 0.000173 tCO2/KWh). The renewable energy reported corresponds to the estimate according to the distribution in generation between renewable and non-renewable for the year 2023. The year 2018 represents the beginning of integrated energy management in Ecopetrol.

[Add row]

(7.30.16) Provide a breakdown by country/area of your electricity/heat/steam/cooling consumption in the reporting year.

Colombia

(7.30.16.1) Consumption of purchased electricity (MWh)

1990593

(7.30.16.2) Consumption of self-generated electricity (MWh)

63768

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

0

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

2054361.00

[Fixed row]

(7.38) Disclose your net liquid and gas hydrocarbon production (total of subsidiaries and equity-accounted entities).

	In-year net production	Comment
Crude oil and condensate, million barrels	204.5	Mill boe
Natural gas liquids, million barrels	12.8	Mill boe
Oil sands, million barrels (includes bitumen and synthetic crude)	0	Not applicable
Natural gas, billion cubic feet	293.75	Mill boe

[Fixed row]

(7.38.1) Explain which listing requirements or other methodologies you use to report reserves data. If your organization cannot provide data due to legal restrictions on reporting reserves figures in certain countries/areas, please explain this.

The Ecopetrol Group follows international standards for estimating, classifying, and reporting reserves, as defined in SEC regulation. Our reserves process is coordinated internally by the Reserves and Resources Management Team. This team supports and interacts with the specialists involved in the estimation and reporting process, following an established procedure with its corresponding internal controls. As in previous years, reserves are estimated and certified by recognized external independent engineers, this year consisting of DeGolyer and MacNaughton, GaffneyCline, and Ryder Scott Company, in compliance with the definitions of the Society of Petroleum Engineers and the applicable SEC rules. According to our corporate policy, we report the values of the reserves obtained from the external engineers, even if they are lower than our expected reserves. The aforementioned external independent engineering consultants have estimated and

certified our proved reserves as of December 31, 2023. These external engineers estimated 99% of our estimated net proved reserves for the year ended December 31, 2023, 2022 and 2021. In accordance with these certifications, our reserves report complies with Rule 4-10 of Regulation S-X issued by the SEC. The reserves' reports of the external engineers are included as exhibits to this annual report. Our reserves process uses deterministic methods which are commonly used internationally to estimate reserves. These methods whilst reliable, have some inherent uncertainty, and thus, estimates should not be interpreted as exact amounts. The majority of the producing proved reserves were estimated by applying appropriate decline curves or other performance relationships. In analyzing decline curves, reserves were estimated by calculating economic limits that are based on current economic conditions. In certain cases where the methods previously employed could not be used, reserves were estimated by analogy with similar reserves for which more complete data was available. Estimates of reserves were prepared by geological and engineering standard methods commonly used in the oil and gas industry. The method or combination of methods used in the analysis of each reserve was adopted from experience analogy reserves, including information on the stage of development, quality and completeness of basic data and production history. Link: <https://www.sec.gov/ix?doc/Archives/edgar/data/1444406/000141057824000515/ec-20231231x20f.htm> See page 40. Reserves Process Section.

(7.38.2) Disclose your estimated total net reserves and resource base (million boe), including the total associated with subsidiaries and equity-accounted entities.

(7.38.2.1) Estimated total net proved + probable reserves (2P) (million BOE)

0

(7.38.2.2) Estimated total net proved + probable + possible reserves (3P) (million BOE)

0

(7.38.2.3) Estimated net total resource base (million BOE)

0

(7.38.2.4) Comment

Ecopetrol did not disclose 2P and 3P volumes nor Resources estimates for 2023.
[Fixed row]

(7.38.3) Provide an indicative percentage split for 2P, 3P reserves, and total resource base by hydrocarbon categories.

Crude oil/ condensate/ natural gas liquids

(7.38.3.1) Net proved + probable reserves (2P) (%)

0

(7.38.3.2) Net proved + probable + possible reserves (3P) (%)

0

(7.38.3.3) Net total resource base (%)

0

(7.38.3.4) Comment

Ecopetrol did not disclose Resources nor the split of 2P or 3P Volumes

Natural gas

(7.38.3.1) Net proved + probable reserves (2P) (%)

0

(7.38.3.2) Net proved + probable + possible reserves (3P) (%)

0

(7.38.3.3) Net total resource base (%)

0

(7.38.3.4) Comment

Ecopetrol did not disclose Resources nor the split of 2P or 3P Volumes

Oil sands (includes bitumen and synthetic crude)

(7.38.3.1) Net proved + probable reserves (2P) (%)

0

(7.38.3.2) Net proved + probable + possible reserves (3P) (%)

0

(7.38.3.3) Net total resource base (%)

0

(7.38.3.4) Comment

Ecopetrol did not disclose Resources nor the split of 2P or 3P Volumes
[Fixed row]

(7.38.4) Provide an indicative percentage split for production, 1P, 2P, 3P reserves, and total resource base by development types.

Row 1

(7.38.4.1) Development type

Select from:
☒ Onshore

(7.38.4.2) In-year net production (%)

92

(7.38.4.3) Net proved reserves (1P) (%)

(7.38.4.4) Net proved + probable reserves (2P) (%)

0

(7.38.4.5) Net proved + probable + possible reserves (3P) (%)

0

(7.38.4.6) Net total resource base (%)

0

(7.38.4.7) Comment*Ecopetrol did not disclose Resources nor the split of 2P or 3P volumes.***Row 2****(7.38.4.1) Development type***Select from:*☒ Tight/shale**(7.38.4.2) In-year net production (%)**

7

(7.38.4.3) Net proved reserves (1P) (%)

10

(7.38.4.4) Net proved + probable reserves (2P) (%)

0

(7.38.4.5) Net proved + probable + possible reserves (3P) (%)

0

(7.38.4.6) Net total resource base (%)

0

(7.38.4.7) Comment

Ecopetrol did not disclose Resources nor the split of 2P or 3P volumes.

Row 3

(7.38.4.1) Development type

Select from:

☒ Ultra-deepwater

(7.38.4.2) In-year net production (%)

1

(7.38.4.3) Net proved reserves (1P) (%)

1

(7.38.4.4) Net proved + probable reserves (2P) (%)

0

(7.38.4.5) Net proved + probable + possible reserves (3P) (%)

0

(7.38.4.6) Net total resource base (%)

0

(7.38.4.7) Comment

Ecopetrol did not disclose Resources nor the split of 2P or 3P volumes.

[Add row]

(7.43) Disclose your total refinery throughput capacity in the reporting year in thousand barrels per day.

	Total refinery throughput capacity (Thousand barrels per day)
Capacity	452.4

[Fixed row]

(7.43.1) Disclose feedstocks processed in the reporting year in million barrels per year.

	Throughput (Million barrels)	Comment
Oil	153.2	Not Applicable
Other feedstocks	0.6	Butanes
Total	153.8	Not Applicable

[Fixed row]

(7.43.2) Are you able to break down your refinery products and net production?

Select from:

☒ Yes

(7.43.3) Disclose your refinery products and net production in the reporting year in million barrels per year.

Row 1

(7.43.3.1) Product produced

Select from:

☒ Waxes

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

0.12

Row 2

(7.43.3.1) Product produced

Select from:

☒ Naphtha

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

9.37

Row 3

(7.43.3.1) Product produced

Select from:

☒ Gasolines

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

32.56

Row 4

(7.43.3.1) Product produced

Select from:

☒ Kerosenes

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

12.68

Row 5

(7.43.3.1) Product produced

Select from:

☒ Fuel oils

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

15.41

Row 6

(7.43.3.1) Product produced

Select from:

☒ Liquified petroleum gas

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

2.47

Row 7

(7.43.3.1) Product produced

Select from:

☒ Still gas

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

1.35

Row 8

(7.43.3.1) Product produced

Select from:

☒ Lubricants

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

0.2

Row 9

(7.43.3.1) Product produced

Select from:

☒ Diesel fuels

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

55.88

Row 10

(7.43.3.1) Product produced

Select from:

☒ Petroleum coke

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

5.45

Row 11

(7.43.3.1) Product produced

Select from:

☒ Asphalt and tar

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

5.23

Row 12

(7.43.3.1) Product produced

Select from:

☒ Other, please specify :Heavy Distilles Mix

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

13.8

Row 13

(7.43.3.1) Product produced

Select from:

☒ Other, please specify :Aliphatic

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

0.24

Row 14

(7.43.3.1) Product produced

Select from:

☒ Other, please specify :Sulphur

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

0.32

Row 15

(7.43.3.1) Product produced

Select from:

☒ Other, please specify :Sulfuric Acid

(7.43.3.2) Refinery net production (Million barrels) *not including products used/consumed on site

0.09

[Add row]

(7.43.4) Please disclose your petrochemicals production in the reporting year in thousand metric tons.

	Product	Production, Thousand metric tons	Capacity, Thousand metric tons
Row 1	Select from: <input checked="" type="checkbox"/> Other, please specify :Aromatics	83.04	168.18
Row 2	Select from: <input checked="" type="checkbox"/> Other, please specify :Polyethylene	43.69	65

[Add row]

(7.45) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Row 1

(7.45.1) Intensity figure

8.56e-8

(7.45.2) Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

12749652

(7.45.3) Metric denominator

Select from:

☒ unit total revenue

(7.45.4) Metric denominator: Unit total

(7.45.5) Scope 2 figure used

Select from:

☒ Market-based**(7.45.6) % change from previous year**

10

(7.45.7) Direction of change

Select from:

☒ Increased**(7.45.8) Reasons for change**

Select all that apply

☒ Other emissions reduction activities☒ Change in revenue**(7.45.9) Please explain**

In 2023, Ecopetrol implemented new emissions reduction initiatives, that allowed the reduction of 581,532 tCO₂e, exceeding the original goal of 407,040 tCO₂e. The accumulated GHG emissions reduction between 2020-2023 is 1,491,645 tCO₂e. The implemented initiatives include energy efficiency, renewables energy, reduction of venting and fugitive emissions, and reduction of flaring. However, the revenue-based intensity increased because the total revenues decreased by 10.3% as compared to 2022, primarily as a result of a COP 26,900,952 million decrease in revenues mainly due to a 19.1%, or USD 17.4 per barrel decrease of our average crude oil basket price and a 18.7%, or USD 22.1 per barrel decrease of our average refined products basket price, which in turn was primarily due to a lower Brent benchmark price and narrower spreads against Brent, primarily for refined products. In 2022 report, informed revenues only corresponded to Ecopetrol SA. In 2023, revenue figures are adjusted including Cartagena Refinery revenue which is under Ecopetrol's operational control. The informed percentage of change from previous year was calculated including Cartagena Refinery revenues for both, 2022 and 2023.

Row 2**(7.45.1) Intensity figure**

0.0341

(7.45.2) Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

7093954

(7.45.3) Metric denominator

Select from:

☒ barrel of oil equivalent (BOE)

(7.45.4) Metric denominator: Unit total

208036219

(7.45.5) Scope 2 figure used

Select from:

☒ Market-based

(7.45.6) % change from previous year

5

(7.45.7) Direction of change

Select from:

☒ Decreased

(7.45.8) Reasons for change

Select all that apply

☒ Other emissions reduction activities

(7.45.9) Please explain

The intensity figure corresponds to upstream carbon intensity. It is calculated by dividing upstream scope 1 and 2 emissions by oil, gas, and white production (BOE/year). This is done considering operational control boundary. Intensity decreased mainly to the implementation of emissions reduction initiatives, which include energy efficiency, renewables energy, reduction of venting and fugitive emissions, and reduction of flaring.

Row 3

(7.45.1) Intensity figure

0.037

(7.45.2) Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

5655698

(7.45.3) Metric denominator

Select from:

☒ barrel of oil equivalent (BOE)

(7.45.4) Metric denominator: Unit total

152839525

(7.45.5) Scope 2 figure used

Select from:

☒ Market-based

(7.45.6) % change from previous year

8

(7.45.7) Direction of change

Select from:

☒ Decreased

(7.45.8) Reasons for change

Select all that apply

- ☒ Other emissions reduction activities
- ☒ Change in physical operating conditions

(7.45.9) Please explain

The intensity figure corresponds to downstream carbon intensity. It is calculated as downstream scope 1 and 2 emissions divided by annual loaded barrels to the Barrancabermeja and Cartagena refineries (year). This is done considering operational control boundary. Intensity decreased mainly to the implementation of emissions reduction initiatives, which include energy efficiency, renewables energy, reduction of venting and fugitive emissions, and reduction of flaring. Although processed barrels increased, carbon intensity decreased due to higher refinery efficiency.

[Add row]

(7.48) Provide the intensity figures for Scope 1 emissions (metric tons CO2e) per unit of hydrocarbon category.

Row 1

(7.48.1) Unit of hydrocarbon category (denominator)

Select from:

- ☒ Other, please specify :Thousand barrels equivalent oil (crude Oil/Condensate/gas)

(7.48.2) Metric tons CO2e from hydrocarbon category per unit specified

30.53

(7.48.3) % change from previous year

9

(7.48.4) Direction of change

Select from:

☒ Decreased

(7.48.5) Reason for change

The carbon intensity of the upstream segment decreased from 2022 to 2023 (9%), mainly due to the reduction of emissions in the categories of flaring, fugitive and venting. These reductions are aligned with the production segment's leak closure plan and the emission reduction projects implemented.

(7.48.6) Comment

The carbon intensity of the production segment decreased from 2022 to 2023 (9%), mainly due to the reduction of emissions in the categories of flaring, fugitive and venting. These reductions are aligned with the production segment's leak closure plan and the emission reduction projects implemented.

Row 2

(7.48.1) Unit of hydrocarbon category (denominator)

Select from:

☒ Thousand barrels of refinery throughput

(7.48.2) Metric tons CO₂e from hydrocarbon category per unit specified

36.99

(7.48.3) % change from previous year

8

(7.48.4) Direction of change

Select from:

☒ Decreased

(7.48.5) Reason for change

A total of 29% more barrels were loaded in 2023 than in 2022, however, the refining segment's carbon intensity decreased by 8%, due to the implementation of energy efficiency initiatives that generated fewer emissions per barrel loaded.

(7.48.6) Comment

A total of 29% more barrels were loaded in 2023 than in 2022, however, the refining segment's carbon intensity decreased by 8%, due to the implementation of energy efficiency initiatives that generated fewer emissions per barrel loaded.

[Add row]

(7.52) Provide any additional climate-related metrics relevant to your business.

Row 1

(7.52.1) Description

Select from:

☒ Other, please specify :Non-GHG emissions (SOx) in kton

(7.52.2) Metric value

17.35

(7.52.3) Metric numerator

Total non-GHG emissions (SOx) in kton

(7.52.4) Metric denominator (intensity metric only)

NA

(7.52.5) % change from previous year

2.3

(7.52.6) Direction of change

Select from:

☒ Increased

(7.52.7) Please explain

- During 2023 the air pollutant emissions inventory was reviewed and as a result, some input information related with activity, fuels consumption and fuel properties were updated for 2020-2022, which generated a change in the SOx emissions inventory for these years, against the previous year report. - The emissions inventory of SOx for 2023 had a net increase of 388 ton/y against 2022, due to the increasing activity related with expansion in the refining capacity of the Cartagena refinery which added 880 ton/y. These emissions had a partial offset due to energy efficiency initiatives which reduced a total volume of SOx of about 490 ton/y.

Row 2

(7.52.1) Description

Select from:

☒ Other, please specify :Non-GHG emissions (NOx) in kton

(7.52.2) Metric value

29.71

(7.52.3) Metric numerator

Total non-GHG emissions (NOx) in kton

(7.52.4) Metric denominator (intensity metric only)

NA

(7.52.5) % change from previous year

2.1

(7.52.6) Direction of change

Select from:

☒ Increased

(7.52.7) Please explain

- A systematic internal review of the air pollutant emissions inventory was carried out during 2023. As a result, some input information related with activity and fuels consumption were updated for 2020-2022, which did not mean significant changes in NOx emissions data. - The emissions inventory of NOx for 2023 had a net increase of 615 ton/y against 2022, due to the increasing activity related with expansion in the refining capacity of the Cartagena refinery, and increased activity at the production fields CPO-09 and Caño Sur, which added 1744 ton/y. These emissions had a partial offset due to energy efficiency initiatives which reduced a total volume of NOx emissions of 1040 ton/y.

Row 3

(7.52.1) Description

Select from:

☒ Other, please specify :Non-GHG emissions (PM) in kton

(7.52.2) Metric value

1.83

(7.52.3) Metric numerator

Total non-GHG emissions (PM) in kton

(7.52.4) Metric denominator (intensity metric only)

NA

(7.52.5) % change from previous year

14.4

(7.52.6) Direction of change

Select from:

☒ Increased

(7.52.7) Please explain

A systematic internal review of the air pollutant emissions inventory was carried out during 2023. As a result, some input information related with activity and fuels consumption were updated for 2020-2022, which did not mean significant changes in PM emissions data. - The emissions inventory of PM for 2023 had a net increase of 229 ton/y against 2022, due to the increasing activity related with expansion in the refining capacity of the Cartagena refinery, increased throughput at the B/meja Refinery and increased activity at the production fields CPO-09 and Caño Sur, which added 263 ton/y.

Row 4

(7.52.1) Description

Select from:

☒ Other, please specify :Non-GHG emissions (VOC) in kton

(7.52.2) Metric value

189.63

(7.52.3) Metric numerator

Total non-GHG emissions (VOC) in kton

(7.52.4) Metric denominator (intensity metric only)

NA

(7.52.5) % change from previous year

15

(7.52.6) Direction of change

Select from:

☒ Decreased

(7.52.7) Please explain

For years 2020-2022, VOCs emissions have been updated for upstream operations, based on the methane emissions measurement program, which covered around 95% of the company's operations, focusing mostly on fugitive and venting emissions. The VOCs (or NMVOCs) emissions identified, were included in the emissions inventory from year 2020 onwards (on a yearly basis), considering: all the sources identified, the sources that were closed and the sources which had mitigation actions. For example, for year 2022 these data adjustments increased the VOCs emissions in 98 Kt/y approximately, compared with the VOC emissions reported last year. - In 2023, the estimation of VOCs emissions for the Cartagena Refinery storage tanks was updated, due to the implementation of a new calculation software, which improved the quality of input operational data, and thus, the VOCs emissions were reduced in approximately 3 Kt/y against the 2022 emissions. The historical data for 2022 and previous years could not be updated as operational data was not available. The new software is still under implementation for Barrancabermeja refinery storage tanks. - As a result of the methane emissions reduction program in the upstream operations, some of the sources (fugitive and venting) identified in the previous years were repaired or closed during 2023, which resulted in a reduction of the VOCs (or NMVOCs) emissions in approximately 32 Kt/y. - Additionally, the VOCs emissions inventory increased in some fields because the increased flow of wastewater treated against the year 2022.

Row 5

(7.52.1) Description

Select from:

☒ Energy usage

(7.52.2) Metric value

7929

(7.52.3) Metric numerator

Total energy consumption, in GWh

(7.52.4) Metric denominator (intensity metric only)

NA

(7.52.5) % change from previous year

8.33

(7.52.6) Direction of change

Select from:

☒ Increased

(7.52.7) Please explain

Consumed energy increased due to operational conditions.

Row 6

(7.52.1) Description

Select from:

☒ Other, please specify :Risk management - Compliance with emission reduction target

(7.52.2) Metric value

1.43

(7.52.3) Metric numerator

Achieved emission reduction in tCO2e

(7.52.4) Metric denominator (intensity metric only)

Targeted emission reduction per year in tCO2e

(7.52.5) % change from previous year

0

(7.52.6) Direction of change

Select from:

☒ No change

(7.52.7) Please explain

This metric monitors emission reduction progress based on the annual target established by Ecopetrol. It is measured monthly, allowing us to manage any possible delay. This metric is built based on new reduction initiatives identified for the year. For this reason, it is not possible to compare changes regarding the previous year. In 2023, the emission reduction target established by Ecopetrol was 407,040 tCO2e; the achieved emission reduction was 581,532 tCO2e, exceeding by 43% the established target.

Row 7

(7.52.1) Description

Select from:

☒ Waste

(7.52.2) Metric value

114990

(7.52.3) Metric numerator

Total hazardous waste generated in kton

(7.52.4) Metric denominator (intensity metric only)

NA

(7.52.5) % change from previous year

39.07

(7.52.6) Direction of change

Select from:

☒ Decreased

(7.52.7) Please explain

- The MARS-E application streamlines the assessment of hazardous and non-hazardous waste management, allowing for precise identification of improvement opportunities, generating reports on waste generation, and managing the documentation necessary for legal compliance. This information aids decision-making for continuous performance enhancement. - The hazardous waste generated, ranked from highest to lowest quantity, includes: 80,324 tons of oily sludges, 14,796 tons of soils contaminated with hydrocarbons, and 9,119 tons of oil-based cuttings.

Row 8

(7.52.1) Description

Select from:

☒ Waste

(7.52.2) Metric value

454029

(7.52.3) Metric numerator

Total non-hazardous waste generated in kton

(7.52.4) Metric denominator (intensity metric only)

NA

(7.52.5) % change from previous year

67.92

(7.52.6) Direction of change

Select from:

☒ Increased

(7.52.7) Please explain

- The MARS-E application streamlines the assessment of hazardous and non-hazardous waste management, allowing for precise identification of improvement opportunities, generating reports on waste generation, and managing the documentation necessary for legal compliance. This information aids decision-making for continuous performance enhancement. - In terms of non-hazardous waste, the most significant contributors are: construction and demolition waste (CDW) totaling 252,502 tons, waterbased cuttings amounting to 113,684 tons, and scrap metal reaching 44,755 tons. Notably, non-hazardous waste has seen a 68% increase compared to 2022 data. This surge can be attributed to several factors: (i) the implementation of a new reporting application, enhancing accuracy and reliability in data recording, potentially influencing perceived trends, (ii) heightened construction and road maintenance activities in new areas, and (iii) ongoing dismantling and abandonment initiatives in the Foothills (Piedmonte) region and within exploratory assets.

[Add row]

(7.53) Did you have an emissions target that was active in the reporting year?

Select all that apply

☒ Absolute target

(7.53.1) Provide details of your absolute emissions targets and progress made against those targets.

Row 1

(7.53.1.1) Target reference number

Select from:

☒ Abs 1

(7.53.1.2) Is this a science-based target?

Select from:

☒ No, and we do not anticipate setting one in the next two years

(7.53.1.5) Date target was set

03/25/2021

(7.53.1.6) Target coverage

Select from:

☒ Organization-wide

(7.53.1.7) Greenhouse gases covered by target

Select all that apply

☒ Carbon dioxide (CO₂)

☒ Methane (CH₄)

☒ Nitrous oxide (N₂O)

(7.53.1.8) Scopes

Select all that apply

☒ Scope 1

☒ Scope 2

(7.53.1.9) Scope 2 accounting method

Select from:

☒ Market-based

(7.53.1.11) End date of base year

12/31/2019

(7.53.1.12) Base year Scope 1 emissions covered by target (metric tons CO₂e)

13008774

(7.53.1.13) Base year Scope 2 emissions covered by target (metric tons CO₂e)

697337

(7.53.1.31) Base year total Scope 3 emissions covered by target (metric tons CO₂e)

0.000

(7.53.1.32) Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

13706111.000

(7.53.1.33) Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

(7.53.1.34) Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

100

(7.53.1.53) Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

(7.53.1.54) End date of target

12/31/2030

(7.53.1.55) Targeted reduction from base year (%)

25

(7.53.1.56) Total emissions at end date of target covered by target in all selected Scopes (metric tons CO2e)

10279583.250

(7.53.1.57) Scope 1 emissions in reporting year covered by target (metric tons CO2e)

12005388

(7.53.1.58) Scope 2 emissions in reporting year covered by target (metric tons CO2e)

744264

(7.53.1.77) Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

12749652.000

(7.53.1.78) Land-related emissions covered by target

Select from:

☒ No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

(7.53.1.79) % of target achieved relative to base year

27.91

(7.53.1.80) Target status in reporting year

Select from:

☒ Underway

(7.53.1.82) Explain target coverage and identify any exclusions

In March 2021, Ecopetrol announced its commitment to reduce its emissions by 25% compared to the 2019 baseline, and to achieve net-zero emissions by 2050 (scopes 1 and 2). Additionally, Ecopetrol seeks to reduce 50% of its total emissions by 2050 (scopes 1, 2 and 3). The established goal by 2030 cover scope 1 and 2 emissions generated by Ecopetrol Business Group, which in 2019 were estimated at 13.5 MtCO2e. This amount included an initial estimate of 2MtCO2e additional to those emitted directly by Ecopetrol SA, which correspond to emissions from subsidiaries, and equity shares. In order to better consolidate and report total emissions for the Ecopetrol Business Group as of 2024, this additional estimate is being reviewed for each of the subsidiaries, and for the assets not directly operated by the company, to standardize the calculation methodologies and to incorporate the emissions of the entire group in the information management tool currently used by Ecopetrol (SIGEA - SAP EC).

(7.53.1.83) Target objective

As part of Ecopetrol's efforts to contribute to the Sustainable Development Goals, the Paris Agreement and Colombia's Nationally Determined Contribution (NDC), and in line with its commitment to mitigate climate change, advance with the energy transition and its T ESG agenda, the company maintains its commitment to achieve zero net GHG emissions by 2050 (scopes 1 and 2) and to move towards a fair and equitable energy transition.

(7.53.1.84) Plan for achieving target, and progress made to the end of the reporting year

The achievement of this target is part of the net-zero roadmap, with the following action lines: i. GHG emissions information management, which includes continuous improvement of the GHG inventory, third party verification and development of technological tools to optimize data management for greater traceability, transparency and information analysis for decision making; ii. Reduction of GHG emissions, which includes the establishment, monitoring and review of decarbonization goals, the development of initiatives in technological levers such as energy efficiency, leakage and venting reduction, reduction of flaring and renewable energies, the evaluation of emerging technologies (Hydrogen and Carbon Capture, Sequestration and Use - CCUS), the permanent identification of mitigation opportunities, the updating of emission projection scenarios and the gap closure analysis for the fulfillment of goals; iii. Strategic portfolio management, including actions such as implementation of the internal carbon price as an evaluation criterion for capital allocation decisions, analysis of assets with a focus on emissions and generation of value for the group, definition of climate change criteria for the analysis of the incorporation and divestment of assets, and evaluation of other economic instruments that promote the development of low-carbon projects; iv. Emissions offsets, this lever implements the Natural Climate Solutions Portfolio to enable the supply of carbon credits and the development of a robust and standardized strategy for trading carbon credits. Annually, the company establishes a goal that considers the contribution of specific projects in different segments of the company. In 2023, the achieved reduction through new project implementation was 581,532 tCO2e, exceeding the original goal of 407,040 tCO2e. The accumulated GHG emissions reduction between 2020-2023 is 1,491,645 tCO2e. This accumulated reduction is part of Ecopetrol's short-term reduction target, which is to reduce 1.6 million tons of CO2e in the 2020-2024 period

(7.53.1.85) Target derived using a sectoral decarbonization approach

Select from:

☒ No

[Add row]

(7.54) Did you have any other climate-related targets that were active in the reporting year?

Select all that apply

☒ Targets to increase or maintain low-carbon energy consumption or production

☒ Targets to reduce methane emissions

☒ Net-zero targets

☒ Other climate-related targets

(7.54.1) Provide details of your targets to increase or maintain low-carbon energy consumption or production.

Row 1

(7.54.1.1) Target reference number

Select from:

☒ Low 1

(7.54.1.2) Date target was set

01/01/2018

(7.54.1.3) Target coverage

Select from:

☒ Organization-wide

(7.54.1.4) Target type: energy carrier

Select from:

☒ Electricity

(7.54.1.5) Target type: activity

Select from:

☒ Consumption

(7.54.1.6) Target type: energy source

Select from:

☒ Renewable energy source(s) only

(7.54.1.7) End date of base year

12/31/2017

(7.54.1.8) Consumption or production of selected energy carrier in base year (MWh)

0

(7.54.1.9) % share of low-carbon or renewable energy in base year

(7.54.1.10) End date of target

12/31/2023

(7.54.1.11) % share of low-carbon or renewable energy at end date of target

24.4

(7.54.1.12) % share of low-carbon or renewable energy in reporting year

27.6

(7.54.1.13) % of target achieved relative to base year

113.11

(7.54.1.14) Target status in reporting year*Select from:*☒ Achieved**(7.54.1.16) Is this target part of an emissions target?***Yes. Low-carbon energy consumption would reduce scope 2 emissions. This target is part of Abs1 and NZ1.***(7.54.1.17) Is this target part of an overarching initiative?***Select all that apply*☒ No, it's not part of an overarching initiative**(7.54.1.19) Explain target coverage and identify any exclusions**

The target covers renewable energy consumption (self-generation) company-wide. Currently, the self-generated energy matrix has three sources: gas, liquid fossil fuels, and renewable energies (mainly, solar and hydro). The target is to increase the share of renewable energy installed capacity in the self-generated matrix. Self-generated electricity capacity with fossil fuels (gas and liquid) may vary, and even increase, in the future because these sources will be considered as a backup.

(7.54.1.20) Target objective

In terms of self-generation of non-conventional renewable energy, the aspiration is to increase renewable energy consumption company wide. The integration of alternative sources are paramount for Ecopetrol's growth and sustainability within the context of Energy Transition. The target allows i) Savings in energy efficiency; ii) GHG emissions reduction; iii) cost optimization.

(7.54.1.22) List the actions which contributed most to achieving this target

Ecopetrol has a robust portfolio with several alternatives to secure the goal of MW installed and GHG emissions reduction to mitigate potential negative impacts. By 2023, Ecopetrol reached a capacity of 472 MW of renewable energy through projects in execution, construction, and operation by the end of 2023. This capacity is more than double what was recorded at the end of 2022, which stood at 208 MW. This significant progress contributes to the continued strengthening of EG's self-generation capacity with renewable sources, leveraging a diversified portfolio of projects based on solar photovoltaic energy, wind energy, geothermal sources, biomass, among others. From 2020 to 2023, a total of 9 projects have been fully implemented (2 in 2021, 3 in 2022, and 6 in 2023). In 2023, the implementation of new projects allowed the reduction of 8,565 tCO₂e. In the 2021-2023 period, the cumulative reduction is 19,737 tCO₂e.

Row 2

(7.54.1.1) Target reference number

Select from:

☒ Low 2

(7.54.1.2) Date target was set

01/01/2018

(7.54.1.3) Target coverage

Select from:

☒ Organization-wide

(7.54.1.4) Target type: energy carrier

Select from:

☒ Electricity

(7.54.1.5) Target type: activity

Select from:

☒ Consumption

(7.54.1.6) Target type: energy source

Select from:

☒ Renewable energy source(s) only

(7.54.1.7) End date of base year

12/31/2017

(7.54.1.8) Consumption or production of selected energy carrier in base year (MWh)

0

(7.54.1.9) % share of low-carbon or renewable energy in base year

0

(7.54.1.10) End date of target

12/31/2025

(7.54.1.11) % share of low-carbon or renewable energy at end date of target

42.1

(7.54.1.12) % share of low-carbon or renewable energy in reporting year

27.6

(7.54.1.13) % of target achieved relative to base year

65.56

(7.54.1.14) Target status in reporting year

Select from:

☒ Underway

(7.54.1.16) Is this target part of an emissions target?

Yes. Low-carbon energy consumption would reduce scope 2 emissions. This target is part of Abs1 and NZ1.

(7.54.1.17) Is this target part of an overarching initiative?

Select all that apply

☒ No, it's not part of an overarching initiative

(7.54.1.19) Explain target coverage and identify any exclusions

The target covers renewable energy consumption (self-generation) company-wide. Currently, the self-generated energy matrix has three sources: gas, liquid fossil fuels, and renewable energies (mainly, solar and hydro). The target is to increase the share of renewable energy installed capacity in the self-generated matrix. Self-generated electricity capacity with fossil fuels (gas and liquid) may vary, and even increase, in the future because these sources will be considered as a backup.

(7.54.1.20) Target objective

In terms of self-generation of non-conventional renewable energy, the aspiration is to increase renewable energy consumption company wide. The integration of alternative sources are paramount for Ecopetrol's growth and sustainability within the context of Energy Transition. The target allows i) Savings in energy efficiency; ii) GHG emissions reduction; iii) cost optimization.

(7.54.1.21) Plan for achieving target, and progress made to the end of the reporting year

Ecopetrol has a robust portfolio with several alternatives to secure the goal of MW installed and GHG emissions reduction to mitigate potential negative impacts. By 2023, Ecopetrol reached a capacity of 472 MW of renewable energy through projects in execution, construction, and operation by the end of 2023. This capacity is more than double what was recorded at the end of 2022, which stood at 208 MW. This significant progress contributes to the continued strengthening of EG's self-generation capacity with renewable sources, leveraging a diversified portfolio of projects based on solar photovoltaic energy, wind energy, geothermal sources,

biomass, among others. Also, the Company achieved notable milestones, such as: i) conducting wind potential measurements in the departments of Huila and Casanare; ii) signing a Memorandum of Understanding with Baker Hughes and the Caldas Hydroelectric Plant to explore possibilities for geothermal energy generation in Valle de Nereidas; and iii) reaching an agreement with EDF Colombia and Refocosta, enabling Ecopetrol to purchase energy from a forest biomass power generation plant in the municipality of Villanueva, Department of Casanare. Similarly, Ecopetrol announced the initiation of the first low-emission hydrogen-powered sustainable mobility project in public transportation in Colombia. This project involves a bus in the Integrated Public Transportation System (SITP) in Bogotá, currently undergoing testing and preparation for future operation.

Row 3

(7.54.1.1) Target reference number

Select from:

☒ Low 3

(7.54.1.2) Date target was set

01/01/2018

(7.54.1.3) Target coverage

Select from:

☒ Organization-wide

(7.54.1.4) Target type: energy carrier

Select from:

☒ Electricity

(7.54.1.5) Target type: activity

Select from:

☒ Consumption

(7.54.1.6) Target type: energy source

Select from:

☒ Renewable energy source(s) only

(7.54.1.7) End date of base year

12/31/2017

(7.54.1.8) Consumption or production of selected energy carrier in base year (MWh)

0

(7.54.1.9) % share of low-carbon or renewable energy in base year

0

(7.54.1.10) End date of target

12/31/2030

(7.54.1.11) % share of low-carbon or renewable energy at end date of target

44.7

(7.54.1.12) % share of low-carbon or renewable energy in reporting year

27.6

(7.54.1.13) % of target achieved relative to base year

61.74

(7.54.1.14) Target status in reporting year

Select from:

☒ Underway

(7.54.1.16) Is this target part of an emissions target?

Yes. Low-carbon energy consumption would reduce scope 2 emissions. This target is part of Abs1 and NZ1.

(7.54.1.17) Is this target part of an overarching initiative?

Select all that apply

☒ No, it's not part of an overarching initiative

(7.54.1.19) Explain target coverage and identify any exclusions

The target covers renewable energy consumption (self-generation) company-wide. Currently, the self-generated energy matrix has three sources: gas, liquid fossil fuels, and renewable energies (mainly, solar and hydro). The target is to increase the share of renewable energy installed capacity in the self-generated matrix. Self-generated electricity capacity with fossil fuels (gas and liquid) may vary, and even increase, in the future because these sources will be considered as a backup.

(7.54.1.20) Target objective

In terms of self-generation of non-conventional renewable energy, the aspiration is to increase renewable energy consumption company wide. The integration of alternative sources are paramount for Ecopetrol's growth and sustainability within the context of Energy Transition. The target allows i) Savings in energy efficiency; ii) GHG emissions reduction; iii) cost optimization.

(7.54.1.21) Plan for achieving target, and progress made to the end of the reporting year

Ecopetrol has a robust portfolio with several alternatives to secure the goal of MW installed and GHG emissions reduction to mitigate potential negative impacts. By 2023, Ecopetrol reached a capacity of 472 MW of renewable energy through projects in execution, construction, and operation by the end of 2023. This capacity is more than double what was recorded at the end of 2022, which stood at 208 MW. This significant progress contributes to the continued strengthening of EG's self-generation capacity with renewable sources, leveraging a diversified portfolio of projects based on solar photovoltaic energy, wind energy, geothermal sources, biomass, among others. Also, the Company achieved notable milestones, such as: i) conducting wind potential measurements in the departments of Huila and Casanare; ii) signing a Memorandum of Understanding with Baker Hughes and the Caldas Hydroelectric Plant to explore possibilities for geothermal energy generation in Valle de Nereidas; and iii) reaching an agreement with EDF Colombia and Refocosta, enabling Ecopetrol to purchase energy from a forest biomass power generation plant in the municipality of Villanueva, Department of Casanare. Similarly, Ecopetrol announced the initiation of the first low-emission hydrogen-powered sustainable mobility project in public transportation in Colombia. This project involves a bus in the Integrated Public Transportation System (SITP) in Bogotá, currently undergoing testing and preparation for future operation.

[Add row]

(7.54.2) Provide details of any other climate-related targets, including methane reduction targets.

Row 1

(7.54.2.1) Target reference number

Select from:

☒ Oth 1

(7.54.2.2) Date target was set

01/01/2018

(7.54.2.3) Target coverage

Select from:

☒ Organization-wide

(7.54.2.4) Target type: absolute or intensity

Select from:

☒ Absolute

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

☒ GJ

(7.54.2.7) End date of base year

12/31/2017

(7.54.2.8) Figure or percentage in base year

0

(7.54.2.9) End date of target

(7.54.2.10) Figure or percentage at end of date of target

13300000

(7.54.2.11) Figure or percentage in reporting year

10860000

(7.54.2.12) % of target achieved relative to base year

81.6541353383

(7.54.2.13) Target status in reporting year

Select from:

☒ Revised**(7.54.2.14) Explain the reasons for the revision, replacement, or retirement of the target**

The effective utilization of energy and the integration of alternative sources are paramount for Ecopetrol's growth and sustainability within the context of Energy Transition. Last year, Ecopetrol reported targets Oth1 as energy efficiency, measured in %. In 2023, Ecopetrol reaffirmed its 2040 Strategy and implemented three (3) adjustments, with one specifically tied to the strategic objective of energy efficiency. This adjustment entails a 25 PJ reduction in cumulative internal energy consumption from 2018 to 2030, encompassing various energy sources such as Gas, Crude, Electricity, and Liquid Fuels. This represents a shift in reporting practices, as previous years only indicated the percentage reduction in electricity consumption. The new goal involves optimizing the use of all energy sources. The Energy Efficiency Program has successfully overseen the optimization of asset energy performance, relying on a methodology aligned with ISO 50001:2019. This program focuses on two key actions: i) operational control and ii) technological improvement. This target has an intermediate ambition, which is to reduce cumulative internal energy consumption from 2018 to 2026 by 13.3 PJ. As mentioned earlier, the targets are measured in PJ. Figures reported here are in GJ, considering 1PJ1.000.000 GJ.

(7.54.2.15) Is this target part of an emissions target?

Yes. This target aims at reducing energy consumption which means scope 1 and 2 emissions will also be reduced. This target is part of Abs1 and NZ1.

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply

☒ No, it's not part of an overarching initiative

(7.54.2.18) Please explain target coverage and identify any exclusions

The target covers all facilities where Ecopetrol has operational control, which means that includes Ecopetrol and Cartagena Refinery facilities.

(7.54.2.19) Target objective

The effective utilization of energy and the integration of alternative sources are paramount for Ecopetrol's growth and sustainability within the context of Energy Transition. The target allows i) Savings in energy efficiency; ii) GHG emissions reduction; and iii) cost optimization.

(7.54.2.20) Plan for achieving target, and progress made to the end of the reporting year

Ecopetrol has established a low-emissions solutions business line with the objective of conceptualizing and developing an integral portfolio of energy solutions for the diversification and decarbonization of Ecopetrol's operations. This business line includes development of Gas, LPG, biogas, energy management, renewable energies (solar, wind, geothermal), hydrogen, CCUS, among others. Specifically, it includes the permanent optimization of energy systems (both electrical, and thermal), increasing the reliability of energy supply for its own operations. It also includes incorporating operational improvements, and new technologies. In 2023, the energy efficiency initiatives included mainly projects of technological upgrading (equipment revamping, Permanent Magnet Motors massification, lighting systems), process optimization, and operational control optimization. These initiatives allowed the reduction of 306,265 tCO₂e.

Row 2

(7.54.2.1) Target reference number

Select from:

☒ Oth 2

(7.54.2.2) Date target was set

01/01/2018

(7.54.2.3) Target coverage

Select from:

☒ Organization-wide

(7.54.2.4) Target type: absolute or intensity

Select from:

☒ Absolute

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

☒ GJ

(7.54.2.7) End date of base year

12/31/2017

(7.54.2.8) Figure or percentage in base year

0

(7.54.2.9) End date of target

12/31/2030

(7.54.2.10) Figure or percentage at end of date of target

25000000

(7.54.2.11) Figure or percentage in reporting year

10860000

(7.54.2.12) % of target achieved relative to base year

43.4400000000

(7.54.2.13) Target status in reporting year

Select from:

☒ Revised

(7.54.2.14) Explain the reasons for the revision, replacement, or retirement of the target

The effective utilization of energy and the integration of alternative sources are paramount for Ecopetrol's growth and sustainability within the context of Energy Transition. Last year, Ecopetrol reported targets Oth1 as energy efficiency, measured in %. In 2023, Ecopetrol reaffirmed its 2040 Strategy and implemented three (3) adjustments, with one specifically tied to the strategic objective of energy efficiency. This adjustment entails a 25 PJ reduction in cumulative internal energy consumption from 2018 to 2030, encompassing various energy sources such as Gas, Crude, Electricity, and Liquid Fuels. This represents a shift in reporting practices, as previous years only indicated the percentage reduction in electricity consumption. The new goal involves optimizing the use of all energy sources. The Energy Efficiency Program has successfully overseen the optimization of asset energy performance, relying on a methodology aligned with ISO 50001:2019. This program focuses on two key actions: i) operational control and ii) technological improvement. This target has an intermediate ambition, which is to reduce cumulative internal energy consumption from 2018 to 2026 by 13.3 PJ. As mentioned earlier, the targets are measured in PJ. Figures reported here are in GJ, considering 1PJ1.000.000 GJ.

(7.54.2.15) Is this target part of an emissions target?

Yes. This target aims at reducing energy consumption which means scope 1 and 2 emissions will also be reduced. This target is part of Abs1 and NZ1.

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply

☒ No, it's not part of an overarching initiative

(7.54.2.18) Please explain target coverage and identify any exclusions

The target covers all facilities where Ecopetrol has operational control, which means that includes Ecopetrol and Cartagena Refinery facilities.

(7.54.2.19) Target objective

The effective utilization of energy and the integration of alternative sources are paramount for Ecopetrol's growth and sustainability within the context of Energy Transition. The target allows i) Savings in energy efficiency; ii) GHG emissions reduction; and iii) cost optimization.

(7.54.2.20) Plan for achieving target, and progress made to the end of the reporting year

Ecopetrol has established a low-emissions solutions business line with the objective of conceptualizing and developing an integral portfolio of energy solutions for the diversification and decarbonization of Ecopetrol's operations. This business line includes development of Gas, LPG, biogas, energy management, renewable

energies (solar, wind, geothermal), hydrogen, CCUS, among others. Specifically, it includes the permanent optimization of energy systems (both electrical, and thermal), increasing the reliability of energy supply for its own operations. It also includes incorporating operational improvements, and new technologies. In 2023, the energy efficiency initiatives included mainly projects of technological upgrading (equipment revamping, Permanent Magnet Motors massification, lighting systems), process optimization, and operational control optimization. These initiatives allowed the reduction of 306,265 tCO2e.

Row 3

(7.54.2.1) Target reference number

Select from:

☒ Oth 3

(7.54.2.2) Date target was set

01/31/2020

(7.54.2.3) Target coverage

Select from:

☒ Business division

(7.54.2.4) Target type: absolute or intensity

Select from:

☒ Absolute

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Methane reduction target

☒ Other methane reduction target, please specify :Reduction of routine flaring (Zero Routine Flaring), measured in Million scf.

(7.54.2.7) End date of base year

12/31/2020

(7.54.2.8) Figure or percentage in base year

6667

(7.54.2.9) End date of target

12/31/2030

(7.54.2.10) Figure or percentage at end of date of target

0

(7.54.2.11) Figure or percentage in reporting year

5808

(7.54.2.12) % of target achieved relative to base year

12.8843557822

(7.54.2.13) Target status in reporting year

Select from:

☒ Underway

(7.54.2.15) Is this target part of an emissions target?

Yes, it is part of the net-zero roadmap. Flaring reduction is one of the main levers to achieve the target. This target is part of Abs1 and NZ1.

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply

☒ Other, please specify :Zero Routine Flaring by 2030 lead by World Bank

(7.54.2.18) Please explain target coverage and identify any exclusions

The target covers upstream flaring reduction. It does not cover downstream flaring. Regarding upstream flaring, the target covers all production facilities where Ecopetrol has operational control. Last year, the reported flaring data in the reporting year and in the base year corresponded to the annual total gas flaring due to the company's operations, because Ecopetrol did not have the information segregated into routine, non-routine, and emergency flaring. In 2022 and 2023, Ecopetrol made progress in characterizing which flaring activities are routine, non-routine, and emergency. In June 2023, Ecopetrol prepared the second ZRF report with 2022 data, where the information was disaggregated, for the first time, into total, routine, non-routine, and safety flaring. This year, Ecopetrol prepared the third ZRF report with 2023 data. In 2023, total flaring was reported at 8.300 million cubic feet and routine flaring at 5.800 million cubic feet with a reduction of 12.9% with respect to 2022.

(7.54.2.19) Target objective

Currently, the objective is to achieve compliance with national regulation (Resolution 40066 of 2022 of the Ministry of Mines and Energy of Colombia) which aims to reduce exploration and production routine flaring when it is economically possible. This national regulation is aligned with the Zero Routine Flaring initiative. However, Ecopetrol set the target before the regulation was established.

(7.54.2.20) Plan for achieving target, and progress made to the end of the reporting year

To manage flaring emissions, Ecopetrol designed a guide that establishes the internal guidelines required for the implementation of the "Zero Routine Flaring by 2030" initiative, which includes the methodology for estimating the reduction of emissions related to gas flaring. This guide is aligned with Resolution 40066 issued by the Ministry of Mines and Energy. Currently, Ecopetrol is developing a roadmap that will help the company achieve zero routine flaring by 2030, considering that flares should only be used as emergency devices, therefore it is essential to consider the following information: flares inventory, identification of projects, strategic challenges, potential flare volumes to optimize, economic benefits, required resources, optimization lines, definition of performance indicators for different areas, definition and permanent monitoring, among others. This target will be achieved through evaluation and implementation of projects for use of gas, that is currently flared and through process optimization. These are the main actions to reduce routine flaring: - Convert associated gas to electrical power: Gas turbines convert gases that would otherwise be flared into electricity. The electricity is used on-site to power equipment. - Recover associated gas using vapor recovery units: Vapor recovery units capture gas flashed from tanks and compress it into the gas line so that it can be sold rather than released or flared. - Associated gas recovery: Gas is treated to remove water, sulphur, and carbon dioxide and then compressed on-site to produce compressed natural gas (CNG) and a natural gas liquids (NGL) product. Ecopetrol has a decarbonization plan which includes an emission reduction program. One of the main levers is Flaring optimization. This includes projects associated with the optimization of flared gas through sale, use for self-generation, or process optimization. 36 projects have been executed in the 2020-2023 period (6 in 2020, 9 in 2021, 9 in 2022, and 12 in 2023). In 2023, this initiative allowed the reduction of 71,734 tCO₂e. In 2024, it is expected to reduce more than 14,000 tCO₂e with the implementation of new projects.

Row 4

(7.54.2.1) Target reference number

Select from:

☒ Oth 4

(7.54.2.2) Date target was set

03/23/2023

(7.54.2.3) Target coverage

Select from:

☒ Business division

(7.54.2.4) Target type: absolute or intensity

Select from:

☒ Absolute

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Methane reduction target

☒ Total methane emissions in CO2e

(7.54.2.7) End date of base year

12/31/2019

(7.54.2.8) Figure or percentage in base year

1740172

(7.54.2.9) End date of target

12/31/2025

(7.54.2.10) Figure or percentage at end of date of target

957095

(7.54.2.11) Figure or percentage in reporting year

1339100

(7.54.2.12) % of target achieved relative to base year

51.2174409413

(7.54.2.13) Target status in reporting year

Select from:

☒ Underway

(7.54.2.15) Is this target part of an emissions target?

Yes. This target aims at reducing upstream methane emissions which means scope 1 emissions will also be reduced. This target is part of Abs1 and NZ1.

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply

☒ Other, please specify :Climate and Clean Air Coalition (CCAC) Oil and Gas Methane Partnership (OGMP 2.0) Aiming for Zero Methane Emissions

(7.54.2.18) Please explain target coverage and identify any exclusions

The target covers upstream methane emissions reduction. It does not cover downstream methane emissions reduction. Regarding upstream, the target covers all production facilities where Ecopetrol has operational control. The reported figures corresponds to fugitive and venting emissions. Originally, the target is measured directly in tonnes of methane. However, figures reported here are converted to tonnes of CO2 equivalent, using IPCC's Global Warming Potential (GWP). In the fifth assessment report (AR5), methane GWP is 28.

(7.54.2.19) Target objective

Currently, the objective is to achieve compliance with national regulation (Resolution 40066 of 2022 of the Ministry of Mines and Energy of Colombia) which aims to reduce exploration and production methane emissions (vented or leaked) when it is economically possible.

(7.54.2.20) Plan for achieving target, and progress made to the end of the reporting year

To the date, Ecopetrol has advanced in methane emissions detection and quantification using different cutting-edge technologies such as infrared cameras and flow meters (bottom-up approach), as well as satellite image analysis and flights with methane sensors (top-down approach) with which it has evaluated about 95% of the company's operations. To date, more than 1,700 identified leaks have been closed. Ecopetrol has also joined global initiatives such as the Climate and Clean Air Coalition (CCAC) and the Oil and Gas Methane Partnership (OGMP 2.0) led by the United Nations, with the purpose of exchanging knowledge, accessing cooperation resources and new technologies for detecting, measuring, and reducing methane emissions. This methane reduction target complements the company's announced commitment to achieve net zero emissions by 2050 (Scope 1 and 2) and to reduce 25% of its CO₂e emissions by 2030 compared to the 2019 baseline (scopes 1 and 2). It also seeks to contribute to: i) the commitment acquired by the country at the Conference of the Parties-COP26 held in Glasgow in 2021, to reduce 30% of methane emissions by 2030; and ii) to the challenges established in the Paris Agreement to mitigate global warming. Ecopetrol will develop periodic reviews of the goal, analyzing technological, operational and economic aspects with the ambition of approaching zero methane emissions generated in upstream over the next decade, in line with the pioneering companies in the industry. Ecopetrol has a decarbonization plan which includes an emission reduction program. One of the main levers is Fugitive and venting reduction. This includes projects associated with the elimination of leaks and vents in the processes. 45 projects have been executed in the 2020-2023 period (6 in 2020, 8 in 2021, 9 in 2022, and 22 in 2023). In 2023, this initiative allowed the reduction of 194,968 tCO₂e, through the detection, measurement and elimination of fugitive emissions and the reduction of venting in tanks and wells.

Row 5

(7.54.2.1) Target reference number

Select from:

☒ Oth 5

(7.54.2.2) Date target was set

03/23/2023

(7.54.2.3) Target coverage

Select from:

☒ Business division

(7.54.2.4) Target type: absolute or intensity

Select from:

☒ Absolute

(7.54.2.5) Target type: category & Metric (target numerator if reporting an intensity target)

Methane reduction target

☒ Total methane emissions in CO2e

(7.54.2.7) End date of base year

12/31/2019

(7.54.2.8) Figure or percentage in base year

1740172

(7.54.2.9) End date of target

12/31/2030

(7.54.2.10) Figure or percentage at end of date of target

783077

(7.54.2.11) Figure or percentage in reporting year

1339100

(7.54.2.12) % of target achieved relative to base year

41.9051400331

(7.54.2.13) Target status in reporting year

Select from:

☒ Underway

(7.54.2.15) Is this target part of an emissions target?

Yes. This target aims at reducing upstream methane emissions which means scope 1 emissions will also be reduced. This target is part of Abs1 and NZ1.

(7.54.2.16) Is this target part of an overarching initiative?

Select all that apply

☒ Other, please specify :Climate and Clean Air Coalition (CCAC) Oil and Gas Methane Partnership (OGMP 2.0) Aiming for Zero Methane Emissions

(7.54.2.18) Please explain target coverage and identify any exclusions

The target covers upstream methane emissions reduction. It does not cover downstream methane emissions reduction. Regarding upstream, the target covers all production facilities where Ecopetrol has operational control. The reported figures corresponds to fugitive and venting emissions. Originally, the target is measured directly in tonnes of methane. However, figures reported here are converted to tonnes of CO2 equivalent, using IPCC's Global Warming Potential (GWP). In the fifth assessment report (AR5), methane GWP is 28.

(7.54.2.19) Target objective

Currently, the objective is to achieve compliance with national regulation (Resolution 40066 of 2022 of the Ministry of Mines and Energy of Colombia) which aims to reduce exploration and production methane emissions (vented or leaked) when it is economically possible.

(7.54.2.20) Plan for achieving target, and progress made to the end of the reporting year

To the date, Ecopetrol has advanced in methane emissions detection and quantification using different cutting-edge technologies such as infrared cameras and flow meters (bottom-up approach), as well as satellite image analysis and flights with methane sensors (top-down approach) with which it has evaluated about 95% of the company's operations. To date, more than 1,700 identified leaks have been closed. Ecopetrol has also joined global initiatives such as the Climate and Clean Air Coalition (CCAC) and the Oil and Gas Methane Partnership (OGMP 2.0) led by the United Nations, with the purpose of exchanging knowledge, accessing cooperation resources and new technologies for detecting, measuring, and reducing methane emissions. This methane reduction target complements the company's announced commitment to achieve net zero emissions by 2050 (Scope 1 and 2) and to reduce 25% of its CO2e emissions by 2030 compared to the 2019 baseline (scopes 1 and 2). It also seeks to contribute to: i) the commitment acquired by the country at the Conference of the Parties-COP26 held in Glasgow in 2021, to reduce 30% of methane emissions by 2030; and ii) to the challenges established in the Paris Agreement to mitigate global warming. Ecopetrol will develop periodic reviews of the goal, analyzing technological, operational and economic aspects with the ambition of approaching zero methane emissions generated in upstream over the next decade, in line with the pioneering companies in the industry. Ecopetrol has a decarbonization plan which includes an emission reduction program. One of the main levers is Fugitive and venting reduction. This includes projects associated with the elimination of leaks and vents in the processes. 45 projects have been executed in the 2020-2023 period (6 in 2020, 8 in 2021, 9 in 2022, and 22 in 2023). In 2023, this initiative allowed the reduction of 194,968 tCO2e, through the detection, measurement and elimination of fugitive emissions and the reduction of venting in tanks and wells. In 2024, it is expected to reduce more than 88,000 tCO2e with the implementation of new projects.

[Add row]

(7.54.3) Provide details of your net-zero target(s).

Row 1

(7.54.3.1) Target reference number

Select from:

☒ NZ1

(7.54.3.2) Date target was set

03/25/2021

(7.54.3.3) Target Coverage

Select from:

☒ Organization-wide

(7.54.3.4) Targets linked to this net zero target

Select all that apply

☒ Abs1

☒ Low1

☒ Low2

☒ Low3

(7.54.3.5) End date of target for achieving net zero

12/31/2050

(7.54.3.6) Is this a science-based target?

Select from:

☒ No, and we do not anticipate setting one in the next two years

(7.54.3.8) Scopes

Select all that apply

- ☒ Scope 1
- ☒ Scope 2

(7.54.3.9) Greenhouse gases covered by target

Select all that apply

- ☒ Carbon dioxide (CO₂)
- ☒ Methane (CH₄)
- ☒ Nitrous oxide (N₂O)

(7.54.3.10) Explain target coverage and identify any exclusions

The target is company-wide, it covers all activities in facilities where Ecopetrol has operational control. In March 2021, in line with its commitment to mitigate climate change, advance with the energy transition and its T ESG agenda, the Ecopetrol Group announced its goal of having net zero emissions by 2050 for scopes 1 and 2. Under this goal, the company ratifies its responsibility with the Sustainable Development Goals (SDGs) and with the Paris Agreement's purpose of curtailing global warming. The 2050 objective has intermediate goals and a short, medium and long-term portfolio, with some projects already implemented or in a research stage. By 2030, the Ecopetrol Group seeks to reduce its CO₂e emissions by 25% (scopes 1 and 2) compared to a 2019 baseline. According to the estimated emissions projected by 2030, this reduction represented an initial estimate of between 5 and 6 million tons of CO₂e reductions in this decade. In addition, Ecopetrol seeks to reduce 50% of its total emissions by 2050 (scopes 1, 2 and 3). Therefore, the published commitment includes the scopes 1 and 2 reduction target combined with a scope 3 reduction target. The target considers the reduction of 100% scope 1 and 2 emissions, and 45% of scope 3, to achieve a reduction of 50% of total GHG emissions (Scopes 1, 2 and 3). In March 2022, SBTi published a Fossil Fuels Policy, which indicates the following premises: (i) pauses the validation of fossil fuel sector targets, (ii) will not accept new commitments from companies or subsidiaries according to the defined categories, and (iii) removal of previous commitments by oil and gas sector companies immediately. The oil and gas guidance has not been published yet by SBTi, but it is expected by late 2024. Once the specific guidance is released, Ecopetrol will review its ambition and alignment with SBTi.

(7.54.3.11) Target objective

As part of Ecopetrol's efforts to contribute to the Sustainable Development Goals, the Paris Agreement and Colombia's Nationally Determined Contribution (NDC), and in line with its commitment to mitigate climate change, advance with the energy transition and its T ESG agenda, the company maintains its commitment to achieve zero net GHG emissions by 2050 (scopes 1 and 2) and to move towards a fair and equitable energy transition.

(7.54.3.12) Do you intend to neutralize any residual emissions with permanent carbon removals at the end of the target?

Select from:

- ☒ Yes

(7.54.3.13) Do you plan to mitigate emissions beyond your value chain?

Select from:

☒ Yes, and we have already acted on this in the reporting year

(7.54.3.14) Do you intend to purchase and cancel carbon credits for neutralization and/or beyond value chain mitigation?

Select all that apply

☒ Yes, we plan to purchase and cancel carbon credits for neutralization at the end of the target

(7.54.3.15) Planned milestones and/or near-term investments for neutralization at the end of the target

The net-zero roadmap includes: 2020- 2025: - Permanently update the inventory of emissions from direct operations, subsidiaries, and non-operated assets, including those associated with scope 3. - Implementation of initiatives identified for energy efficiency, reduction of fugitive emissions, venting and flaring, and renewable energies – solar, wind and geothermal. - Identifying additional initiatives for efficiency, flaring reduction, and biomass. - Developing the portfolio of Natural Climate Solutions. - Green hydrogen pilot. 2025-2030: - Implementing additional technological options in energy efficiency, reduction of fugitive emissions, venting and flaring, fuel substitution, and renewable energies – solar, wind and geothermal. - Further developing the portfolio of Natural Climate Solutions. - Gradually escalating green hydrogen and carbon capture, use and sequestration pilots – if the technologies are competitive. 2030-2050: - Capitalizing on the technological advancement of competitive initiatives in green hydrogen, carbon sequestration and renewable energy with storage through batteries. -Further developing the portfolio of Natural Climate Solutions. Additionally, according to the 2040 Corporate Strategy, the Company will neutralize around 30% of emissions through Natural Climate Solutions. Also, over the next three years more than USD 200 million is expected to be invested in green hydrogen projects in the Cartagena and Barrancabermeja refineries, and in CO2 capture projects through both emerging technologies (CCUS) and Natural Climate Solutions (NCS) projects. Also, Ecopetrol plans to neutralize, in 2050, around 30% of emissions. According to the 2040 Corporate Strategy, the Company will neutralize around 30% of emissions through Natural Climate Solutions. Also, over the next three years more than USD 200 million is expected to be invested in green hydrogen projects in the Cartagena and Barrancabermeja refineries, and in CO2 capture projects through both emerging technologies (CCUS) and Natural Climate Solutions (NCS) projects.

(7.54.3.16) Describe the actions to mitigate emissions beyond your value chain

According to Ecopetrol's strategy, around 30% of emissions will be neutralized through Natural Climate Solutions. It includes avoided deforestation projects, restoration and reforestation in agroforestry projects, wetland restoration, among others. It may also represent numerous social and environmental co-benefits to the territories where this strategy is implemented. In addition, these projects have the potential to effectively reduce net CO2 emissions and contribute to the country's Nationally Determined Contribution (NDC), considering that the main sources of emissions in Colombia (around 60%) are associated with deforestation and land use changes. In 2021, Ecopetrol started the Nature Climate Solutions portfolio implementation with the development of four (4) projects in partnership with The Nature Conservancy, Wildlife Conservation Society (WCS), Humboldt Institute, Acción Fund, ISA – Conexión Jaguar, Cataruben Foundation, and Natura Foundation, with a potential capture of more than 1 MtCO2/year. The accumulated potential of these projects, considering their life span, is more than 15 million tCO2. In Colombia, we have a unique global advantage in Natural Climate Solutions given our great potential in ecosystem diversity and its capacity to fix carbon. As a result of this, in joint work with the Colombian Petroleum Institute (ICP), the TERRA project (Carbon (CO2 capture potential in natural sinks in Colombia) was born. The main objective of

this project is to generate scientific knowledge associated with the estimation of carbon stocks and fluxes in ecosystems and sustainable production systems, as well as to direct the implementation efforts of Natural Climate Solutions as a decarbonization strategy for the operations of Ecopetrol and its Business Group. In addition, the goal is to develop technological products with an impact on the country in the fight against climate change, based on the development of the Integrated Digital Carbon Observation System and the updating of maps of coverage, deforestation and carbon inventory in Key Ecosystems. Further details can be found on the following link: <https://www.ecopetrol.com.co/wps/portal/Home/tesg/environmental/biodiversity-and-ecosystem-services/strategic-partners> and <https://www.ecopetrol.com.co/wps/portal/Home/tesg/environmental/biodiversity-and-ecosystem-services/our-ambition>

(7.54.3.17) Target status in reporting year

Select from:

☒ Underway

(7.54.3.19) Process for reviewing target

Ecopetrol will review its net zero target once SBTi releases the specific guidance for oil and gas sector. In March 2022, SBTi published a Fossil Fuels Policy, which indicates the following premises: (i) pauses the validation of fossil fuel sector targets, (ii) will not accept new commitments from companies or subsidiaries according to the defined categories, and (iii) removal of previous commitments by oil and gas sector companies immediately. The oil and gas guidance has not been published yet by SBTi, but it is expected by late 2024. Once the specific guidance is released, Ecopetrol will review its ambition and alignment with SBTi.
[Add row]

(7.55) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Select from:

☒ Yes

(7.55.1) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	34	`Numeric input
To be implemented	50	165132
Implementation commenced	27	137480
Implemented	64	444051
Not to be implemented	18	`Numeric input

[Fixed row]

(7.55.2) Provide details on the initiatives implemented in the reporting year in the table below.

Row 1

(7.55.2.1) Initiative category & Initiative type

Energy efficiency in production processes

☒ Process optimization

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

309656

(7.55.2.3) Scope(s) or Scope 3 category(ies) where emissions savings occur

Select all that apply

☒ Scope 1

☒ Scope 2 (market-based)

(7.55.2.4) Voluntary/Mandatory

Select from:

☒ Voluntary

(7.55.2.5) Annual monetary savings (unit currency – as specified in C0.4)

186315066418

(7.55.2.6) Investment required (unit currency – as specified in C0.4)

557092684678

(7.55.2.7) Payback period

Select from:

☒ 4-10 years

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☒ 21-30 years

(7.55.2.9) Comment

This program encompasses projects related to altering the energy matrix for a lower impact and optimizing processes. Between 2020 and 2023, a total of 128 projects were executed (14 in 2020, 24 in 2021, 41 in 2022, and 49 in 2023). The emission reductions from this pillar directly affect Scope 1 emissions, including gases such as CO₂, CH₄, and N₂O in the calculation. To calculate monetary figures, a COP-USD exchange rate of 4,330.14 was used. Figures are indicative based on available information on the initiatives developed in each lever.

Row 2

(7.55.2.1) Initiative category & Initiative type

Low-carbon energy consumption

☒ Solar PV

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

9730

(7.55.2.3) Scope(s) or Scope 3 category(ies) where emissions savings occur

Select all that apply

☒ Scope 2 (market-based)

(7.55.2.4) Voluntary/Mandatory

Select from:

☒ Voluntary

(7.55.2.5) Annual monetary savings (unit currency – as specified in C0.4)

191378067

(7.55.2.6) Investment required (unit currency – as specified in C0.4)

222235873554

(7.55.2.7) Payback period

Select from:

☒ 4-10 years

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☒ 21-30 years

(7.55.2.9) Comment

This program incorporates projects related to energy generation through renewable sources. From 2020 to 2023, a total of 9 projects were implemented (2 in 2021, 3 in 2022, and 6 in 2023). Emission reductions from this pillar directly impact Scope 2 emissions, with CO2e included in the calculation. To calculate monetary figures, a COP-USD exchange rate of 4,330.14 was used. Figures are indicative based on available information on the initiatives developed in each lever.

Row 3

(7.55.2.1) Initiative category & Initiative type

Fugitive emissions reductions

☒ Oil/natural gas methane leak capture/prevention

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

150317

(7.55.2.3) Scope(s) or Scope 3 category(ies) where emissions savings occur

Select all that apply

☒ Scope 1

(7.55.2.4) Voluntary/Mandatory

Select from:

☒ Voluntary

(7.55.2.5) Annual monetary savings (unit currency – as specified in C0.4)

90942297

(7.55.2.6) Investment required (unit currency – as specified in C0.4)

10008724643

(7.55.2.7) Payback period

Select from:

☒ 4-10 years

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☒ 6-10 years

(7.55.2.9) Comment

This program focuses on projects aimed at eliminating leaks and venting in various processes. 45 projects were executed over the period from 2020 to 2023 (6 in 2020, 8 in 2021, 9 in 2022, and 22 in 2023). The resulting emission reductions impact Scope 1 emissions, with the CH4 gases included in the calculation. To calculate monetary figures, a COP-USD exchange rate of 4,330.14 was used. Figures are indicative based on available information on the initiatives developed in each lever.

Row 4

(7.55.2.1) Initiative category & Initiative type

Waste reduction and material circularity

☒ Other, please specify :Flaring reduction

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

111828

(7.55.2.3) Scope(s) or Scope 3 category(ies) where emissions savings occur

Select all that apply

☒ Scope 1

(7.55.2.4) Voluntary/Mandatory

Select from:

☒ Voluntary

(7.55.2.5) Annual monetary savings (unit currency – as specified in C0.4)

9880048768

(7.55.2.6) Investment required (unit currency – as specified in C0.4)

247350419574

(7.55.2.7) Payback period

Select from:

☒ 1-3 years

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☒ 6-10 years

(7.55.2.9) Comment

This program involves projects dedicated to optimizing flaring volumes through sales, self-generation, or process improvements. From 2020 to 2023, a total of 36 projects were executed (6 in 2020, 9 in 2021, 9 in 2022, and 12 in 2023). Emission reductions from this pillar directly impact Scope 1 emissions, considering gases like CO2 and CH4 in the calculation. To calculate monetary figures, a COP-USD exchange rate of 4,330.14 was used. Figures are indicative based on available information on the initiatives developed in each lever.
[Add row]

(7.55.3) What methods do you use to drive investment in emissions reduction activities?

Row 1

(7.55.3.1) Method

Select from:

☒ Dedicated budget for energy efficiency

(7.55.3.2) Comment

Ecopetrol has the Energy Efficiency Program, with a dedicated budget, which aims to optimize the organization's energy performance, achieving a reduction in energy consumption and a reduction in GHG emissions as part of its decarbonization program objectives. This program is based on the ISO:50001 Standard.

Row 2

(7.55.3.1) Method

Select from:

☒ Internal price on carbon

(7.55.3.2) Comment

In 2020 Ecopetrol defined the methodology and implemented an internal price on carbon that incorporates the carbon dioxide emissions' impact (positive or negative) on investments economic valuations as a complementary decision-making criterion. Before 2022, the case with internal price on carbon was used as a sensitivity. In 2022, the methodology was updated, and the case with internal price on carbon became mandatory. One of the pivotal governance instruments in the Environmental Strategy and the "Climate Action" pillar is the roadmap, which enables the gradual definition of actions over time to solidify goals associated with the material issue of Climate Change. This roadmap encompasses five (5) strategic levers and their associated actions to effectively address the identified challenges and impacts: (i) Greenhouse Gas Emissions Reduction; (ii) Climate-Related Risk Management; (iii) Portfolio Strategic Management; (iv) Greenhouse Gas Emissions Offset; and (v) Greenhouse Gas Emissions Information Management. The portfolio strategic management corresponds to the analysis of the impact of business lines on climate ambition. The associated actions are: a) Implementation of internal carbon pricing as an evaluation criterion for decision-making in capital allocation. b) Asset analysis with a focus on emissions and value generation for the Business Group. c) Definition of Climate Change criteria for the analysis of asset incorporation and divestments. d) Evaluation of other economic instruments promoting the development of low-carbon projects. Currently, Ecopetrol has set an internal carbon price at US 25/tCO₂e in 2024, 40 US/tCO₂e between 2025 and 2029, and 50 US/tCO₂e from 2030 onwards, which will be used to assess and evaluate current and future projects and investments.

Row 3

(7.55.3.1) Method

Select from:

☒ Dedicated budget for low-carbon product R&D

(7.55.3.2) Comment

Ecopetrol's Center for Innovation and Technology (ICP, for its Spanish acronym) develops different projects, (studies on energy efficiencies, hydrogen, optimization in gas processes, etc.) including those that improve the efficiencies of processes in the hydrocarbon value chain to reduce the carbon footprint. In 2024, ICP changed its name to ICPET (Colombian Institute of Petroleum and Transition Energies), to become a major player in energy transition, generating innovation, development and science that will contribute to Colombia's energy transition and the transformation from fossil fuels to clean energy. ICPET will focus on energy transition, decarbonisation, circular economy and chemical recycling, among other aspects.

Row 4

(7.55.3.1) Method

Select from:

☒ Financial optimization calculations

(7.55.3.2) Comment

In 2021 an update of capital discipline criteria for resource allocation was conducted, considering the energy transition strategy of Ecopetrol, a lower hurdle discounted rate of return (minimum rate of return expected) was set for energy projects including renewables. This adjustment continued to be implemented in 2022 and 2023.

Row 5

(7.55.3.1) Method

Select from:

☒ Marginal abatement cost curve

(7.55.3.2) Comment

To prioritize emission reduction initiatives and capital allocation, the marginal abatement cost curve (MACC) was developed, which represents the CO₂e emissions abated by the different technology levers and its cost per reduced tonne of CO₂e. Ecopetrol's abatement initiatives portfolio is grouped into six technology levers: fugitive and venting, flaring, energy efficiency, renewable energy, hydrogen, and carbon capture, use and sequestration (CCUS). In 2023, Ecopetrol updated its Marginal Abatement Cost Curve (MACC) to identify emission reduction opportunities for closing Ecopetrol's gap to meet the 2030 emission reduction target. The MACC included adjustments on Ecopetrol's ambition regarding mature levers such as renewable energy, methane reduction projects, and energy efficiency.

Row 6

(7.55.3.1) Method

Select from:

☒ Internal incentives/recognition programs

(7.55.3.2) Comment

The company has a short-term variable compensation plan tied to business results that is applicable to all employees and reviewed annually through the Management Balanced Scorecards (TBGs, for its Spanish Acronym). Since 2010, Ecopetrol has been implementing greenhouse gas emissions (GHG) reduction projects in different operational areas, and since 2012 the company has implemented annual emission reduction targets. Each annual target is set by identifying projects from the portfolio that will be developed the following year. For 2023, the Management Balanced Scorecard includes a greenhouse gas (GHG) reduction goal that measures the cumulative reduction of emissions in the Ecopetrol Group in terms of CO2 equivalent (CO2, CH4, N2O), through the implementation of projects such as energy efficiency, process optimization, gas utilization, changes in the energy matrix, among others. The Long-Term Incentives (LTI) apply to company executives and each plan includes a GHG reduction target for each three-year period, aligned with the company's goal of reducing GHG emissions by 25% by 2030 (Scopes 1 and 2) and achieving zero net carbon emissions by 2050 (Scopes 1 and 2). Currently, Ecopetrol has implemented three LTI plans for the periods 2021-2023, 2022-2024, and 2023-2025.

[Add row]

(7.57) Describe your organization's efforts to reduce methane emissions from your activities.

Ecopetrol has been working on identifying, quantifying, and reducing its methane emissions since 2019. Ecopetrol tracks methane emissions in both upstream and downstream; more than 95% of methane emissions occur in upstream activities, in which the main emission sources are venting from tanks and wells (90%). Other emissions occur from fugitives, flaring and incomplete fuels combustion in both stationary and mobile sources. In line with the company's efforts to reduce methane emissions, Ecopetrol joined the Climate and Clean Air Coalition (CCAC) in 2018, and in 2020, the company joined the OGMP2.0 Methane Initiative Framework (Oil and Gas Methane Partnership), which leads to more transparent and standardized reporting of methane emissions from oil and gas value chains. As part of its commitments, the company is systematically advancing in the identification and quantification of methane emissions. In 2019, the company conducted the first bottom-up campaign. In 2021, the company received technical support from the Canadian government for conducting methane bottom-up measurements to fugitives and vents in tanks and wells in 95% of upstream assets, and the company performed the first top-down measurement campaign over 95% of upstream assets in Colombia with former Kairos Aerospace, recently rebranded as Insight M. In 2023, the company performed the second top-down campaign over material assets, for both operated and non-operated. Ecopetrol is continually conducting fugitive emissions direct measurements with OGI and QOGI devices. In 2024, Ecopetrol is participating in an international scientific study for methane measurement, led by the United Nations Environment Programme and the University of Carleton. Its objective is to measure and identify key sources and drivers of methane emissions in the O&G sector in Colombia. The top-down measurements were conducted from March to May using an airborne Gas Mapping LiDAR sensor, and currently the bottom-up campaign is being planned. Ecopetrol's participation will allow: -To have real, reliable and traceable information for the L4-L5 reconciliation process for OGMP 2024 report. -Compliance with Resolution 40066, "Technical requirements for the detection and repair of leaks, exploitation, flaring and venting of natural gas during hydrocarbon exploration and exploitation activities", issued by

the Colombian ministry of Mines and Energy in 2022. -To have updated information on methane emissions that will allow to find abatement potentials and to verify the effective closure of previously identified leaks and vents. Ecopetrol has defined a Fugitive Emissions and Venting Management Strategy with the following lines of action: i) Updating and adjusting methane emissions inventory, construction of specific emission factors, and definition of specific reduction goals; ii) Incorporation of design criteria and good engineering practices to reduce fugitive emissions and venting; iii) Implementation of the LDAR - Leak Detection and Repair, a program for the identification, quantification, and repair of methane emission leaks. This last one has allowed Ecopetrol to repair >1700 leaks, which corresponds to >13000 tCH₄. Also, Ecopetrol has an internal guideline for the implementation of a LDAR program, applicable to exploration and production activities, based on the requirements of Resolution 40066. In 2023, this ministry issued the Resolution 40317 "By which Resolution 40066 of 2022 is modified", that modifies definitions and gives additional clarifications. Ecopetrol has a decarbonization plan which includes an emission reduction program. One of the main levers is Fugitives and venting reduction. 45 projects have been executed in the 2020-2023 period (6 in 2020, 8 in 2021, 9 in 2022, and 23 in 2023). In 2023, this initiative allowed the reduction of 194,968 tCO₂e, through the detection, measurement and elimination of fugitive emissions and the reduction of venting in tanks and wells. In 2024, it is expected to reduce more than 89 ktCO₂e with the implementation of new projects. In March 2023, Ecopetrol committed to reduce 45% of methane emissions by 2025 and 55% by 2030, compared to the 2019 baseline, in upstream direct operations. In November 2023, Ecopetrol obtained the Gold Standard recognition for the 2023 OGMP report, which is awarded to companies in the oil and gas sector that have a detailed plan for the measurement and reporting of methane emissions. Also, Ecopetrol joined to the Aiming for Zero Methane Emissions Initiative, launched by the Oil and Gas Climate Initiative (OGCI) that encourages the oil and gas industry to reduce methane emissions close to zero by 2030. Ecopetrol also signed the Oil and gas Decarbonization Charter – OGDC at COP 28 to accelerate the decarbonization of the global oil and gas sector. The Charter lays out a series of ambitions towards net-zero operations by or before 2050 and a commitment to reduce methane emissions near zero by 2030

(7.61) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?

Select from:

☒ Yes

(7.61.1) Describe the protocol through which methane leak detection and repair or other leak detection methods, are conducted for oil and gas production activities, including predominant frequency of inspections, estimates of assets covered, and methodologies employed.

In 2021, Ecopetrol developed the first major fugitives and venting detection and measurement campaign in 95% of its upstream production assets, with the support of the Canadian government. This campaign allowed the following: i) to structure a robust baseline on methane, and ii) to define specific emissions factors for the organization. In 2022, Ecopetrol used this information to recalculate the historical series 2019 – 2021. The recalculation process included: (i) adjustment and calculation of specific emission factors for Ecopetrol, and (ii) change in the emissions estimation methodology. Ecopetrol has an internal guideline for the implementation of a LDAR program, applicable to exploration and production activities, based on the requirements of Resolution 40066, "Technical requirements for the detection and repair of leaks, exploitation, flaring and venting of natural gas during hydrocarbon exploration and exploitation activities", issued by the Colombian ministry of Mines and Energy in 2022. The program must include: i) at least two inspections per year, ii) definition and schedule of activities aimed at leak detection and repair for a period of one year, and iii) definition of maintenance plan for the equipment to prevent subsequent leaks. The document also includes guidelines for the following activities: i) leak detection, ii) leak quantification, iii) leak repair, iv) LDAR monitoring, and v) LDAR assessment. Ecopetrol appointed a group of people

responsible for the development, management, and handling of the LDAR program. This group has knowledge and experience in facilities, operating processes, identification and quantification of leaks, industrial and environmental safety, and the operations and processes related to the development and content of the program. An annual report must be submitted to the National Hydrocarbons Agency (ANH, for its Spanish acronym) of the leak detection and repair actions implemented within the program, as well as a description of 5% of the natural gas leaks that have been left out of the materiality approach. Also, annually an assessment of the LDAR implementation must be developed. The assessment must include: i) developed actions, ii) actions that were not developed with a justification, iii) percentage of progress of each action, iv) list of recommendations to address the actions that were not developed, v) schedule for addressing the recommendations, and vi) monitoring of previous recommendations including date of attention. Taking the foregoing as input, as well as the recent regulatory framework (Res. 40066 of 2022 and Res. 40317 of 2023), the company is planning additional Leak Detection and Repair -LDAR campaigns across upstream assets. For the bottom-up campaign developed in 2021 to measure fugitives and venting methane emissions, the following equipment was used: i) OGI cameras, to detect the leaks; ii) Hi-Flow Sampler, to take samples of the leak; iii) ultrasonic flowmeter, to measure well casinghead venting and iv) Vortex flowmeter, to measure venting in tanks. Regarding the frequency of monitoring for consecutive periods, in 2024 Ecopetrol will analyze the recent regulatory framework (Res. 40317 of 2023), and the OGMP 2.0 requirements to define the upcoming monitoring frequency.

(7.62) If flaring is relevant to your oil and gas production activities, describe your organization's efforts to reduce flaring, including any flaring reduction targets.

For Ecopetrol, flaring reduction is one of the strategic levers for GHG emissions reduction. Ecopetrol endorsed the Zero Routine Flaring (ZRF) initiative in January 2020, acquiring the commitment of zero routine flaring by 2030, through a traceable effort in the reduction of existing upstream flaring, and zero routine flaring in new oilfield developments. In Ecopetrol, flaring corresponds to 11% of total emissions; this is the third most important emission source. By 2023, Ecopetrol has reduced 41% % of total flaring in comparison with the 2017 baseline. Additionally, this is the second year the company reports the routine flaring disaggregated, showing a reduction of 12,9% in comparison to the previous year. 2022 was the first year the Company reported its routine flaring and was set as the baseline to compare the routine flaring reductions. Flaring reduction is one of the main levers in the Ecopetrol for emission reduction, including projects associated with the optimization of flared gas through sale, use for self-generation, or process improvement. 36 projects have been executed in the 2020-2023 period (6 in 2020, 9 in 2021, 9 in 2022, and 12 in 2023). In 2023, this initiative allowed the reduction of 71,734 tCO₂e. Ecopetrol has implemented the following initiatives to reduce flaring in existing fields: - Convert associated gas to electrical power: Gas turbines convert gases that would otherwise be flared into electricity. The electricity is used on-site to power equipment. - Recover associated gas using vapor recovery units: Vapor recovery units capture gas flashed from tanks and compress it into the gas line so that it can be sold rather than released or flared. - Associated gas recovery: Gas is treated to remove water, sulphur, and carbon dioxide and then compressed on-site to produce compressed natural gas (CNG) and a natural gas liquids (NGL) product. To manage flaring emissions, Ecopetrol designed a guide that establishes the internal guidelines required for the implementation of the "Zero Routine Flaring by 2030" initiative, which includes the methodology for estimating the total, routine, non-routine and safety gas flared and estimating the reduction of emissions related to gas flaring. Additionally, this guide is aligned with Resolution 40066 issued by the Ministry of Mines and Energy. Likewise, Ecopetrol has developed a roadmap that will help the company achieve zero routine flaring by 2030.

(7.74) Do you classify any of your existing goods and/or services as low-carbon products?

Select from:

☒ Yes

(7.74.1) Provide details of your products and/or services that you classify as low-carbon products.

Row 1

(7.74.1.1) Level of aggregation

Select from:

☒ Product or service

(7.74.1.2) Taxonomy used to classify product(s) or service(s) as low-carbon

Select from:

☒ Low-Carbon Investment (LCI) Registry Taxonomy

(7.74.1.3) Type of product(s) or service(s)

Biofuels

☒ Other, please specify :Biodiesel

(7.74.1.4) Description of product(s) or service(s)

Diesel sold by Ecopetrol S.A. has a percentage of Biodiesel (Biofuel produced from Palm Oil), in line with Colombia's Law 939 of 2004. The blend marketed by Ecopetrol from the Barrancabermeja Refinery is known as B2E Diesel (98% Fossil Diesel and 2% Biodiesel). Wholesale distributors mix B2E with Biodiesel, generating a B10 mixture (90% Fossil Diesel and 10% Biodiesel), which is the one consumed in the Colombian market. Ecodiesel, one of the Ecopetrol Group's subsidiaries, has a biodiesel production plant in Barrancabermeja with a production capacity of 130 thousand tons per year. In 2023, biodiesel production increased to 145 thousand tons, due to higher plant efficiency. Ecopetrol has 50% of the total revenues of this production.

(7.74.1.5) Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Select from:

☒ Yes

(7.74.1.6) Methodology used to calculate avoided emissions

Select from:

☒ Other, please specify :Resolution 1962 of 2017 of Colombia's Ministry of Environment and Sustainable Development

(7.74.1.7) Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Select from:

☒ Use stage

(7.74.1.8) Functional unit used

To use Ecopetrol's marketed biodiesel (2% Biodiesel, 98% diesel) compared to 100% fossil diesel

(7.74.1.9) Reference product/service or baseline scenario used

100% Fossil Diesel

(7.74.1.10) Life cycle stage(s) covered for the reference product/service or baseline scenario

Select from:

☒ Use stage

(7.74.1.11) Estimated avoided emissions (metric tons CO₂e per functional unit) compared to reference product/service or baseline scenario

202941

(7.74.1.12) Explain your calculation of avoided emissions, including any assumptions

Ecodiesel produces 100% biodiesel. Ecopetrol owns half of Ecodiesel's production. Using the 100% biodiesel high heating value, it was possible to calculate the energy contained in the production owned by Ecopetrol and, using the fossil diesel high heating value, it was possible to determine the produced mass if it were fossil diesel. Avoided emissions were calculated using emissions factors for CO₂, CH₄, and N₂O for national fuels, calculated by Mining and Energy Planning Unit (UPME, for its Spanish acronym), and IPCC's AR5 Global Warming Potentials. Regarding the revenue generated from low-carbon products, Ecopetrol owns 50% of the Joint Venture with Ecodiesel. As of december 31 2023, income generated through the equity method (recognized in the Ecopetrol's Group income statement) rose to 30,416 million, which contributed 0.16% of the group's profit. In 2023, Ecodiesel did not declare dividends to Ecopetrol.

(7.74.1.13) Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

0.16

Row 2

(7.74.1.1) Level of aggregation

Select from:

☒ Product or service

(7.74.1.2) Taxonomy used to classify product(s) or service(s) as low-carbon

Select from:

☒ No taxonomy used to classify product(s) or service(s) as low carbon

(7.74.1.3) Type of product(s) or service(s)

Other

☒ Other, please specify :Modified asphalt with 50% recycled plastic

(7.74.1.4) Description of product(s) or service(s)

Modified asphalts can have higher durability compared to conventional asphalts. The modification can be done with polymeric materials such as polypropylene. Given the high demand for these plastics and the environmental impacts associated with the extraction of raw material, a project is proposed to replace part of the virgin plastic with recycled plastic, in proportions that meet the required properties.

(7.74.1.5) Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Select from:

☒ Yes

(7.74.1.6) Methodology used to calculate avoided emissions

Select from:

☒ Other, please specify :Ecopetrol performed a Life Cycle Analysis (LCA) on modified asphalt, which included a comparison with conventional asphalt. Avoided emissions are estimated using LCA results for both conventional and modified asphalts.

(7.74.1.7) Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Select from:

☒ Use stage

(7.74.1.8) Functional unit used

To use modified asphalt with 50% recycled plastic compared to conventional asphalt

(7.74.1.9) Reference product/service or baseline scenario used

100% conventional asphalt

(7.74.1.10) Life cycle stage(s) covered for the reference product/service or baseline scenario

Select from:

☒ Use stage

(7.74.1.11) Estimated avoided emissions (metric tons CO₂e per functional unit) compared to reference product/service or baseline scenario

2.81

(7.74.1.12) Explain your calculation of avoided emissions, including any assumptions

In 2023, Ecopetrol performed a Life Cycle Analysis for Asphalt modified with recycled plastic, that used two Product Category Rules (PCR): PCR 2018:04. Asphalt mixtures v1.03 and PCR 2010:16 Plastics in primary primary forms v3.0.2. From this study Ecopetrol found that there's a GHG reduction for several stages on the LCA. Specifically for the use stage, the climate impact is reduced from 16,1 kgCO₂e/tonne of product (for conventional asphalt) to 8,07 kgCO₂e/tonne of product (for asphalt modified with recycled plastic). The use stage considers the preparation of the asphalt mix and its application on the roads. These results were used to estimate the avoided emissions, considering the amount of product exported in the year. Currently, the modified asphalt with post-consumer recycled plastic initiative continues its massification process in Ecopetrol.

(7.74.1.13) Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

0

[Add row]

(7.79) Has your organization canceled any project-based carbon credits within the reporting year?

Select from:

☒ Yes

(7.79.1) Provide details of the project-based carbon credits canceled by your organization in the reporting year.

Row 1

(7.79.1.1) Project type

Select from:

☒ Reforestation

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

The "Mitigación de cambio climático región caribe" project leads the development of commercial forest plantations and protects areas of tropical dry forest (bs-T) in the departments of Bolívar and Magdalena in Colombia. The developer implements greenhouse gas (GHG) mitigation actions, developing reforestation and forest conservation activities to avoid deforestation and degradation of the natural forest on its land through the mechanism for reducing emissions from deforestation and degradation (REDD). It also seeks to reduce GHG emissions in approximately 5,864 hectares of tropical dry forest in the Colombian Caribbean region. Likewise, the project has Melina (Gmelina Arborea) and Ceiba tolúa (Pachira quinata) plantations with which it seeks to remove more than 80,000 tCO₂e in an area of 2,416.8 ha.

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO₂e)

102341

(7.79.1.5) Purpose of cancelation

Select from:

☒ Compliance with a carbon pricing system

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2019

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify :BCR Standard - Private Carbon-Credit Program developed by Biocarbon

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

☒ Investment analysis

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Other, please specify :The GHG Project Holder shall ensure the permanence of the project activities to quantify the GHG reductions or removals.

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits, risks management; and project's contribution to the SDG.

(7.79.1.14) Please explain

1. BCR-CO-173-14-001-2-2001-2012-0001011-0002866; BCR-CO-173-14-001-2-1901-1012-0052489-0100632; Some serials are not available in the register platform - we're doublechecking with Biocarbon and Global Carbon Trace to double check what happened. 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 2

(7.79.1.1) Project type

Select from:

☒ Reforestation

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

The "Mitigación de cambio climático región caribe" project leads the development of commercial forest plantations and protects areas of tropical dry forest (bs-T) in the departments of Bolívar and Magdalena in Colombia. The developer implements greenhouse gas (GHG) mitigation actions, developing reforestation and forest conservation activities to avoid deforestation and degradation of the natural forest on its land through the mechanism for reducing emissions from deforestation and degradation (REDD). It also seeks to reduce GHG emissions in approximately 5,864 hectares of tropical dry forest in the Colombian Caribbean region. Likewise, the project has Melina (Gmelina Arborea) and Ceiba tolúa (Pachira quinata) plantations with which it seeks to remove more than 80,000 tCO₂e in an area of 2,416.8 ha.

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

40052

(7.79.1.5) Purpose of cancelation

Select from:

☒ Voluntary offsetting

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2019

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify :BCR Standard - Private Carbon-Credit Program developed by Biocarbon

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

☒ Investment analysis

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Other, please specify :The GHG Project Holder shall ensure the permanence of the project activities to quantify the GHG reductions or removals.

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits, risks management; and project's contribution to the SDG.

(7.79.1.14) Please explain

1. Serials are not available in the register platform - we're doublechecking with Biocarbon and Global Carbon Trace to double check what happened. 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 3

(7.79.1.1) Project type

Select from:

☒ Afforestation

(7.79.1.2) Type of mitigation activity

Select from:

☒ Carbon removal

(7.79.1.3) Project description

The main objective of the "Andean Zone and Atlantic Coast Programmatic Associative (PMCC)" is to generate GHG emissions removal certificates, through the implementation of forestation, reforestation, agricultural crops, agroforestry and silvopastoral systems, among others. Applicable to the "M/ UT/ F-A01 Methodology, version 1.1" of CERCARBONO; carried out by reforesters and farmers from the Andean and Caribbean regions (Atlantic coast), in 18 of the 32 departments of Colombia (Antioquia, Caldas, Risaralda, Quindío, Valle del Cauca, Cauca, Huila, Tolima, Cundinamarca, Boyacá, Santander, Norte de Santander, Atlántico, Bolívar, Córdoba, Magdalena, Sucre and Cesar). Carbon credits, beyond the environmental benefit, have allowed certified projects economic benefits that contribute to the reforester's cash flow in addition to the wood business. Thanks to carbon projects, in particular, small reforesters have managed to formalize their plantations, better understand their assets through the inputs generated in the projects, and make them visible to government authorities. Methodology: CCB - M/UT/F-A01: Methodology To Implement GHG Removal Projects Through Reforestation, Forest Restoration and the Establishment of Woody Crop

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

50000

(7.79.1.5) Purpose of cancelation

Select from:

☒ Compliance with a carbon pricing system

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2021

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify :Cercarbono's voluntary carbon certification programme

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

- ☒ Other, please specify :It demonstrates additionality by comparing a base and a project scenario where the last have generated a positive change in carbon deposits.

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

- ☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

- ☒ Ecological leakage

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits and other legal aspects, risks, uncertainty and project's

(7.79.1.14) Please explain

1.CDC_29_7_29_321_14_R1_XX_CO_1_4_2021 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 4

(7.79.1.1) Project type

Select from:

- ☒ Agroforestry

(7.79.1.2) Type of mitigation activity

Select from:

☒ Carbon removal

(7.79.1.3) Project description

The main objective of the "Andean Zone and Atlantic Coast Programmatic Associative (PMCC)" is to generate GHG emissions removal certificates, through the implementation of forestation, reforestation, agricultural crops, agroforestry and silvopastoral systems, among others. Applicable to the "M/ UT/ F-A01 Methodology, version 1.1" of CERCARBONO; carried out by reforesters and farmers from the Andean and Caribbean regions (Atlantic coast), in 18 of the 32 departments of Colombia (Antioquia, Caldas, Risaralda, Quindío, Valle del Cauca, Cauca, Huila, Tolima, Cundinamarca, Boyacá, Santander, Norte de Santander, Atlántico, Bolívar, Córdoba, Magdalena, Sucre and Cesar). Carbon credits, beyond the environmental benefit, have allowed certified projects economic benefits that contribute to the reforester's cash flow in addition to the wood business. Thanks to carbon projects, in particular, small reforesters have managed to formalize their plantations, better understand their assets through the inputs generated in the projects, and make them visible to government authorities. Methodology: CCB - M/UT/F-A01: Methodology To Implement GHG Removal Projects Through Reforestation, Forest Restoration and the Establishment of Woody Crop

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

42222

(7.79.1.5) Purpose of cancelation

Select from:

☒ Voluntary offsetting

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2018

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify :Cercarbono's voluntary carbon certification programme

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

☒ Other, please specify :It demonstrates additionality by comparing a base and a project scenario where the last have generated a positive change in carbon deposits.

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Ecological leakage

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits and other legal aspects, risks, uncertainty and project's

(7.79.1.14) Please explain

1. CDC_29_7_29_321_14_R1_XX_CO_1_4_2018; CDC_29_7_29_321_14_R1_XX_CO_1_4_2019; CDC_29_7_29_321_14_R1_XX_CO_1_4_2021 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline

includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 5

(7.79.1.1) Project type

Select from:

☒ Agroforestry

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

The Bajo Calima y Bahía Málaga (BCBM) REDD Project to mitigate climate change, protect rich biodiversity, and generate sources of income for poor communities, through forest governance, capacity building, and productive activities that will prevent selective logging of native forests, avoiding degradation and deforestation. Located in Buenaventura, Western Pacific coast of Colombia. Developed by BIOREDD/USAID. VCS Methodology: VM0006

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

115792

(7.79.1.5) Purpose of cancelation

Select from:

☒ Compliance with a carbon pricing system

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2017

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ VCS (Verified Carbon Standard)

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

☒ Other, please specify : It demonstrates additionality by comparing three scenarios (no project, following regulation and project) where it shows that project benefits would not

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Activity-shifting

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits, conditions prior project initiation, management of risks to project

(7.79.1.14) Please explain

1. 10813-249522035-249557069-VCS-VCU-261-VER-CO-14-1395-01012017-31122017-1; 10813-249505322-249522034-VCS-VCU-261-VER-CO-14-1395-01012017-31122017-1; 10813-249505103-249505321-VCS-VCU-261-VER-CO-14-1395-01012017-31122017-1; 10813-249488476-249505102-VCS-VCU-261-VER-CO-14-1395-01012017-31122017-1; 10813-249656544-249665055-VCS-VCU-261-VER-CO-14-1395-01012017-31122017-1; 10813-249749651-249764997-VCS-VCU-261-VER-CO-14-1395-01012017-31122017-1 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 6

(7.79.1.1) Project type

Select from:

☒ Agroforestry

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

The YAAWI IIPANA REDD conservation project aims to prevent the emission of 21.610.198 tCO₂e into the atmosphere, through the conservation and protection of 671.145. In particular, the strategy is to avoid deforestation through the implementation of Reducing Emissions from Deforestation and Forest Degradation (REDD) project which includes conservation of carbon stocks, sustainable management of forests and improvement of forest reserves activities in a developing country (Colombia). The project is proposed by the Morichal Viejo, Santa Rosa, Cerro Cocuy, Santa Cruz, Caño Danta and others Indigenous Reserve, which acquires climate finance for the regulation ecosystem services provided, to finance projects that improve the living conditions of the communities, diversify income, projects for the protection of forest reserves, sustainable forest management, participatory reforestation, and others. Methodology: CCB - M/LU-REDD: Methodology for the Implementation of REDD Projects Consistent with National Reference Levels

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO₂e)

90000

(7.79.1.5) Purpose of cancelation

Select from:

- ☒ Compliance with a carbon pricing system

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

- ☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2018

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

- ☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

- ☒ Other private carbon crediting program, please specify :Cercarbono's voluntary carbon certification programme

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

- ☒ Other, please specify :The project states that in order to deal with reversal risks, it articulates actions with instruments of local and regional planning defined by environmental authorities.

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

- ☒ Other, please specify :The project states that in order to deal with reversal risks, it articulates actions with instruments of local and regional planning defined by environmental authorities.

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Ecological leakage

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits, risks management; environmental and socioeconomic safeguards

(7.79.1.14) Please explain

1. CDC_102_2_11_322_14_R4_1X_CO_1_1_2018 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 7

(7.79.1.1) Project type

Select from:

☒ Agroforestry

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

Within the Orinoco-Amazon transition zone, 7 indigenous reservations of the Sikuani and Piapoco tribes in the departments of Guainía and Vichada, allied with BIOFIX (developer) in the KALIAWIRI REDD Project, to ensure the conservation of the 358.000 hectares of tropical rainforest forests they own within their

communities. To this end, they have defined as cross line of action educational processes in forest governance, entrepreneurship, gender equality, rescue of ancestral cultural traditions, and territorial delineation; reforestation and community monitoring; implementation of renewable energies and improvement of infrastructure in communications, mobility, health and recreation, technification of productive processes carried out by the communities for self-sufficiency and marketing of products based on cocoa, chili, yucca, sweet yucca, pineapple, sugar cane, cereals, as well as the incorporation of sustainability in the use of silvopastoral systems, fishing and non-timber forest products such as Moriche, Seje and Caucho. Methodology: BCR0002_Quantification of GHG Emission Reductions. REDD Projects

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

40000

(7.79.1.5) Purpose of cancelation

Select from:

☒ Compliance with a carbon pricing system

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2019

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify :BCR Standard - Private Carbon-Credit Program developed by Biocarbon

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

- ☒ Other, please specify : It demonstrates additionality by comparing a base and a project scenario where the last have generated a positive change in carbon deposits.

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

- ☒ Other, please specify :The project states that in order to deal with reversal risks, it articulates actions with instruments of local and regional planning defined by environmental authorities.

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

- ☒ Other, please specify :The GHG Project Holder shall ensure the permanence of the project activities to quantify the GHG reductions or removals.

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits, risks management; environmental and socioeconomic safeguards and project's contribution to the SDG.

(7.79.1.14) Please explain

1. PCR-CO-BFX-14-004-2-1901-1912-0645357-0685356 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 8

(7.79.1.1) Project type

Select from:

- ☒ Agroforestry

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

Within the Orinoco-Amazon transition zone, 7 indigenous reservations of the Sikuani and Piapoco tribes in the departments of Guainía and Vichada, allied with BIOFIX (developer) in the KALIAWIRI REDD Project, to ensure the conservation of the 358.000 hectares of tropical rainforest forests they own within their communities. To this end, they have defined as cross line of action educational processes in forest governance, entrepreneurship, gender equality, rescue of ancestral cultural traditions, and territorial delineation; reforestation and community monitoring; implementation of renewable energies and improvement of infrastructure in communications, mobility, health and recreation, technification of productive processes carried out by the communities for self-sufficiency and marketing of products based of cocoa, chili, yucca, sweet yucca, pineapple, sugar cane, cereals, as well as the incorporation of sustainability in the use of silvopastoral systems, fishing and non-timber forest products such as Moriche, Seje and Caucho. Methodology: BCR0002_Quantification of GHG Emission Reductions. REDD Projects

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

9340

(7.79.1.5) Purpose of cancelation

Select from:

☒ Voluntary offsetting

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2019

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify : BCR Standard - Private Carbon-Credit Program developed by Biocarbon

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

☒ Other, please specify : It demonstrates additionality by comparing a base and a project scenario where the last have generated a positive change in carbon deposits.

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

☒ Other, please specify :The project states that in order to deal with reversal risks, it articulates actions with instruments of local and regional planning defined by environmental authorities.

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Other, please specify : The GHG Project Holder shall ensure the permanence of the project activities to quantify the GHG reductions or removals.

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits, risks management; environmental and socioeconomic safeguards and project's contribution to the SDG.

(7.79.1.14) Please explain

1. PCR-CO-BFX-14-004-2-1901-1912-0693132-0693943; PCR-CO-BFX-14-004-2-1901-1912-0685357-0686120; PCR-CO-BFX-14-004-2-1901-1912-0686121-0687205; PCR-CO-BFX-14-004-2-1901-1912-0687206-0693131; PCR-CO-BFX-14-004-2-1901-1912-0694687-0694696; PCR-CO-BFX-14-004-2-1901-1912-0693132-069394322/07/2024; PCR-CO-BFX-14-004-2-1901-1912-0693944-0694686 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we

effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 9

(7.79.1.1) Project type

Select from:

☒ Afforestation

(7.79.1.2) Type of mitigation activity

Select from:

☒ Carbon removal

(7.79.1.3) Project description

The forest project named "Forestal de la Orinoquia" is a commercial reforestation project which produces wood chips to generate energy. It has a total planting area of more than 9,000 ha, established in dense forest plantations of the species *Acacia mangium* and *Eucalyptus pellita* in the municipalities of Puerto Carreño and La Primavera, in the State of Vichada - Colombia. The project implements appropriate global business practices in all its operations, and it is committed to obtaining Forest Stewardship Council. Methodology: CDM - AR-ACM0003: Afforestation and reforestation of lands except wetlands

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

42393

(7.79.1.5) Purpose of cancelation

Select from:

☒ Voluntary offsetting

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2019

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify : Cercarbono's voluntary carbon certification programme

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

☒ Standardized Approaches

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Activity-shifting

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits and other environmental legal aspects, information quality management, fire and pest and disease attack control and contribution to the SDG

(7.79.1.14) Please explain

1. CDC_8_1_1_321_14_R1_XA_CO_1_2_2019; CDC_8_1_1_321_14_R1_XA_CO_1_2_2020 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 10

(7.79.1.1) Project type

Select from:

☒ Afforestation

(7.79.1.2) Type of mitigation activity

Select from:

☒ Carbon removal

(7.79.1.3) Project description

SKCARBONO Forestry project has established Eucalyptus and Pinus species, during 2010 and 2018, in an area of 18,096 hectares, localized in 6 departments (Caldas, Cauca, Quindío, Risaralda, Tolima y Valle Del Cauca) and 33 Colombian municipalities. The project's main goal is to establish, preserve and harvest forest plantations in own and third party (Joint venture) farms. CDM - AR-ACM0003: Afforestation and reforestation of lands except wetlands CCB - M/UT/F-A01: Methodology To Implement GHG Removal Projects Through Reforestation, Forest Restoration and the Establishment of Woody Crops

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

36299

(7.79.1.5) Purpose of cancelation

Select from:

☒ Voluntary offsetting

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2019

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ Other private carbon crediting program, please specify :Cercarbono's voluntary carbon certification programme

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

☒ Investment analysis

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

☒ Activity-shifting

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits and other environmental legal aspects, information management and contribution to the SDG

(7.79.1.14) Please explain

1. CDC_46_1_29_321_14_R1_XX_CO_1_3_2019; CDC_46_1_29_321_14_R1_XX_CO_1_3_2020 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 11

(7.79.1.1) Project type

Select from:

☒ Agroforestry

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

The CONDOTO REDD Project seeks the conservation of forests located in the territories of the afro communities organized as the Major Community Council of Condoto and Iró, located within the municipalities of Condoto and Río Iró, in the department of Chocó, Colombia. The project zone has a total area of 65.026 ha, out of which 46.191 ha were forest in 2015. The area is characterized for its high biodiversity and rain tropical forests, but also for the presence of deforestation activities

and social conflicts. Deforestation drivers include mining activities, subsistence agriculture, and activities of illegal use. Social issues include absence of the state and lack of sanitation, education and health infrastructure and lack of technical guidance regarding sustainable production models. The project aims to reducing CO2 emissions derived from deforestation and forest degradation, restore degraded forest lands, promote sustainable management of forests and develop productive activities to improve community welfare. The project also seeks to protect biodiversity and high conservation values, enhance ecological connectivity and secure natural habitats of vulnerable species (including those within some category of threat and those that represent ecological interest. VCS Methodology: VM0007

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

26988

(7.79.1.5) Purpose of cancelation

Select from:

☒ Voluntary offsetting

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2020

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

☒ VCS (Verified Carbon Standard)

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

- ☒ Investment analysis
- ☒ Barrier analysis

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

- ☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

- ☒ Activity-shifting

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits and other environmental legal aspects, information management

(7.79.1.14) Please explain

1. 15985-733287015-733314002-VCS-VCU-394-VER-CO-14-2723-01012020-31122020-1 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.

Row 12

(7.79.1.1) Project type

Select from:

- ☒ Agroforestry

(7.79.1.2) Type of mitigation activity

Select from:

☒ Emissions reduction

(7.79.1.3) Project description

The "Planeta agradecido con el Resguardo Indígena Bajo Río Guainía y Río Negro" REDD project is developed in 61.48% of the total area of the territory of the Indigenous Resguardo Bajo Río Guainía y Río Negro, in the area within the watersheds of the Tomo, Aquió and Negro rivers and has a total duration of Forty (40) years. During the project's life, 20 million tCO2e will be reduced. CCB - M/LU-REDD: Methodology for the Implementation of REDD Projects Consistent with National Reference Levels

(7.79.1.4) Credits canceled by your organization from this project in the reporting year (metric tons CO2e)

25624

(7.79.1.5) Purpose of cancelation

Select from:

☒ Voluntary offsetting

(7.79.1.6) Are you able to report the vintage of the credits at cancelation?

Select from:

☒ Yes

(7.79.1.7) Vintage of credits at cancelation

2020

(7.79.1.8) Were these credits issued to or purchased by your organization?

Select from:

☒ Purchased

(7.79.1.9) Carbon-crediting program by which the credits were issued

Select from:

- ☒ Other private carbon crediting program, please specify :Cercarbono's voluntary carbon certification programme

(7.79.1.10) Method the program uses to assess additionality for this project

Select all that apply

- ☒ Barrier analysis

(7.79.1.11) Approaches by which the selected program requires this project to address reversal risk

Select all that apply

- ☒ Monitoring and compensation

(7.79.1.12) Potential sources of leakage the selected program requires this project to have assessed

Select all that apply

- ☒ Activity-shifting
☒ Ecological leakage

(7.79.1.13) Provide details of other issues the selected program requires projects to address

The standard requires additional aspects such as legal ownership over the carbon credits, and and community and biodiversity management issues (It is CCB certified)

(7.79.1.14) Please explain

1. MV120423-112NAP 2. No corresponding adjustments have been issued for these credits. 3. We regret to inform you that we cannot disclose prices due to the non-disclosure agreements we have with our counterparts. 4. Ecopetrol has a dedicated carbon trading desk responsible for the purchase of carbon credits used to offset emissions. The presence of a carbon trading desk adds significant value by ensuring that we effectively manage and optimize our carbon credit transactions. This specialized team possesses the expertise to identify high-quality credits, negotiate favorable terms, and monitor market trends. In addition, the Sustainability team, in line with our established guidelines, rigorously assesses the integrity of the projects and credits to ensure they meet our high standards for environmental impact and quality. The guideline includes criteria to ensure the integrity of the carbon credits, based on factors such as additionality, permanence, and verification. Additionally, the guideline encompasses the assessment of co-benefits, adherence to recognized standards, transparency, and the avoidance of double counting.
[Add row]

C9. Environmental performance - Water security

(9.1) Are there any exclusions from your disclosure of water-related data?

Select from:

☒ Yes

(9.1.1) Provide details on these exclusions.

Row 1

(9.1.1.1) Exclusion

Select from:

☒ Facilities

(9.1.1.2) Description of exclusion

Corporate and administrative areas located outside operational areas are excluded from the water accountability, such as administrative buildings (e.g. Principal, Teusacá, Torre AR), healthcare centers (e.g. Policlínica in Barrancabermeja), local attention centers (CALs), and the Colombian Petroleum Institute (ICP)

(9.1.1.3) Reason for exclusion

Select from:

☒ Other, please specify :Small volumes

(9.1.1.7) Percentage of water volume the exclusion represents

Select from:

☒ Less than 1%

(9.1.1.8) Please explain

Water use and discharges from corporate and administrative areas located outside operational areas are measured and monitored in our water management system. However, these facilities are excluded from this report since they represent only 0.17% of the total freshwater withdrawals, 0.06% of total discharges to surface waters, seawater, soil, or managed by a third-party, and 0.08% of total consumption.
[Add row]

(9.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

Water withdrawals – total volumes

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

100% of our facilities monitor the volume of water withdrawn based on daily records directly obtained from flow measurement devices located at each withdrawal point. Furthermore, the refineries have real-time devices that allow them to carry on this measurement continuously. Daily measurements are compiled monthly and registered in our water information tool SIGAR-Aguas, where total volumes are consolidated for the entire company and disclosed by segments, basins, and municipalities.

(9.2.4) Please explain

Ecopetrol measures and monitors their withdrawal volumes, due to the following requirements: •Operational: to control volume required for secondary and tertiary recovery, industrial services for refining or chemical dosing in water treatment •Compliance: to comply with the authorized flow established in each environmental permit and license. It is also required to calculate the tariff to pay for water use. Furthermore, data is required by the IDEAM as an input for the National Water Study •Corporate: it is a KPI monitored monthly at the corporate level, with established targets for the short, mid, and long term. It is also required for assessing water-related risks. •Stakeholders: for a transparent disclosure of our water data to our stakeholders, through corporate reports such as (GRI, CDP, DJSI, among others). A "facility" refers to an exploration well, a production field, or a refinery. No facilities were excluded from this report

Water withdrawals – volumes by source

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

100% of our facilities monitor the volume of water withdrawn based on daily records directly obtained from flow measurement devices located at each withdrawal point. Furthermore, refineries have real-time devices that allow them to carry on this measurement continuously. Daily measurements are compiled monthly in SIGAR-Aguas, where each freshwater withdrawal point is assigned with the corresponding source type. This allows us to monitor the water withdrawn by source for the entire company.

(9.2.4) Please explain

Ecopetrol measures and monitors their freshwater withdrawal volumes by sources, due to the following requirements: •Operational: water quality may change depending on the source. •Compliance: a tariff to pay for water use depends on the type of source. Furthermore, data is required by the IDEAM (National Meteorological and Environmental Studies Institute) as an input for the National Water Study. •Corporate: to assess water-related risks due to surface water availability and its seasonal variability. •Stakeholders: for transparent disclosure of our water data to our stakeholders through corporate reports such as GRI, CDP, DJSI, among others. A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report.

Produced water associated with your oil & gas sector activities - total volumes

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

Produced water is estimated for every production well from the daily oil production (measured using flow meters) and the average BSW (Basic Sediment and Water, a measure of the oil-water ratio) measured periodically by an external or internal laboratory. Daily records are reported on the company's official tool for volumetric management of oil, gas, and water production (AVM- AVOCET).

(9.2.4) Please explain

All Ecopetrol's facilities measure their produced water volumes due to the following requirements: • Compliance: it is required by the National Hydrocarbons Agency (ANH for its Spanish acronym) as part of the oil production balance. In addition, the environmental authorities require a balance between produced water and its destinations (reinjection, surface disposal, recycling, or reuse). Furthermore, data is required by the IDEAM (National Meteorological and Environmental Studies Institute) as an input for the National Water Study which is updated every four years. • Operational: to control production considering facilities' water treatment capacity. • Relationship with stakeholders: for transparent disclosure of our water data to stakeholders, through corporate reports such as GRI, CDP, DJSI, among others. A "facility" refers to an oil & gas production field. No facilities were excluded from this report.

Water withdrawals quality

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Continuously

(9.2.3) Method of measurement

Freshwater quality measurements are carried out using the company's own measurement devices and equipment and/or by external accredited laboratories. Methods follow national standards which are based on the Standard Methods, ASTM standards, and EPA, among others.

(9.2.4) Please explain

All Ecopetrol's facilities measure and monitor freshwater withdrawals' quality to respond to the following requirements: • Operational: Some parameters, such as pH, TDS, color, alkalinity, hardness, and turbidity, and jar tests, are usually measured in near real-time to control operational variables associated with raw water treatment. In addition, water used for oil recovery (EOR) is periodically monitored in terms of dissolved CO₂, H₂S, oil and greases, and TSS to verify water compatibility with the reservoir and control and avoid damage in the injection wells • Compliance: environmental authorities require to carry on water quality analysis on each authorized freshwater withdrawal. Frequency is defined on each permit and license, being "quarterly" the most common frequency. These measurements are carried out by accredited third-party laboratories A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report

Water discharges – total volumes

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

In most cases, records are taken daily from flow meters located at each discharge point or at the outlet of the wastewater treatment or reinjection plant. For domestic discharges infiltrated into the soil (e.g., septic tanks) or stormwater discharges, volumes are usually estimated monthly using methodologies accepted by national authorities. Data is recorded monthly in SIGAR-Aguas, where total volumes are consolidated for the entire company and disclosed by segments, basins, and municipalities.

(9.2.4) Please explain

Ecopetrol measures and monitors the discharged volume to respond to the following requirements: •Operational: to control injection and reinjection rates according to reservoirs' hydraulic parameters. •Compliance: produced water reinjected for disposal and for secondary oil recovery is required by the National Hydrocarbons Agency (ANH) and the environmental authorities. The quantity of water discharged to surface water, seawater, or soil (including the reuse for agroforestry irrigation) is required by environmental authorities to verify compliance with the maximum authorized flow. Furthermore, data is required by the IDEA as an input for the National Water Study •Stakeholders: for transparent disclosure of our water data through corporate reports such as GRI, CDP, DJSI, among others. A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report

Water discharges – volumes by destination

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

In most cases, records are taken daily from flow meters located at each discharge point or at the outlet of the wastewater treatment plant. For domestic discharges that are discharged into the soil through infiltration fields (e.g., septic tanks) or stormwater discharges, volumes are usually estimated monthly using methodologies accepted by national authorities. Produced water reinjected is measured using on-site flow meters located at the Injection Plants outlet.

(9.2.4) Please explain

Ecopetrol measures and monitors the discharged volume by destination to respond to the following requirements: •Operational: to control injection rates according to reservoirs' hydraulic parameters. •Compliance: Reinjection volumes are required by ANH and the environmental authorities. Surface water, seawater, or soil discharges are required by environmental authorities to verify compliance with the maximum authorized flow. Furthermore, data is required by the IDEAM as an input for the National Water Study •Corporate: produced water reinjection for secondary recovery is monitored monthly at the corporate level, with an established target. Discharges' destination is also required for assessing water-related risks. •Stakeholders: for a transparent disclosure of our water withdrawal our stakeholders, through corporate reports and radars A "facility" refers to an exploration well, a production field, or a refinery. No facilities were excluded from this report.

Water discharges – volumes by treatment method

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

In most cases, records are taken daily from flow meters located at each discharge point or at the outlet of the wastewater treatment plant. For domestic discharges that are discharged in the soil through infiltration fields (e.g. septic tanks) or stormwater discharges, volumes are usually estimated monthly using methodologies accepted by national authorities. Produced water reinjected is measured using on-site flow meters located at the Injection Plants outlet.

(9.2.4) Please explain

All Ecopetrol's facilities measure and monitor the discharged volume by treatment method, especially for cost monitoring and for addressing relationships with stakeholders as well as attending to reporting requirements (GRI, CDP, DJSI, etc.). A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report.

Water discharge quality – by standard effluent parameters

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

Quality measurements are carried out using the company's own measurement devices and/or by accredited third-party laboratories. Some parameters such as pH, TDS, and conductivity are measured using in-situ devices. Other parameters such as oil and greases, TPH, BOD, metals, ions, and nitrogen, among others, are measured in the water laboratories. Methods for determining water quality follow national standards which are based on the Standard Methods and ASTM, EPA, and ISO Standards

(9.2.4) Please explain

Ecopetrol measures and monitors this aspect to respond to the following requirements: •Operational: water quality is daily measured and monitored to guarantee treatment efficiency. The injection water quality is measured to assure injectivity to reservoirs •Compliance: to verify compliance with the limits allowed by regulations., and to calculate the tariff to pay for discharges to surface water. Frequency is established by the environmental authorities Furthermore, data is required

by the IDEAM as an input for the National Water Study •Corporate: The TPH content in surface discharges in E&P is a KPI monitored monthly at the corporate level, with established targets. It is also required for assessing water-related risks, and internal management •Stakeholders: for a transparent disclosure of our water data to our stakeholders, through corporate reports and radars A "facility" refers to an exploration well, a production field, or a refinery. No facilities were excluded from this report

Water discharge quality – emissions to water (nitrates, phosphates, pesticides, and/or other priority substances)

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Monthly

(9.2.3) Method of measurement

The mass of relevant pollutants in wastewater discharged to water bodies is calculated using the last measured concentration of the pollutant, and the discharged flow.

(9.2.4) Please explain

Ecopetrol measures and monitors the emission to water to respond to the following requirements: All Ecopetrol's facilities measure and monitor the emission to water to respond to the following requirements: • Compliance: To calculate the tariff to pay for discharging wastewater which depends on the total suspended solids (TSS) and biological oxygen demand (BOD) emission in kg/month. The emissions to water calculation also allow us to verify the assimilation capacity of the receiving water bodies to ensure that their water quality is unaffected by the discharge. Furthermore, data is required by the IDEAM as an input for the National Water Study which is updated every four years • Relationship with stakeholders: for transparent disclosure of our water data to our stakeholders, through corporate reports such as GRI, CDP, DJSI, among others. A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report

Water discharge quality – temperature

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

Quality measurements are carried out using the company's own measurement devices and equipment and/or by accredited third- party laboratories.

(9.2.4) Please explain

All Ecopetrol's facilities measure and monitor the discharge temperature to respond to the following requirements: • Compliance: Wastewater discharge temperature is one of the quality parameters requested by national and regional environmental authorities with the frequency requested in each discharge permit. In addition, Ecopetrol continuously monitors discharge temperature to ensure compliance with the maximum limit (40 C) allowed and that the temperature change in the water-receiving body does not exceed 5C in the mixing zone. A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report.

Water consumption – total volume

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Monthly

(9.2.3) Method of measurement

Calculated as the difference between water inflows (freshwater withdrawals, produced water, internal transfers) and outflows (discharges, injection/reinjection, reuse, etc.) at the facility level. Measurement methods were described above.

(9.2.4) Please explain

All Ecopetrol facilities measure and monitor the water consumption due to:

- *Water consumption is an indicator of balance accuracy.*
- *Freshwater consumption is an impact indicator included in our water footprint assessment*
- *Reporting requirements (GRI, CDP, DJSI, etc.). Water consumption is estimated on a monthly basis for 100% of the Company's facilities. This volume is automatically calculated in the SIGAR information tool, as the difference between water inflows (freshwater withdrawals, produced water, internal transfers) and outflows (discharges, injection/reinjection, reuse, etc.) at the facility level. A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report.*

Water recycled/reused

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

In refineries, water recirculated or recycled is measured using flow meters placed on water pipelines or estimated using water balances. In the case of produced water recycled for oil recovery, data is recorded daily on the field using flow measurement devices at the injection plants.

(9.2.4) Please explain

All Ecopetrol's facilities measure and monitor the quantity of water recycled or reused to respond to the following requirements:

- *Operational: the volume of produced water reinjected for oil recovery is required to control injection rates according to reservoirs' hydraulic parameters*
- *Compliance: recycled water is required by the environmental authority when reporting the progress of the Efficient Use and Saving Water Plan (PUEAA for its Spanish acronym). Produced water reused for agroforestry irrigation is also required to verify compliance with the maximum authorized flow.*
- *Corporate: it is a KPI monitored monthly at the corporate level, with established targets for the short, mid, and long term. It is also required for assessing water-related risks.*
- *Relationship with stakeholders, for attending inquiries, and reporting (GRI, CDP, DJSI, etc.). A "facility" refers to an exploration well, an oil & gas production field, or a refinery. No facilities were excluded from this report*

The provision of fully-functioning, safely managed WASH services to all workers

(9.2.1) % of sites/facilities/operations

Select from:

☒ 100%

(9.2.2) Frequency of measurement

Select from:

☒ Daily

(9.2.3) Method of measurement

Ecopetrol ensures continuous drinking water and sanitation services to all workers in 100% of its facilities

(9.2.4) Please explain

Ecopetrol provides drinking water and sanitation services to all workers in 100% of its facilities.

[Fixed row]

(9.2.2) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, how do they compare to the previous reporting year, and how are they forecasted to change?

Total withdrawals

(9.2.2.1) Volume (megaliters/year)

503206.51

(9.2.2.2) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.2.3) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.2.4) Five-year forecast

Select from:

☒ Much higher

(9.2.2.5) Primary reason for forecast

Select from:

☒ Other, please specify :Natural increase in produced water levels

(9.2.2.6) Please explain

•Context: total withdrawals include freshwater from natural sources (surface water, groundwater, rainwater, and third parties) and produced water. Produced water is a natural by-product during crude oil extraction since oil, gas, and water are mixed in reservoirs. For instance, on average, for each barrel of oil equivalent, 14 barrels of produced water are generated. This mixture is brought to the surface, where oil and gas are separated from the “produced water”. •Comparison with the previous reporting year: Total withdrawal was 7% higher than the previous year. This increase was caused by higher oil production (3%) and higher oil throughput in refineries (17%), which resulted in higher levels of produced water (7%) and higher demand of freshwater (9%) for refining. Freshwater from natural sources represented only 8% of total withdrawals, while produced water accounts for 92% of total withdrawals. •Five-year forecast: We expect a significant increase in total withdrawals, due to higher produced water levels as a natural result of hydraulic thrust in the Southern Llanos basin, and the aging of oil fields located in the Middle Magdalena Valley. However, as part of the water neutrality roadmap, we expect a 66% reduction in freshwater withdrawals by 2045. •Data compilation: Volumetric data has been compiled on our water management tool (SIGAR-Aguas), based on data collected on the field. •Thresholds used: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%).

Total discharges

(9.2.2.1) Volume (megaliters/year)

483724.68

(9.2.2.2) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.2.3) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.2.4) Five-year forecast

Select from:

☒ Much higher

(9.2.2.5) Primary reason for forecast

Select from:

☒ Other, please specify :Natural increase in produced water levels

(9.2.2.6) Please explain

Context: Total discharges include the following water streams that leave the company boundary: •0.78 Mm3 of domestic wastewater discharges. •84.3 Mm3 of industrial wastewater discharged to surface water, soil, and external managers. •7.1 Mm3 of freshwater injected for oil recovery (including steam injection). •133.5 Mm3 of produced water recycled for injection to secondary oil recovery. •252.9 Mm3 of produced water reinjected for disposal. •5.1 Mm3 of produced water reused in agroforestry irrigation. •Comparison with the previous reporting year: In 2023, Ecopetrol's discharges increased by 6.6% compared to 2022, caused mainly by the increase in produced water due to the normal activities in the Castilla field throughout 2023. •Five-year forecast: Ecopetrol expects a significant increase in total withdrawals, due to higher produced water levels as a natural result of hydraulic thrust in the Southern Llanos basin, and the aging of oil fields in the Middle Magdalena Valley. However, as part of the water neutrality roadmap, we expect to reach zero industrial discharges to surface water by 2045. • Data compilation: Volumetric data has been compiled on our water management tool (SIGAR-Aguas) based on data collected in the field. • Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

Total consumption

(9.2.2.1) Volume (megaliters/year)

19466.66

(9.2.2.2) Comparison with previous reporting year

Select from:

☒ Much higher

(9.2.2.3) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.2.4) Five-year forecast

Select from:

☒ About the same

(9.2.2.5) Primary reason for forecast

Select from:

☒ Other, please specify :Produced water volumes are also reflected in discharges

(9.2.2.6) Please explain

•Context: Water consumption is estimated company-wide as the difference between total withdrawals and discharges. • Consumption breakdown: Most of Ecopetrol's consumption is due to evaporation in cooling towers in Refineries. • Comparison with the previous reporting year: Total consumption was estimated in 19.5 Mm3, about 4% of total withdrawals. Compared to the previous year, consumption increased by 32% caused by greater consumption in the refining processes and its subsequent evaporation in cooling towers. •Five-year forecast: No relevant changes are expected in the future since an increase in produced water is also reflected in total discharges. •Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).
[Fixed row]

(9.2.3) In your oil & gas sector operations, what are the total volumes of water withdrawn, discharged, and consumed (by business division), how do they compare to the previous reporting year, and how are they forecasted to change?

Total withdrawals – upstream

(9.2.3.1) Volume (megaliters/year)

472233.5

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.3.4) Five-year forecast

Select from:

☒ Much higher

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Natural increase in produced water levels

(9.2.3.6) Please explain

In 2023, total water withdrawals in the E&P segment were 472.2 Mm3, a 7.3% increase compared to the previous year. This figure includes freshwater withdrawn from natural sources (only 2.2% of total withdrawals) and produced water (97.8%), as enquired in CDP's technical guidelines for the oil & gas sector. The primary reason for this increase was a higher oil and gas production in 2023 (3%) which naturally implied an increase in the volume of produced water brought to the surface. Five-year forecast: Ecopetrol expects a significant increase in total withdrawals, due to higher produced water levels as a natural result of hydraulic thrust in the Southern Llanos basin, and the aging of oil fields located in the Middle Magdalena Valley. However, as part of the water neutrality roadmap, the Upstream segment expects to reduce its freshwater withdrawals in the mid and long-term. Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%)

Total discharges – upstream

(9.2.3.1) Volume (megaliters/year)

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ Higher**(9.2.3.3) Primary reason for comparison with previous reporting year**

Select from:

☒ Increase/decrease in business activity**(9.2.3.4) Five-year forecast**

Select from:

☒ Much higher**(9.2.3.5) Primary reason for forecast**

Select from:

☒ Other, please specify :Natural increase in produced water levels**(9.2.3.6) Please explain**

In 2023, the E&P segment recorded discharges (all water leaving the company boundary) for 470.9 Mm3, representing an increase of 7.3% compared to 2022. The primary reason for this increase was a higher oil and gas production in 2023 (3%) which naturally implied an increase in the volume of produced water brought to the surface which is also reflected in total discharges. Total discharges include: • 72.3 Mm3 of discharges to surface water, soil, and external managers • 140.6 Mm3 of water injected for oil recovery (produced water, freshwater, and steam) • 252.9 Mm3 produced water injected for disposal • 5.1 Mm3 produced water reused in agroforestry irrigation Five-year forecast: Ecopetrol expects a significant increase in total withdrawals, due to higher produced water levels as a natural result of hydraulic thrust in the Southern Llanos basin, and the aging of oil fields located in the Middle Magdalena Valley. However, as part of the water neutrality roadmap, the Upstream segment expects to reduce its surface discharges in the mid-term and to reach zero discharges by 2045. Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

Total consumption – upstream**(9.2.3.1) Volume (megaliters/year)**

1347.5

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :Produced water volumes are reflected also in discharges

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Produced water volumes are reflected also in discharges

(9.2.3.6) Please explain

Water consumption was estimated as the difference between total withdrawals and total discharges, which resulted in consumption of 1,3 Mm3 in 2023, about 0.3% of total withdrawals. This figure does not represent a significant variation compared to 2022, considering that produced water volumes in withdrawals are also reflected in discharges For the Upstream segment, no relevant changes are expected in the future since increases in produced water are also reflected in total discharges. Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%)

Total withdrawals – downstream

(9.2.3.1) Volume (megaliters/year)

30907.37

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Increase/decrease in efficiency

(9.2.3.6) Please explain

In 2023 the Refining segment withdrew 30.9 Mm3 of freshwater. The Midstream segment (i.e. Nestor Pineda Terminal in Cartagena) did not withdraw seawater for its operations in this reporting year. Compared to the previous year, refining processes increased their fresh water requirement by 8.7% due to a higher oil throughput in refineries (17%), For the next five years, Ecopetrol expects to reduce the freshwater withdrawal intensity in both refineries through the implementation of additional recycling initiatives for the current effluents. This increase in efficiency will allow us to maintain steady freshwater withdrawal levels in a higher-throughput scenario. Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%)

Total discharges – downstream

(9.2.3.1) Volume (megaliters/year)

12785.29

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ Lower

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.3.4) Five-year forecast

Select from:

☒ Lower

(9.2.3.5) Primary reason for forecast

Select from:

☒ Increase/decrease in efficiency

(9.2.3.6) Please explain

Total discharges in our Refining segment include: •Industrial wastewater from refining processes. •Industrial wastewater from raw freshwater treatment. •Domestic wastewater. •Rainwater susceptible to contamination, a type of wastewater that is part of Barrancabermeja's refinery discharges permit, which also could be mixed with domestic wastewater. In 2023, the total discharges generated in the Refining segment were 12.78 Mm3. This figure represents a decrease of 14.5% compared to the previous year, caused by the decrease in the rainwater susceptible to contamination discharge resulting from a natural decrease in precipitation. Industrial wastewater remained practically the same (-4%). For the next five years, Ecopetrol expects to reduce its industrial discharges from refining processes as part of the water neutrality roadmap. This includes maximization of recycled and recirculated water use. Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

Total consumption – downstream

(9.2.3.1) Volume (megaliters/year)

18118.08

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ Much higher

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.3.4) Five-year forecast

Select from:

☒ Higher

(9.2.3.5) Primary reason for forecast

Select from:

☒ Increase/decrease in business activity

(9.2.3.6) Please explain

Water consumption was estimated as the difference between total withdrawals and total discharges, which resulted in a consumption of 18.1 Mm3 in 2023, about 58.6% of total withdrawals. This figure represents a 35% variation compared to 2022, due to a decrease in the discharge of rainwater susceptible to contamination that is not reflected in total withdrawals. Internal recirculation of water is vital to achieving the water neutrality ambition since it allows to reduce both freshwater withdrawals and discharges; however, it may increase the freshwater consumption (understood as the difference between discharges and withdrawals) in the next years, since internal recirculation is not considered as a discharge. Thresholds used for comparison with the previous year and five-year forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%)

Total withdrawals – chemicals

(9.2.3.1) Volume (megaliters/year)

0

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :Not applicable

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Not applicable

(9.2.3.6) Please explain

Petrochemical figures are reported on the downstream segment.

Total discharges – chemicals

(9.2.3.1) Volume (megaliters/year)

0

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :Not applicable

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Not applicable

(9.2.3.6) Please explain

Petrochemical figures are reported on the downstream segment.

Total consumption – chemicals

(9.2.3.1) Volume (megaliters/year)

0

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :Not applicable

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Not applicable

(9.2.3.6) Please explain

Petrochemical figures are reported on the downstream segment.

Total withdrawals – other business division

(9.2.3.1) Volume (megaliters/year)

0

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :Not applicable

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Not applicable

(9.2.3.6) Please explain

Not applicable.

Total discharges – other business division

(9.2.3.1) Volume (megaliters/year)

0

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :Not applicable

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Not applicable

(9.2.3.6) Please explain

Not applicable.

Total consumption – other business division

(9.2.3.1) Volume (megaliters/year)

0

(9.2.3.2) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.3.3) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :Not applicable

(9.2.3.4) Five-year forecast

Select from:

☒ About the same

(9.2.3.5) Primary reason for forecast

Select from:

☒ Other, please specify :Not applicable

(9.2.3.6) Please explain

Not applicable.

[Fixed row]

(9.2.4) Indicate whether water is withdrawn from areas with water stress, provide the volume, how it compares with the previous reporting year, and how it is forecasted to change.

(9.2.4.1) Withdrawals are from areas with water stress

Select from:

☒ Yes

(9.2.4.2) Volume withdrawn from areas with water stress (megaliters)

26528.7

(9.2.4.3) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.4.4) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :No significant variation in business activity

(9.2.4.5) Five-year forecast

Select from:

☒ Much lower

(9.2.4.6) Primary reason for forecast

Select from:

☒ Increase/decrease in efficiency

(9.2.4.7) % of total withdrawals that are withdrawn from areas with water stress

5.27

(9.2.4.8) Identification tool

Select all that apply

☒ WRI Aqueduct

(9.2.4.9) Please explain

Ecopetrol annually uses the World Resources Institute (WRI-Aqueduct) methodology and identifies its facilities located in areas with potential water stress, when the baseline water stress index (ratio between water demand and available surface supply of the sub-basin) is greater than 40%. This is done using official information published in the 2018 National Water Study by IDEAM (Colombia's Institute of Hydrology, Meteorology and Environmental Studies). Ecopetrol uses IDEAM's information for tracking and monitoring basin's water supply conditions instead of other global datasets, given that it provides a higher level of detail for the 316 sub-basins in Colombia. In 2023 Ecopetrol's total withdrawals from basins under the mentioned water stress condition were 26.5 Mm3 (5% of total withdrawals), consisting in 11.9 Mm3 of freshwater and 14.6 Mm3 of produced water. This figure represents an increase of 8.3% compared to the previous year due to an increase in fresh water requirements in the refining segment associated to a higher oil throughput in refineries (17%). In the production segment, no significant variations were recorded in business activity in areas with water stress.. Volume from water-stressed areas is based on the location of freshwater withdrawal points, as well as the location of the oil fields where produced water is extracted along with the oil and gas. Ecopetrol continues to develop initiatives to reduce its dependence on freshwater availability at these facilities. Thresholds used for comparison with previous year and five-years forecast: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

[Fixed row]

(9.2.7) Provide total water withdrawal data by source.

Fresh surface water, including rainwater, water from wetlands, rivers, and lakes

(9.2.7.1) Relevance

Select from:

☒ Relevant

(9.2.7.2) Volume (megaliters/year)

(9.2.7.3) Comparison with previous reporting year

Select from:

☒ Higher**(9.2.7.4) Primary reason for comparison with previous reporting year**

Select from:

☒ Increase/decrease in efficiency**(9.2.7.5) Please explain**

•**Relevance:** Fresh surface water is relevant since this source represents 62% of Ecopetrol's total freshwater withdrawals. Our sources include rivers and other water streams (86.5%), wetlands (13.4%), and rainwater (0.1%). •**Comparison with the previous reporting year:** This figure represents an increase of 6.9% compared to the previous year due to an increase in fresh water requirements in the refining segment associated to a higher oil throughput in refineries (17%). •**Type of measurement:** All data is obtained directly from flow meters located at each withdrawal point. This data is uploaded to our information system, allowing us to monitor each source volume's trend. •**Future trend:** As part of the Water Neutrality roadmap, Ecopetrol expects to reduce 66% of its freshwater withdrawals by 2045, compared to the 2019 baseline year. •**Thresholds used for comparison with the previous year:** Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

Brackish surface water/Seawater**(9.2.7.1) Relevance**

Select from:

☒ Relevant**(9.2.7.2) Volume (megaliters/year)**

0

(9.2.7.3) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.7.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.7.5) Please explain

•*Relevance: In 2023 Ecopetrol did not use seawater for firefighting in the Nestor Pineda Terminal. However, seawater remains as a relevant source because it is a potential alternative source of water for the Cartagena refinery.* •*Type of measurement: All data is obtained directly from flow meters located at each withdrawal point.*
•*Comparison with the previous year: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%)*

Groundwater – renewable

(9.2.7.1) Relevance

Select from:

☒ Relevant

(9.2.7.2) Volume (megaliters/year)

7277.32

(9.2.7.3) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.7.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in efficiency

(9.2.7.5) Please explain

•*Relevance: Groundwater is relevant since it corresponds to 17.7% of total freshwater withdrawals. The E&P segment uses groundwater mainly for injection for secondary and tertiary oil recovery in some oil fields.* •*Type of measurement: All data is obtained directly from flow meters located at each withdrawal point.* •*Comparison with the previous reporting year: This figure represents an increase of 1% compared to the previous year, Therefore, no significant variations were recorded in the production segment.* •*Future trend: As part of the Water Neutrality roadmap, Ecopetrol expects to reduce 66% of its freshwater withdrawals by 2045, compared to the 2019 baseline year.* •*Thresholds used for comparison with the previous year: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%)*

Groundwater – non-renewable

(9.2.7.1) Relevance

Select from:

☒ Relevant

(9.2.7.2) Volume (megaliters/year)

0

(9.2.7.3) Comparison with previous reporting year

Select from:

☒ About the same

(9.2.7.4) Primary reason for comparison with previous reporting year

Select from:

☒ Investment in water-smart technology/process

(9.2.7.5) Please explain

•*Relevance: Currently, Ecopetrol does not extract non-renewable groundwater. However, in the coming years, saline deep-aquifers may be of interest as an alternative source of water for secondary oil recovery, especially in the Middle Magdalena Valley basin, considering that this source does not compete with other water users.*

Produced/Entrained water

(9.2.7.1) Relevance

Select from:

☒ Relevant

(9.2.7.2) Volume (megaliters/year)

461492.23

(9.2.7.3) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.7.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.7.5) Please explain

•**Relevance:** Produced water is relevant since it is naturally brought to the surface during oil extraction. On average, each barrel of oil comes with 14 barrels of produced water •**Type of measurement:** Produced water is estimated from the daily oil production (measured using flow meters) and the average BSW (Basic Sediment and Water, a measure of the oil-water ratio) measured periodically by an external or internal laboratory •**Comparison with the previous reporting year:** There was an 6,8% increase caused by higher oil production in 2023 (3%) due to the normal operations of the Castilla field. •**Future trend** Ecopetrol expects a significant increase in total withdrawals, due to higher produced water levels as a natural result of hydraulic thrust in the Southern Llanos basin, and the aging of oil fields located on the Middle Magdalena Valley •**Thresholds used:** Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%)

Third party sources

(9.2.7.1) Relevance

Select from:

☒ Relevant

(9.2.7.2) Volume (megaliters/year)

8364.37

(9.2.7.3) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.7.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.7.5) Please explain

•Relevance: Freshwater from third-party sources is equivalent to 20.3% of the total freshwater withdrawn. It corresponds mainly to raw water supplied by the Cartagena public aqueduct (ACUACAR) to the Cartagena Refinery. •Type of measurement: All data is obtained directly from flow meters located at each withdrawal point. •Comparison with the previous reporting year: There was a 7.7% increase due to the stabilization operation of the Cartagena Crude Oil Plant Interconnection Project (IPCC for its Spanish acronym) which increased the oil throughput capacity (17) •Future trend: As part of the Water Neutrality roadmap, the Cartagena refinery expects to reduce the volume of water received from ACUACAR by enabling alternative sources of water. •Thresholds used for comparison with the previous year: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).
[Fixed row]

(9.2.8) Provide total water discharge data by destination.

Fresh surface water

(9.2.8.1) Relevance

Select from:

☒ Relevant

(9.2.8.2) Volume (megaliters/year)

(9.2.8.3) Comparison with previous reporting year

Select from:

☒ Higher**(9.2.8.4) Primary reason for comparison with previous reporting year**

Select from:

☒ Increase/decrease in business activity**(9.2.8.5) Please explain**

•**Relevance:** Discharges to surface water are relevant since 16,8% of total produced water and all wastewater from the Barranca bermeja refinery are managed through this destination. •**Type of measurement:** Most representative data is obtained directly from flow meters at each discharge point or the wastewater treatment plant outlet. •**Comparison with the previous reporting year:** There was a 5,6% increase due to the normal operations of the Cas tilla field and the entry of a new discharge point in Rubiales caused by the increase in water production as a normal behavior of the reservoir. •**Future trend:** As part of the Water Neutrality roadmap, the company expects to gradually reduce discharges to surface freshwater bodies, aiming to reach zero discharges by 2045 in both E&P and Refining segments. •**Thresholds used for comparison with the previous year:** Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

Brackish surface water/seawater**(9.2.8.1) Relevance**

Select from:

☒ Relevant**(9.2.8.2) Volume (megaliters/year)**

3038.21

(9.2.8.3) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.8.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in efficiency

(9.2.8.5) Please explain

•Relevance: Discharges to seawater are relevant to Ecopetrol since all wastewater from the Cartagena refinery is managed through this option. •Type of measurement: Data is obtained directly from flow meters at the wastewater treatment plant outlet. •Comparison with the previous reporting year: There was a 15.3% increase due to the stabilization into operation of the Cartagena Crude Oil Plant Interconnection Project (IPCC for its Spanish acronym) which increased the oil throughput capacity (17) •Future trend: No significant changes are expected since seawater will continue to be the primary destination of wastewater discharges. However, recycling and recirculation alternatives are currently under review seeking to reduce freshwater withdrawals and discharges to the sea. •Thresholds used for comparison with the previous year: Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

Groundwater

(9.2.8.1) Relevance

Select from:

☒ Relevant

(9.2.8.2) Volume (megaliters/year)

398999.54

(9.2.8.3) Comparison with previous reporting year

Select from:

☒ Higher

(9.2.8.4) Primary reason for comparison with previous reporting year

Select from:

☒ Mergers and acquisitions

(9.2.8.5) Please explain

•Context: discharges to groundwater include water injected for oil recovery and disposal, reuse for agroforestry irrigation, and discharges to the soil. •Relevance: It is relevant because 83.7% of total produced water is reinjected for disposal or secondary recovery. Discharges to soil are relevant for domestic wastewater management. •Measurement: Data is obtained directly from flow meters located in the injection plants or pipelines before the discharge. Domestic effluents could be estimated using approved methodologies. •Comparison with the previous reporting year: There was a 6.2% increase due to higher produced water levels as a natural result of hydraulic thrust in the Southern Llanos basin, and the aging of oil fields located on the Middle Magdalena Valley •Future trend: the company expects to increase water reinjection to reduce and eliminate discharges to surface freshwater bodies by 2045. •Thresholds used: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About

Third-party destinations

(9.2.8.1) Relevance

Select from:

☒ Relevant

(9.2.8.2) Volume (megaliters/year)

192.12

(9.2.8.3) Comparison with previous reporting year

Select from:

☒ Much lower

(9.2.8.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.8.5) Please explain

•Relevance: Although third-party destinations' volume is much lower than other destination sources, it remains relevant to Ecopetrol because they are the main discharge alternative for some exploration and drilling projects as well as some production fields such as Provincia, Tisquirama, and Aullador. •Measurement: Volume is normally accounted by the third party using flow meters located in transportation trucks. •Comparison with the previous reporting year: A 21.1% decrease was due

to the completion of drilling activities located on the Middle Magdalena Valley. • Future trend: the company expects to reduce this destination as a result of the maximization of water recirculation initiatives. • Thresholds used: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%).
[Fixed row]

(9.2.9) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

Tertiary treatment

(9.2.9.1) Relevance of treatment level to discharge

Select from:

☒ Relevant

(9.2.9.2) Volume (megaliters/year)

3835.52

(9.2.9.3) Comparison of treated volume with previous reporting year

Select from:

☒ Higher

(9.2.9.4) Primary reason for comparison with previous reporting year

Select from:

☒ Mergers and acquisitions

(9.2.9.5) % of your sites/facilities/operations this volume applies to

Select from:

☒ 1-10

(9.2.9.6) Please explain

•**Relevance:** Tertiary treatment is relevant for the E&P segment to produce the steam required for tertiary oil recovery in the Nare asset, which is operated by Ecopetrol since November 2021. It is also relevant for drilling activities, where wastewaters are treated by reverse osmosis and/or demineralization allowing the reuse of at least 90% of the treated water; however, it is not considered to be a discharge since treated water is reused at the sites, and only the rejected water (brine) is disposed through authorized external managers. • •**Primary reason for variation:** Comparison with the previous reporting year: There was a 2.4% increase due to higher steam requirements for tertiary oil recovery in the operation of Nare fields integrated to Ecopetrol S.A. • **Quality standards:** the water quality required for steam generation may vary depending on the manufacturer's requirements for each boiler. However, it is usually required low levels of hardness, salts, and some metals such as copper or iron. •**Future trend:** This volume is expected to increase (20% in the next 3 years) as part of the development plan of the Nare asset. •**Thresholds used:** Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%).

Secondary treatment

(9.2.9.1) Relevance of treatment level to discharge

Select from:

☒ Relevant

(9.2.9.2) Volume (megaliters/year)

87067.87

(9.2.9.3) Comparison of treated volume with previous reporting year

Select from:

☒ Higher

(9.2.9.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.9.5) % of your sites/facilities/operations this volume applies to

Select from:

☒ 11-20

(9.2.9.6) Please explain

•**Relevance:** Secondary treatment is relevant for the E&P and Refining segment as it allows to remove substances of environmental interest in discharges to natural receivers (fresh surface water, seawater, and soil) and to assure the compliance of the maximum allowed limits established in environmental regulations. It corresponds to wastewater treatment systems that remove pollutants by both physical (i.e. skimming tanks, API and CPI separators, floating cells, flocculation/coagulation, filters, decanters, etc.) and biological processes (oxidation and stabilization ponds, activated sludges, etc.). •**Primary reason for variation:** there was a 9.1% increase due to the normal operations of the Castilla field and the entry of a new discharge point in Rubiales field caused by the increase in water production as a normal behavior of the reservoir. •**Quality standards:** Secondary treatment allows us to ensure the compliance with the environmental regulation in terms of the maximum concentration of certain substances in wastewaters depending on the type of receiver. For instance, Resolution 631-2015 (to surface water), Resolution 883-2018 (to seawater), Resolution 1256-2021 (agricultural reuse standards), and Resolution 699-2021 (domestic discharges to soil). •**Future trend:** As part of the Water Neutrality roadmap, the company expects to reduce discharges to surface freshwater bodies aiming to reach zero discharges by 2045 in both E&P and Refining segments. In this sense, secondary treatment is also expected to decrease during the next years. •**Thresholds used for comparison with the previous year:** Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%)

Primary treatment only

(9.2.9.1) Relevance of treatment level to discharge

Select from:

☒ Relevant

(9.2.9.2) Volume (megaliters/year)

392617.49

(9.2.9.3) Comparison of treated volume with previous reporting year

Select from:

☒ Higher

(9.2.9.4) Primary reason for comparison with previous reporting year

Select from:

☒ Other, please specify :No relevant changes in business activity

(9.2.9.5) % of your sites/facilities/operations this volume applies to

Select from:

(9.2.9.6) Please explain

•**Relevance:** Primary treatment is relevant for the E&P segment, since it allows to reduce pollutants to the standards required for injection according to reservoir's characteristics (i.e., NACE standards). In the Downstream segment, stormwater and effluents from raw water treatment systems are also treated by primary treatments. •**Primary reason for variation:** there was a 5.6% increase caused mainly for higher water injection volumes for both oil recovery and disposal. •**Quality standards:** Usually primary treatment allows to reach NACE standards required to injection. It also allows to meet with environmental quality standards for stormwater and effluents from raw water treatment discharges. •**Future trend:** As part of the Water Neutrality roadmap, the company expects to increase water reinjection (resulting in higher primary treatment) to reduce and eliminate discharges to surface freshwater bodies by 2045 •**Thresholds used for comparison with the previous year:** Much higher (20%), Higher (5 to 20%), About the same (-5 to 5%), Lower (-5% to -20%), Much lower (-20%).

Discharge to the natural environment without treatment

(9.2.9.1) Relevance of treatment level to discharge

Select from:

☒ Not relevant

(9.2.9.6) Please explain

Ecopetrol considers this destination as "Not relevant" since no wastewater to the natural environment without prior treatment is discharged. All discharges to surface water, sea, or soils, are treated to remove harmful substances and to comply with the Colombian regulation.

Discharge to a third party without treatment

(9.2.9.1) Relevance of treatment level to discharge

Select from:

☒ Relevant

(9.2.9.2) Volume (megaliters/year)

150.46

(9.2.9.3) Comparison of treated volume with previous reporting year

Select from:

☒ Much lower

(9.2.9.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in business activity

(9.2.9.5) % of your sites/facilities/operations this volume applies to

Select from:

☒ Less than 1%

(9.2.9.6) Please explain

•**Relevance:** It relates to domestic and industrial wastewater discharged to public sewer and other third-party discharges. Although third-party destinations' volume is much lower than other destination sources, it remains relevant to Ecopetrol because they are the principal discharge alternative for some exploration and drilling projects. •**Comparison with the previous reporting year:** A 16.1% decrease was due to the completion of drilling activities located on the Middle Magdalena Valley. •**Quality standards:** The third-party treats wastewater to reach environmental standards depending on the type of receiver. However, some external managers reuse wastewaters instead of discharging it. • **Future trend:** the company expects to reduce this destination because of the maximization of water recirculation initiatives. •**Thresholds used:** Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%).

Other

(9.2.9.1) Relevance of treatment level to discharge

Select from:

☒ Relevant

(9.2.9.2) Volume (megaliters/year)

0

(9.2.9.3) Comparison of treated volume with previous reporting year

Select from:

☒ About the same

(9.2.9.4) Primary reason for comparison with previous reporting year

Select from:

☒ Increase/decrease in efficiency

(9.2.9.5) % of your sites/facilities/operations this volume applies to

Select from:

☒ Less than 1%

(9.2.9.6) Please explain

It is worth mentioning that the domestic water in some assets is treated using a phyto evaporator system which consists of an inlet of domestic wastewater through an up-flow anaerobic filter (UAFP) and the outlet release in a phyto evaporator system with grass (Vetiever sp.). Some of the water is absorbed by the grass, and some is lost through evapotranspiration. For the system to function correctly, maintenance is carried out to avoid the accumulation of fats and oils to guarantee its normal operation. Maintenance is carried out by a third party that holds an environmental permit for this activity.

[Fixed row]

(9.2.10) Provide details of your organization's emissions of nitrates, phosphates, pesticides, and other priority substances to water in the reporting year.

(9.2.10.1) Emissions to water in the reporting year (metric tons)

125.2

(9.2.10.2) Categories of substances included

Select all that apply

☒ Nitrates

☒ Phosphates

(9.2.10.4) Please explain

• *Nitrates: 95.4 metric tons were emitted to water in 2023, representing an average nitrate concentration of 1.16 mg/L in wastewater discharged to water. This is a very low concentration considering that, for instance, the standard for nitrate in drinking water is 10 mg/L.* • *Phosphates: 29.7 metric tons were emitted to water in 2023, representing an average phosphates concentration of 0.36 mg/L in wastewater discharged to water. This is a very low concentration considering that, for instance, the Colombian standard for phosphate in drinking water is 0.5 mg/L.* • *Pesticides: No pesticides have been found in our wastewater discharges (i.e. below the detection limit).* • *Priority substances: No listed metals nor PHA have been found in our wastewater discharges (i.e. below the detection limit).*
[Fixed row]

(9.3) In your direct operations and upstream value chain, what is the number of facilities where you have identified substantive water-related dependencies, impacts, risks, and opportunities?

Direct operations

(9.3.1) Identification of facilities in the value chain stage

Select from:

☒ Yes, we have assessed this value chain stage and identified facilities with water-related dependencies, impacts, risks, and opportunities

(9.3.2) Total number of facilities identified

7

(9.3.3) % of facilities in direct operations that this represents

Select from:

☒ 1-25

(9.3.4) Please explain

According to the water-related risk assessment, Ecopetrol has identified that 3 of 48 assets could be exposed to possible water risks due to seasonal variability with the potential substantive financial impact on operations. These facilities (Castilla, Apiay, and Suria) are in Orinoco's river basin. As part of their oil production depends on the surface water discharges, it could be affected by if receiver bodies' have levels below the ecological threshold during the dry season. Furthermore, the reputational and regulatory risks in these facilities could also be increased by the dry season as we have already experienced in Apiay during the last year, where the environmental authority temporary suspended its surface discharge permit due to a change in the Ocoa River's flow patterns, typical in braided rivers. Furthermore,

we have 4 additional facilities with substantive water-related dependencies. Note: Rubiales is not considered a facility exposed to water risks that could have a substantive financial impact as the reduction in production associated with seasonal variability is already included in the production forecast (P50), and thus the production effects due to the yearly surface water discharge temporary suspension, is not considered a deferred production.

Upstream value chain

(9.3.1) Identification of facilities in the value chain stage

Select from:

☒ No, we have assessed this value chain stage but did not identify any facilities with water-related dependencies, impacts, risks, and opportunities

(9.3.4) Please explain

Contracts with major water use are related to activities of well drilling, workover, general oil services, and operation and maintenance of production facilities. Water required for these activities is provided by Ecopetrol so that their water-related risks are included in Ecopetrol's direct operation analysis. Also, it is important to mention that risk related to freshwater availability for drilling operations (in terms of both water use and discharges) has decreased due to the implementation of reverse osmosis and demineralization treatments for domestic and industrial wastewater, allowing the recycling of at least 90% of the treated water in activities such as drilling fluid preparation, equipment washing, pump cooling, and other industrial uses. About 80-90% of Ecopetrol's indirect consumption water footprint is related to the electrical energy supply. Although it has been found that seasonal variability and climate phenomenon like "El Niño Southern Oscillation" could potentially impact the energy supply due to the low level of the rivers that feed the hydroelectric generation system, which could increase electricity costs and shortages of electricity supply, it is not expected that this situation may significantly affect Ecopetrol's operational continuity in the coming years.

[Fixed row]

(9.3.1) For each facility referenced in 9.3, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Row 1

(9.3.1.1) Facility reference number

Select from:

☒ Facility 1

(9.3.1.2) Facility name (optional)

(9.3.1.3) Value chain stage

Select from:

☒ Direct operations

(9.3.1.4) Dependencies, impacts, risks, and/or opportunities identified at this facility

Select all that apply

☒ Dependencies

☒ Impacts

☒ Risks

☒ Opportunities

(9.3.1.5) Withdrawals or discharges in the reporting year

Select from:

☒ Yes, withdrawals and discharges

(9.3.1.7) Country/Area & River basin

Colombia

☒ Orinoco

(9.3.1.8) Latitude

3.87

(9.3.1.9) Longitude

-73.65

(9.3.1.10) Located in area with water stress

Select from:

☒ No

(9.3.1.12) Oil & gas sector business division

Select all that apply

☒ Upstream

(9.3.1.13) Total water withdrawals at this facility (megaliters)

115916.3

(9.3.1.14) Comparison of total withdrawals with previous reporting year

Select from:

☒ Higher

(9.3.1.15) Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

24.5

(9.3.1.16) Withdrawals from brackish surface water/seawater

0

(9.3.1.17) Withdrawals from groundwater - renewable

82

(9.3.1.18) Withdrawals from groundwater - non-renewable

0

(9.3.1.19) Withdrawals from produced/entrained water

115809.7

(9.3.1.20) Withdrawals from third party sources

0

(9.3.1.21) Total water discharges at this facility (megaliters)

115815.7

(9.3.1.22) Comparison of total discharges with previous reporting year

Select from:

☒ Higher

(9.3.1.23) Discharges to fresh surface water

45535.3

(9.3.1.24) Discharges to brackish surface water/seawater

0

(9.3.1.25) Discharges to groundwater

72277.7

(9.3.1.26) Discharges to third party destinations

2.6

(9.3.1.27) Total water consumption at this facility (megaliters)

100.6

(9.3.1.28) Comparison of total consumption with previous reporting year

Select from:

☒ About the same

(9.3.1.29) Please explain

Castilla field is in the municipalities of Castilla La Nueva and Acacías in the Department of Meta. Its freshwater withdrawals are in the sub-basin of the Metica River, while the discharge point is in the Guayuriba River sub-basin. Both sub-basins are part of the great basin of the Orinoco River. According to the baseline water stress estimated using WRI's methodology and hydrological information from the IDEAM's National Water Study (2022), neither of the two sub-basins are in a water-stressed area. •Surface withdrawals correspond to rivers and other water streams. •Variation: Total withdrawals and discharges were 6% higher compared to 2022 due to higher produced water levels as a natural result of hydraulic thrust in the basin. •Data sources: Volumes of total freshwater withdrawals are obtained from direct measurement; produced water is estimated considering the oil production and the average field's BSW (basic water and sediment); discharges are also obtained from direct measurements; total consumption was estimated as the difference between total withdrawals and discharges. •Thresholds used for comparison: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%).

Row 2

(9.3.1.1) Facility reference number

Select from:

☒ Facility 2

(9.3.1.2) Facility name (optional)

Apiay

(9.3.1.3) Value chain stage

Select from:

☒ Direct operations

(9.3.1.4) Dependencies, impacts, risks, and/or opportunities identified at this facility

Select all that apply

☒ Dependencies

☒ Impacts

☒ Risks

☒ Opportunities

(9.3.1.5) Withdrawals or discharges in the reporting year

Select from:

☒ Yes, withdrawals and discharges

(9.3.1.7) Country/Area & River basin

Colombia

☒ Orinoco

(9.3.1.8) Latitude

4.0886

(9.3.1.9) Longitude

-73.3826

(9.3.1.10) Located in area with water stress

Select from:

☒ No

(9.3.1.12) Oil & gas sector business division

Select all that apply

☒ Upstream

(9.3.1.13) Total water withdrawals at this facility (megaliters)

2521.7

(9.3.1.14) Comparison of total withdrawals with previous reporting year

Select from:

☒ Lower

(9.3.1.15) Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

(9.3.1.16) Withdrawals from brackish surface water/seawater

0

(9.3.1.17) Withdrawals from groundwater - renewable

118.6

(9.3.1.18) Withdrawals from groundwater - non-renewable

0

(9.3.1.19) Withdrawals from produced/entrained water

2403.1

(9.3.1.20) Withdrawals from third party sources

0

(9.3.1.21) Total water discharges at this facility (megaliters)

2516.4

(9.3.1.22) Comparison of total discharges with previous reporting year

Select from:

☒ Lower

(9.3.1.23) Discharges to fresh surface water

1263.8

(9.3.1.24) Discharges to brackish surface water/seawater

0

(9.3.1.25) Discharges to groundwater

1249.4

(9.3.1.26) Discharges to third party destinations

3.2

(9.3.1.27) Total water consumption at this facility (megaliters)

5.3

(9.3.1.28) Comparison of total consumption with previous reporting year

Select from:

☒ About the same

(9.3.1.29) Please explain

•Apiay field is in the municipality of Villavicencio in the Department of Meta. Its freshwater withdrawals are in the sub-basin of the Negro River, while the discharge point is located in the Guatiquia River sub-basin. Both sub-basins are part of the great basin of the Orinoco River. According to the baseline water stress estimated using WRI's methodology and hydrological information from the IDEAM's National Water Study (2022), neither of the two sub-basins are in a water-stressed area. •Comparison with the previous reporting year: Total withdrawals and discharges were 9% and 8% lower (respectively) compared to 2022 due to the temporary 414 discharge restriction to the Ocoa River in the last quarter of 2023. •Data sources: Volumes of total freshwater withdrawals (surface and groundwater) are obtained from direct measurement; produced water is estimated considering the oil production and the average field's BSW (basic water and sediment); discharges are also

obtained from direct measurements; total consumption was estimated as the difference between total withdrawals and total discharges. •Thresholds used for comparison: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%).

Row 3

(9.3.1.1) Facility reference number

Select from:

☒ Facility 3

(9.3.1.2) Facility name (optional)

Suria

(9.3.1.3) Value chain stage

Select from:

☒ Direct operations

(9.3.1.4) Dependencies, impacts, risks, and/or opportunities identified at this facility

Select all that apply

☒ Dependencies

☒ Impacts

☒ Risks

☒ Opportunities

(9.3.1.5) Withdrawals or discharges in the reporting year

Select from:

☒ Yes, withdrawals and discharges

(9.3.1.7) Country/Area & River basin

Colombia

☒ Orinoco

(9.3.1.8) Latitude

4.0432

(9.3.1.9) Longitude

-73.4551

(9.3.1.10) Located in area with water stress

Select from:

☒ No

(9.3.1.12) Oil & gas sector business division

Select all that apply

☒ Upstream

(9.3.1.13) Total water withdrawals at this facility (megaliters)

6108.4

(9.3.1.14) Comparison of total withdrawals with previous reporting year

Select from:

☒ About the same

(9.3.1.15) Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

(9.3.1.16) Withdrawals from brackish surface water/seawater

0

(9.3.1.17) Withdrawals from groundwater - renewable

305.8

(9.3.1.18) Withdrawals from groundwater - non-renewable

0

(9.3.1.19) Withdrawals from produced/entrained water

5802.6

(9.3.1.20) Withdrawals from third party sources

0

(9.3.1.21) Total water discharges at this facility (megaliters)

5949.5

(9.3.1.22) Comparison of total discharges with previous reporting year

Select from:

☒ About the same

(9.3.1.23) Discharges to fresh surface water

4701.3

(9.3.1.24) Discharges to brackish surface water/seawater

0

(9.3.1.25) Discharges to groundwater

1247.5

(9.3.1.26) Discharges to third party destinations

1

(9.3.1.27) Total water consumption at this facility (megaliters)

158.9

(9.3.1.28) Comparison of total consumption with previous reporting year

Select from:

☒ About the same

(9.3.1.29) Please explain

•Suria field is in the municipality of Villavicencio in the Department of Meta. Its freshwater withdrawals are in the sub-basin of the Negro River, while the discharge point is in the Guayuriba River sub-basin. Both sub-basins are part of the great basin of the Orinoco River. According to the baseline water stress estimated using WRI's methodology and hydrological information from the IDEAM's National Water Study (2022), neither of the two sub-basins are in a water-stressed area.

•Comparison with the previous reporting year: Total withdrawals and discharges were 5.1% and 4.5% higher (respectively) compared to 2022 due to higher produced water levels as a natural result of hydraulic thrust in the basin.

•Data sources: Volumes of total freshwater withdrawals and discharges are obtained from direct measurement; produced water is estimated considering the oil production and the average field's BSW (basic water and sediment); total consumption was estimated as the difference between total withdrawals and total discharges.

•Thresholds used for comparison: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%).

Row 4

(9.3.1.1) Facility reference number

Select from:

☒ Facility 4

(9.3.1.2) Facility name (optional)

(9.3.1.3) Value chain stage

Select from:

☒ Direct operations

(9.3.1.4) Dependencies, impacts, risks, and/or opportunities identified at this facility

Select all that apply

☒ Dependencies

☒ Impacts

☒ Opportunities

(9.3.1.5) Withdrawals or discharges in the reporting year

Select from:

☒ Yes, withdrawals and discharges

(9.3.1.7) Country/Area & River basin

Colombia

☒ Orinoco

(9.3.1.8) Latitude

3.831

(9.3.1.9) Longitude

-71.455

(9.3.1.10) Located in area with water stress

Select from:

☒ No

(9.3.1.12) Oil & gas sector business division

Select all that apply

☒ Upstream

(9.3.1.13) Total water withdrawals at this facility (megaliters)

237699.6

(9.3.1.14) Comparison of total withdrawals with previous reporting year

Select from:

☒ Higher

(9.3.1.15) Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

(9.3.1.16) Withdrawals from brackish surface water/seawater

0

(9.3.1.17) Withdrawals from groundwater - renewable

222.3

(9.3.1.18) Withdrawals from groundwater - non-renewable

0

(9.3.1.19) Withdrawals from produced/entrained water

237477.4

(9.3.1.20) Withdrawals from third party sources

0

(9.3.1.21) Total water discharges at this facility (megaliters)

237576

(9.3.1.22) Comparison of total discharges with previous reporting year

Select from:

☒ Higher

(9.3.1.23) Discharges to fresh surface water

20812.9

(9.3.1.24) Discharges to brackish surface water/seawater

0

(9.3.1.25) Discharges to groundwater

216553.5

(9.3.1.26) Discharges to third party destinations

0

(9.3.1.27) Total water consumption at this facility (megaliters)

123.6

(9.3.1.28) Comparison of total consumption with previous reporting year

Select from:

☒ Higher

(9.3.1.29) Please explain

•The Rubiales field is in the municipality of Puerto Gaitán in the Department of Meta. Its freshwater withdrawals and discharges are in the high basin of the Vichada River, which is part of the great basin of the Orinoco River. According to the baseline water stress estimated using WRI's methodology and hydrological data from the IDEAM's National Water Study (2022), this basin is not considered a water-stressed area. Rubiales is not considered a facility exposed to water risks that could have a substantive financial impact as the reduction in production associated with seasonal variability is already included in the production planning (P50), and thus the production effects due to the yearly surface water discharge temporary suspension, is not considered a deferred production. However, it does have a substantive dependency on water resources, and opportunities (such as increasing recycling for maintaining reservoir's pressure, and the pilot of agricultural reuse in association with Frontera Energy) have been assessed for reducing its dependance on surface water availability where Rubiales carries out part of its discharges. •Comparison with the previous reporting year: Total withdrawals and discharges were 5.5% and 5.4% higher (respectively) compared to 2022 due to higher produced water levels as a natural result of hydraulic thrust in the basin and the habilitation of a new authorized surface discharge point. •Data sources: Volumes of total freshwater withdrawals and dischar

Row 5

(9.3.1.1) Facility reference number

Select from:

☒ Facility 5

(9.3.1.2) Facility name (optional)

Refinería de Cartagena

(9.3.1.3) Value chain stage

Select from:

☒ Direct operations

(9.3.1.4) Dependencies, impacts, risks, and/or opportunities identified at this facility

Select all that apply

☒ Dependencies

☒ Impacts

(9.3.1.5) Withdrawals or discharges in the reporting year

Select from:

☒ Yes, withdrawals and discharges

(9.3.1.7) Country/Area & River basin

Colombia

☒ Magdalena

(9.3.1.8) Latitude

10.317

(9.3.1.9) Longitude

-75.491

(9.3.1.10) Located in area with water stress

Select from:

☒ Yes

(9.3.1.12) Oil & gas sector business division

Select all that apply

☒ Downstream

(9.3.1.13) Total water withdrawals at this facility (megaliters)

8356.8

(9.3.1.14) Comparison of total withdrawals with previous reporting year

Select from:

☒ Higher

(9.3.1.15) Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

(9.3.1.16) Withdrawals from brackish surface water/seawater

0

(9.3.1.17) Withdrawals from groundwater - renewable

0

(9.3.1.18) Withdrawals from groundwater - non-renewable

0

(9.3.1.19) Withdrawals from produced/entrained water

0

(9.3.1.20) Withdrawals from third party sources

8356.8

(9.3.1.21) Total water discharges at this facility (megaliters)

3038.2

(9.3.1.22) Comparison of total discharges with previous reporting year

Select from:

☒ Higher

(9.3.1.23) Discharges to fresh surface water

0

(9.3.1.24) Discharges to brackish surface water/seawater

3038.2

(9.3.1.25) Discharges to groundwater

0

(9.3.1.26) Discharges to third party destinations

0

(9.3.1.27) Total water consumption at this facility (megaliters)

5318.6

(9.3.1.28) Comparison of total consumption with previous reporting year

Select from:

☒ About the same

(9.3.1.29) Please explain

•The refinery of Cartagena is in the municipality of Cartagena in the Department of Bolivar. It receives raw freshwater from ACUACAR (the city's public aqueduct) withdrawn from the sub-basin of the Canal del Dique, while the discharge point is carried out directly to the Caribbean Sea. The Canal del Dique's basin is part of the great basin of the Magdalena River, and it is considered as a water-stressed area according to the baseline water stress estimated using WRI's methodology and hydrological information from the IDEAMs National Water Study (2022). This facility has a substantive dependency on water resources for its operation. However, even though there is an inherent physical risk posed to the Canal del Dique's basin, the contingency and response plans established by ACUACAR for facing 430 seasonal variability, decrease substantially the probability of occurrence and duration of water shortages; furthermore, the Cartagena refinery has implemented actions for maximizing water recycling, which allows to reduce the dependance on freshwater supply. •Comparison with the previous reporting year: Total withdrawals and discharges were 8.6% and 18.3% higher (respectively) compared to 2022; the increase was caused by higher oil throughput in the refinery of Cartagena (41,5%), which resulted in higher demand of freshwater and discharges. •Data sources: Volumes of total freshwater withdrawals and discharges are obtained from direct measurements; measurements; total consumption wa

Row 6

(9.3.1.1) Facility reference number

Select from:

☒ Facility 6

(9.3.1.2) Facility name (optional)

Refinería de Barrancabermeja

(9.3.1.3) Value chain stage

Select from:

☒ Direct operations

(9.3.1.4) Dependencies, impacts, risks, and/or opportunities identified at this facility

Select all that apply

☒ Dependencies

☒ Impacts

(9.3.1.5) Withdrawals or discharges in the reporting year

Select from:

☒ Yes, withdrawals and discharges

(9.3.1.7) Country/Area & River basin

Colombia

☒ Magdalena

(9.3.1.8) Latitude

7.075

(9.3.1.9) Longitude

-73.876

(9.3.1.10) Located in area with water stress

Select from:

☒ No

(9.3.1.12) Oil & gas sector business division

Select all that apply

☒ Downstream

(9.3.1.13) Total water withdrawals at this facility (megaliters)

22546.6

(9.3.1.14) Comparison of total withdrawals with previous reporting year

Select from:

☒ Higher

(9.3.1.15) Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

22546.6

(9.3.1.16) Withdrawals from brackish surface water/seawater

0

(9.3.1.17) Withdrawals from groundwater - renewable

0

(9.3.1.18) Withdrawals from groundwater - non-renewable

0

(9.3.1.19) Withdrawals from produced/entrained water

0

(9.3.1.20) Withdrawals from third party sources

0

(9.3.1.21) Total water discharges at this facility (megaliters)

9747.1

(9.3.1.22) Comparison of total discharges with previous reporting year

Select from:

☒ Much lower

(9.3.1.23) Discharges to fresh surface water

9747.1

(9.3.1.24) Discharges to brackish surface water/seawater

0

(9.3.1.25) Discharges to groundwater

0

(9.3.1.26) Discharges to third party destinations

0

(9.3.1.27) Total water consumption at this facility (megaliters)

12799.5

(9.3.1.28) Comparison of total consumption with previous reporting year

Select from:

☒ Much higher

(9.3.1.29) Please explain

•The refinery of Barrancabermeja is in the municipality of Barrancabermeja in the Department of Santander. It is in the sub-basin of the Opón and Sogamoso rivers, which are part of the great basin of the Magdalena River. For its operation, the refinery has a substantive dependency on the freshwater withdrawn from the Magdalena River and the San Silvestre swamp. For the latter one, we have identified an inherent physical and a reputational risk for the mid-term, since it is located at the same supply source of municipality's public aqueduct; however, the potential impacts have been reduced over the years due to increasing water re cycling and reduced withdrawal. According to the baseline water stress estimated using WRI's methodology and hydrological information from the IDEAM's National Water Study (2022), the Sogamoso's basin is considered a water-stressed area due to high water use for hydro energy in the Sogamoso River. •Comparison with the previous reporting year: Total withdrawals were 8.8% higher and discharges were 21.3% lower compared to 2022; the increase in total withdrawals was caused by higher oil throughput in The refinery of Barrancabermeja (1,9%), which resulted in higher demand of freshwater and the decrease in discharges was caused by the decrease in the rainwater susceptible to contamination discharge resulting from a natural decrease in precipitation. Industrial wastewater remained practically the same. •Data sources: Volumes of total freshwater withdrawals

Row 7

(9.3.1.1) Facility reference number

Select from:

☒ Facility 7

(9.3.1.2) Facility name (optional)

La Cira Infantas

(9.3.1.3) Value chain stage

Select from:

☒ Direct operations

(9.3.1.4) Dependencies, impacts, risks, and/or opportunities identified at this facility

Select all that apply

☒ Dependencies

☒ Impacts

☒ Opportunities

(9.3.1.5) Withdrawals or discharges in the reporting year

Select from:

☒ Yes, withdrawals and discharges

(9.3.1.7) Country/Area & River basin

Colombia

☒ Magdalena

(9.3.1.8) Latitude

6.947

(9.3.1.9) Longitude

-73.76411

(9.3.1.10) Located in area with water stress

Select from:

☒ No

(9.3.1.12) Oil & gas sector business division

Select all that apply

☒ Upstream

(9.3.1.13) Total water withdrawals at this facility (megaliters)

34289.4

(9.3.1.14) Comparison of total withdrawals with previous reporting year

Select from:

☒ About the same

(9.3.1.15) Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

2819.4

(9.3.1.16) Withdrawals from brackish surface water/seawater

0

(9.3.1.17) Withdrawals from groundwater - renewable

2.4

(9.3.1.18) Withdrawals from groundwater - non-renewable

0

(9.3.1.19) Withdrawals from produced/entrained water

31467.6

(9.3.1.20) Withdrawals from third party sources

0

(9.3.1.21) Total water discharges at this facility (megaliters)

33952.3

(9.3.1.22) Comparison of total discharges with previous reporting year

Select from:

☒ About the same

(9.3.1.23) Discharges to fresh surface water

0

(9.3.1.24) Discharges to brackish surface water/seawater

0

(9.3.1.25) Discharges to groundwater

33687.4

(9.3.1.26) Discharges to third party destinations

0

(9.3.1.27) Total water consumption at this facility (megaliters)

337

(9.3.1.28) Comparison of total consumption with previous reporting year

Select from:

☒ Much higher

(9.3.1.29) Please explain

La Cira Infantas field is in the municipality of Barrancabermeja in the Department of Santander, located in the sub-basin of the Opón river, which is part of the great basin of the Magdalena River. According to the baseline water stress estimated using WRI's methodology and hydrological information from the IDEAM's National Water Study (2022), this basin is not considered as a water-stressed area. Furthermore, we have not identified major water-related risks for this facility. However, it does have a dependance on surface freshwater for fulfilling the difference between the reservoirs' water required for secondary oil recovery (EOR) and the water produced by the field which is 100% recirculated For this facility, we are evaluating the feasibility of using water from deep aquifers for secondary oil recovery activities (see details in C.3.6). •Comparison with the previous reporting year: Total withdrawals and discharges were 2.1% and 0.6% higher (respectively) compared to 2022, this figure does not represent a significant variation, However, it is important to highlight that the consumption of freshwater used for injection in secondary oil recovery (EOR) increased by 12.6% due to the needs of the production process to stimulate the reservoir for oil production • Data sources: Volumes of total freshwater withdrawals and discharges are obtained from direct measurements; measurements; total consumption was estimated as the difference between total withdrawals and total discharges.

[Add row]

(9.3.2) For the facilities in your direct operations referenced in 9.3.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"

Water withdrawals – volume by source

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"

Water withdrawals – quality by standard water quality parameters

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"

Water discharges – total volumes

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"

Water discharges – volume by destination

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"

Water discharges – volume by final treatment level

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"

Water discharges – quality by standard water quality parameters

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"

Water consumption – total volume

(9.3.2.1) % verified

Select from:

☒ 76-100

(9.3.2.2) Verification standard used

All the water figures reported are included in the Integrated Sustainable Management Report 2023, which was verified by the independent consultant "EY"
[Fixed row]

(9.5) Provide a figure for your organization's total water withdrawal efficiency.

(9.5.1) Revenue (currency)

14900000000000

(9.5.2) Total water withdrawal efficiency

296101097.74

(9.5.3) Anticipated forward trend

Total water withdrawal efficiency was estimated at COP 296,101 per cubic meter of water withdrawn (freshwater and produced water), which is way higher than the Colombian target by 2030 of COP 4,400/m3 of freshwater withdrawn established in the Green Growth Policy. Considering the nature of our reservoirs, produced water levels may increase in the future, decreasing this figure in the future. However, regarding freshwater withdrawals efficiency it will be lower due to the water neutrality targets
[Fixed row]

(9.11) Do you calculate water intensity for your activities associated with the oil & gas sector?

Select from:

☒ Yes

(9.11.1) Provide water intensity information associated with your activities in the oil & gas sector.

Row 1

(9.11.1.1) Business division

Select all that apply

☒ Upstream

(9.11.1.2) Water intensity value (m3/denominator)

0.05

(9.11.1.3) Numerator: water aspect

Select from:

☒ Freshwater withdrawals

(9.11.1.4) Denominator

Select from:

☒ Barrel of oil equivalent

(9.11.1.5) Comparison with previous reporting year

Select from:

☒ About the same

(9.11.1.6) Please explain

Freshwater intensity for the E&P segment was estimated at 0.049 m3/BOE, representing a 4.3% increase compared to 2022, Therefore, no significant variations were recorded in the production segment. In addition, the increase is due to a greater requirement (18%) of fresh water for injection for secondary oil recovery, especially in the Tibú and La Cira Infantas fields This metric is relevant for Ecopetrol as an indicator of freshwater use efficiency in the E&P segment that allows us internally benchmark our oil fields and to identify and prioritize where the water management actions should focus. It is also a reference for comparison with other oil and gas companies. We expect to continue decreasing the freshwater intensity due to the implementation of the water neutrality roadmap, which prioritizes the maximization of internal water recirculation and using alternative water sources (such as brackish water from deep aquifers) to reduce our freshwater withdrawals. Note: Thresholds used for comparison: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%)

Row 2

(9.11.1.1) Business division

Select all that apply

☒ Downstream

(9.11.1.2) Water intensity value (m3/denominator)

0.2

(9.11.1.3) Numerator: water aspect

Select from:

☒ Freshwater withdrawals

(9.11.1.4) Denominator

Select from:

☒ Barrel of crude oil throughput

(9.11.1.5) Comparison with previous reporting year

Select from:

☒ Lower

(9.11.1.6) Please explain

The downstream freshwater intensity was estimated at 0.202 m3 per barrel of oil throughput. This figure shows a decrease of 7.4% compared to 2022 due to the increase in efficiencies in water management by recirculating industrial wastewater (61.4%) in the processes of the refining segment. This metric is relevant for Ecopetrol as an indicator of freshwater use efficiency in the Refining segment, allowing us to benchmark our refineries with others in the world, and as a reference for establishing mid and long-term targets. We expect to decrease the freshwater intensity by more than 25% in 2030 due to the implementation of the water neutrality roadmap, which prioritizes the maximization of internal water recirculation and using alternative water sources such as municipal domestic wastewater or seawater (in Cartagena Refinery) to reduce the freshwater withdrawals. Note: Thresholds used for comparison: Much higher/lower (20/-20%), Higher/Lower (5 to 20%/-5 to -20%), About the same (-5 to 5%)

[Add row]

(9.13) Do any of your products contain substances classified as hazardous by a regulatory authority?

	Products contain hazardous substances
	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(9.13.1) What percentage of your company's revenue is associated with products containing substances classified as hazardous by a regulatory authority?

Row 1

(9.13.1.1) Regulatory classification of hazardous substances

Select from:

☒ Federal Water Pollution Control Act / Clean Water Act (United States Regulation)

(9.13.1.2) % of revenue associated with products containing substances in this list

Select from:

☒ More than 80%

(9.13.1.3) Please explain

Crude oils and refined petroleum products naturally contain different hydrocarbons and other organic and inorganic substances including sulfur, nitrogen, and heavy metals. Some hazardous substances listed in the US regulation are naturally contained in our products such as polyaromatic hydrocarbons (e.g. naphthalene, acenaphthene, etc.), volatile organic compounds (benzene, toluene, etc.), phenols, and metals (e.g. lead, arsenic).

[Add row]

(9.14) Do you classify any of your current products and/or services as low water impact?

(9.14.1) Products and/or services classified as low water impact

Select from:

☒ Yes

(9.14.2) Definition used to classify low water impact

Definition provided by the GRI standard, disclosure 303-2 (2016): Water sources significantly affected by water withdrawal: withdrawals that account for an average of five (5) percent or more of the annual average volume of the water body.

(9.14.4) Please explain

During 2023, no surface bodies of water were affected by withdrawals, given that the ratio of 5% between the volume collected and the available surface supply of a given hydrographic subzone was not exceeded.
[Fixed row]

(9.15) Do you have any water-related targets?

Select from:

☒ Yes

(9.15.1) Indicate whether you have targets relating to water pollution, water withdrawals, WASH, or other water-related categories.

	Target set in this category
Water pollution	Select from: <input checked="" type="checkbox"/> Yes
Water withdrawals	Select from:

	Target set in this category
	<input checked="" type="checkbox"/> Yes
Water, Sanitation, and Hygiene (WASH) services	Select from: <input checked="" type="checkbox"/> Yes
Other	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(9.15.2) Provide details of your water-related targets and the progress made.

Row 1

(9.15.2.1) Target reference number

Select from:

☒ Target 1

(9.15.2.2) Target coverage

Select from:

☒ Organization-wide (direct operations only)

(9.15.2.3) Category of target & Quantitative metric

Water use efficiency

☒ Reduction in total water withdrawals

(9.15.2.4) Date target was set

12/31/2022

(9.15.2.5) End date of base year

12/31/2019

(9.15.2.6) Base year figure

47516

(9.15.2.7) End date of target year

12/31/2023

(9.15.2.8) Target year figure

42020

(9.15.2.9) Reporting year figure

38245

(9.15.2.10) Target status in reporting year

Select from:

☒ Achieved

(9.15.2.11) % of target achieved relative to base year

169

(9.15.2.12) Global environmental treaties/initiatives/ frameworks aligned with or supported by this target

Select all that apply

(9.15.2.13) Explain target coverage and identify any exclusions

Target coverage: It includes both E&P and Refining segments; •Exclusions: No facilities were excluded from this target.

(9.15.2.15) Actions which contributed most to achieving or maintaining this target

In 2023, Ecopetrol withdrew 42 million m3 of freshwater for industrial use, representing a 20% reduction compared to the baseline. This reduction represents 169% compliance with the 12% reduction target for 2023, due to higher recycling of produced water for secondary oil recovery (EOR) in La Cira Infantas, and lower demands in the Tibú, Cantagallo and Casabe fields. Furthermore, there was a 12% increment in the recycled water resulting from freshwater use, due to the identification and implementation of new recirculation initiatives mainly in the Downstream segment which also contributed for reducing the freshwater withdrawn. Having the water neutrality ambition within the Corporate Strategy 2040 has been of key importance for the achieving this target

(9.15.2.16) Further details of target

•Target description: 12% reduction in freshwater withdrawals for industrial uses with regards to the baseline year. •Units for the base year, target year, and reporting year figures: Megaliters per year. •Motivation: As part of the water neutrality commitment, Ecopetrol seeks to reduce 66% of its freshwater withdrawals for industrial uses by 2045, to reduce its water footprint (impacts) and its dependence on freshwater availability, which allows it to manage physical, regulatory, and reputation risks, and increases the resilience of operations in more a challenging territory. We set year- by-year rolling targets to drive the company toward the achievement of the water neutrality goal.

Row 2

(9.15.2.1) Target reference number

Select from:

☒ Target 2

(9.15.2.2) Target coverage

Select from:

☒ Organization-wide (direct operations only)

(9.15.2.3) Category of target & Quantitative metric

Water use efficiency

☒ Increase water use met through recycling/reuse

(9.15.2.4) Date target was set

12/31/2022

(9.15.2.5) End date of base year

12/31/2019

(9.15.2.6) Base year figure

35.8

(9.15.2.7) End date of target year

12/31/2023

(9.15.2.8) Target year figure

40.1

(9.15.2.9) Reporting year figure

50.2

(9.15.2.10) Target status in reporting year

Select from:

☒ Achieved

(9.15.2.11) % of target achieved relative to base year

335

(9.15.2.12) Global environmental treaties/initiatives/ frameworks aligned with or supported by this target

Select all that apply

☒ Sustainable Development Goal 6

(9.15.2.13) Explain target coverage and identify any exclusions

•Target coverage: It includes both E&P and Refining segments; •Exclusions: No facilities were excluded from this target

(9.15.2.15) Actions which contributed most to achieving or maintaining this target

In 2023, Ecopetrol recycled 19 million m3 of effluents resulting from withdrawn freshwater. The percentage of recirculation was 50.2% (an increase of 14.4 percentage points with respect to the base line), achieving the established target for 2023 thanks to higher water recycling in our refineries as well as lower freshwater withdrawals (denominator of the equation). Having the water neutrality ambition within the Corporate Strategy 2040 has been of key importance for the achieving this target.

(9.15.2.16) Further details of target

•Unit for the target year, and reporting year figures: percentage (%). •Description of target: % of freshwater recycling is calculated as the ratio between freshwater water recycled and total freshwater withdrawals for industrial uses. •Motivation: Year-on-year rolling targets are set to drive the company toward the achievement of the water neutrality goal. Ecopetrol is committed to recycling water as a strategy to reduce freshwater withdrawals and discharges. This indicator is part of the corporate indicator "Efficiency in water management".

Row 3

(9.15.2.1) Target reference number

Select from:

☒ Target 3

(9.15.2.2) Target coverage

Select from:

☒ Organization-wide (direct operations only)

(9.15.2.3) Category of target & Quantitative metric

Water use efficiency

☒ Increase water use met through recycling/reuse

(9.15.2.4) Date target was set

12/31/2022

(9.15.2.5) End date of base year

12/31/2019

(9.15.2.6) Base year figure

18

(9.15.2.7) End date of target year

12/31/2023

(9.15.2.8) Target year figure

31.5

(9.15.2.9) Reporting year figure

28.4

(9.15.2.10) Target status in reporting year

Select from:

☒ Expired

(9.15.2.11) % of target achieved relative to base year

77

(9.15.2.12) Global environmental treaties/initiatives/ frameworks aligned with or supported by this target

Select all that apply

☒ Sustainable Development Goal 6

(9.15.2.13) Explain target coverage and identify any exclusions

Target coverage: It includes the E&P segment; •Exclusions: No facilities were excluded from this target.

(9.15.2.16) Further details of target

• Description of target: % of produced water recycled/recirculated calculated as the ratio between produced water recycled/re circulated and total produced water extracted. •Unit for the target year, and reporting year figures: percentage (%). • Results: The percentage of produced water recycled was 28,4%, which is 3.1 points lower than the target set for 2023 (a 90% of compliance) caused by low water reception in Castilla's injection wells, and regulatory restrictions in Rubiales' pressure maintaining pilot. Even though we did not achieve the target, it is worth to highlight that 133.8 million m3 of produced water were recycled/recirculated, which represents an 84% increase compared to the baseline, mainly caused by higher reinjection for oil recovery in Rubiales, Castilla, Apiay, and Chichimene against the baseline.. Motivation: Year-on-year rolling targets are set to drive the company toward the achievement of the water neutrality goal. Ecopetrol is committed to reusing water as a strategy to reduce freshwater withdrawals and discharges.

Row 4

(9.15.2.1) Target reference number

Select from:

☒ Target 4

(9.15.2.2) Target coverage

Select from:

☒ Business division

(9.15.2.3) Category of target & Quantitative metric

Water pollution

☒ Reduction in concentration of pollutants

(9.15.2.4) Date target was set

12/31/2022

(9.15.2.5) End date of base year

12/31/2019

(9.15.2.6) Base year figure

3.2

(9.15.2.7) End date of target year

12/31/2023

(9.15.2.8) Target year figure

2.6

(9.15.2.9) Reporting year figure

1.74

(9.15.2.10) Target status in reporting year

Select from:

☒ Achieved

(9.15.2.11) % of target achieved relative to base year

243

(9.15.2.12) Global environmental treaties/initiatives/ frameworks aligned with or supported by this target

Select all that apply

☒ Sustainable Development Goal 6

(9.15.2.13) Explain target coverage and identify any exclusions

•Target coverage: E&P discharges to surface water. •Exclusions: No facilities were excluded from this target.

(9.15.2.15) Actions which contributed most to achieving or maintaining this target

In 2023, the concentration of Hydrocarbons (measured as Total Petroleum Hydrocarbons-TPH) in surface discharges registered an average value of 1.74 mg/L. This was achieved thanks to improvements in the treatment systems of Castilla and Rubiales which represents 90% of total surface discharges in the E&P segment.

(9.15.2.16) Further details of target

Description of target: 2.89 mg/L of TPH (total petroleum hydrocarbons) concentration in surface discharges, equivalent to a 9% reduction with regards to the baseline. This internal target is below the regulatory limit of 10 mg/L. • Unit for the base year, target year, and reporting year figures: mg/L. • Baseline: The water neutrality roadmap defined 2019 as its baseline year; That year, the average concentration of TPH in surface discharges was 3.19 mg/L. • Results: In 2023, the average concentration of TPH was 1.74 mg/L, representing a 46% reduction regarding the baseline. This reduction represents 133% compliance with the established reduction target for 2023.

Row 5

(9.15.2.1) Target reference number

Select from:

☒ Target 5

(9.15.2.2) Target coverage

Select from:

☒ Business division

(9.15.2.3) Category of target & Quantitative metric

Water recycling/reuse

☒ Other water recycling/reuse, please specify :Increase in water reuse for agroforestry irrigation

(9.15.2.4) Date target was set

12/31/2022

(9.15.2.5) End date of base year

12/31/2019

(9.15.2.6) Base year figure

1159

(9.15.2.7) End date of target year

12/31/2023

(9.15.2.8) Target year figure

3482

(9.15.2.9) Reporting year figure

5092

(9.15.2.10) Target status in reporting year

Select from:

☒ Achieved

(9.15.2.11) % of target achieved relative to base year

169

(9.15.2.12) Global environmental treaties/initiatives/ frameworks aligned with or supported by this target

Select all that apply

☒ Sustainable Development Goal 6

(9.15.2.13) Explain target coverage and identify any exclusions

Target coverage: E&P reuse of produced water for agroforestry irrigation

(9.15.2.15) Actions which contributed most to achieving or maintaining this target

In 2023 we reused 5.1 million cubic meters of treated produced water from the Castilla and Rubiales fields for the irrigation of agroforestry and oil palm crops which represents an increase of 35% in comparison with the previous year. This was due to the SAARA pilot (Water Use System for Agricultural Reuse) implementation jointly with Frontera Energy Colombia, which aimed to evaluate the feasibility of reusing treated produced water from the Rubiales and Quifa fields to irrigate oil palm crops in the municipality of Puerto Gaitán (Meta).

(9.15.2.16) Further details of target

Description of target: Our target was to reuse 60,000 barrels per day of water (3482 ML per year) for agroforestry irrigation, a 200% increase with regards to the baseline. • Unit for the base year, target year, and reporting year figures: Megaliters • Baseline: The water neutrality road map defined 2019 as its baseline year when 20,000 barrels per day were reused. • Results: In 2023 there was a 339% increase in produced water reuse for agroforestry irrigation, due to the implementation of the SAARA pilot, which represents a 169% compliance with the established target for 2023.

Row 6

(9.15.2.1) Target reference number

Select from:

☒ Target 6

(9.15.2.2) Target coverage

Select from:

☒ Organization-wide (direct operations only)

(9.15.2.3) Category of target & Quantitative metric

Water, Sanitation, and Hygiene (WASH) services

☒ Increase in the proportion of local population using safely managed drinking water services around our facilities and operations

(9.15.2.4) Date target was set

12/31/2022

(9.15.2.5) End date of base year

12/31/2019

(9.15.2.6) Base year figure

6598

(9.15.2.7) End date of target year

12/31/2024

(9.15.2.8) Target year figure

1329704.0

(9.15.2.9) Reporting year figure

813129

(9.15.2.10) Target status in reporting year

Select from:

☒ Underway

(9.15.2.11) % of target achieved relative to base year

61

(9.15.2.12) Global environmental treaties/initiatives/ frameworks aligned with or supported by this target

Select all that apply

☒ Sustainable Development Goal 6

(9.15.2.13) Explain target coverage and identify any exclusions

Target coverage: Municipalities within Ecopetrol's area of influence in Colombia.

(9.15.2.14) Plan for achieving target, and progress made to the end of the reporting year

During this period, significant progress was made in executing projects aimed at bridging the gap in access to drinking water in rural areas. For instance, the completion of the Altos de Pompeya Drinking Water Treatment Plant in the rural area of Villavicencio (Meta), benefiting 1,329 people. Additionally, as of 2023, seven (7) projects were underway, expected to benefit over 660,000 people. Notable undertakings include sub-projects 2 and 3 of the Cúcuta metropolitan aqueduct, which will enhance access to drinking water in Villa del Rosario and Los Patios (Norte de Santander). Other initiatives include the replacement of distribution networks in the urban aqueduct of Villa del Rosario (Norte de Santander), benefiting 2,020 people in 2023, the construction of the San Silvestre Wastewater Treatment Plant and the sludge treatment system in Barrancabermeja (Santander), the expansion and optimization of the Guamal Urban Drinking Water Treatment Plant (Meta), benefiting 11,670 people in 2023

(9.15.2.16) Further details of target

•Description of target: Ecopetrol aims to provide access to drinking water and basic sanitation to 1,329,704 people by 2024. As of 2023, 813,129 individuals have already benefited, accounting for 61% of the target, with 15,019 beneficiaries in 2023 alone. •Unit for the base year, target year, and reporting year figures: # of persons; • Baseline: 6598 persons benefited with WASH servies. •Motivation: Ecopetrol's goal is to increase the access to drinking water and sanitation of approximately 900 thousand people by the end of 2022. This initiative is part of Ecopetrol's shared prosperity strategy, which contributes to the fulfillment of the United Nations Sustainable Development Goals (SDG) in the components of (3) Good Health and Well-Being, (6) Clean Water and Sanitation and (11) Sustainable Cities and Communities, as well as the reduction of potential water-related conflicts (reputational risks).

[Add row]

C10. Environmental performance - Plastics

(10.1) Do you have plastics-related targets, and if so what type?

(10.1.1) Targets in place

Select from:

☒ Yes

(10.1.2) Target type and metric

Plastic polymers

☒ Increase the proportion of post-consumer recycled content in plastic polymers produced and/or sold

End-of-life management

☒ Increase the proportion of recyclable plastic waste that is collected, sorted, and recycled

(10.1.3) Please explain

Ecopetrol has the following objectives related to polyethylene production: •Increase the utilization factor and the operational availability of the low-density polyethylene production units to cover the country's increased demand. •Evaluate expansion projects or construction of new polyolefin plants, evaluating initiatives for processing recycled plastics, and evaluating the use of biodegradable additives for the production of low-density polyethylene that is easy to degrade and environmentally friendly.

[Fixed row]

(10.2) Indicate whether your organization engages in the following activities.

Production/commercialization of plastic polymers (including plastic converters)

(10.2.1) Activity applies

Select from:

☒ Yes

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Production/commercialization of durable plastic goods and/or components (including mixed materials)

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Usage of durable plastics goods and/or components (including mixed materials)

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Production/commercialization of plastic packaging

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Production/commercialization of goods/products packaged in plastics

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Provision/commercialization of services that use plastic packaging (e.g., food services)

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Provision of waste management and/or water management services

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Provision of financial products and/or services for plastics-related activities

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.

Other activities not specified

(10.2.1) Activity applies

Select from:

☒ No

(10.2.2) Comment

Ecopetrol produces low-density polyethylene (Barrancabermeja Refinery), a raw material for the plastic industry.
[Fixed row]

(10.3) Provide the total weight of plastic polymers sold and indicate the raw material content.

(10.3.1) Total weight of plastic polymers sold during the reporting year (Metric tons)

50000

(10.3.2) Raw material content percentages available to report

Select all that apply

☒ % virgin fossil-based content

☒ % post-consumer recycled content

(10.3.3) % virgin fossil-based content

100

(10.3.6) % post-consumer recycled content

0.15

(10.3.7) Please explain

Between 50000 and 55000 tons of low-density polyethylene are produced annually, understood as a raw material for the manufacture of plastics. The raw material to produce polyethylene is mainly ethylene. the pyrolysis oil incorporated in the cracking allowed the production of refinery-grade propylene, which was sold to Esentia, a subsidiary of Ecopetrol, for the production of polypropylene.

[Fixed row]

(10.6) Provide the total weight of waste generated by the plastic you produce, commercialize, use and/or process and indicate the end-of-life management pathways.

Production of plastic

(10.6.1) Total weight of waste generated during the reporting year (Metric tons)

0

(10.6.2) End-of-life management pathways available to report

Select all that apply

☒ Recycling

(10.6.4) % recycling

0

(10.6.12) Please explain

No plastic waste is generated in the plastic production process; if it were generated, this waste would be recycled.

Commercialization of plastic

(10.6.1) Total weight of waste generated during the reporting year (Metric tons)

0

(10.6.2) End-of-life management pathways available to report

Select all that apply

☒ Recycling

(10.6.4) % recycling

0

(10.6.12) Please explain

This information is not available.

[Fixed row]

C11. Environmental performance - Biodiversity

(11.2) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

(11.2.1) Actions taken in the reporting period to progress your biodiversity-related commitments

Select from:

☒ Yes, we are taking actions to progress our biodiversity-related commitments

(11.2.2) Type of action taken to progress biodiversity- related commitments

Select all that apply

☒ Law & policy

☒ Livelihood, economic & other incentives

☒ Species management

☒ Other, please specify :Co-designed models with communities through conservation

agreements. Development of sustainable livelihood systems: productive yards, fair trade, technical support, and agroecological systems Disclosure in SIB report & GRI 304

☒ Education & awareness

☒ Land/water protection

☒ Land/water management

[Fixed row]

(11.3) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
	<i>Select from:</i> <input checked="" type="checkbox"/> Yes, we use indicators	<i>Select all that apply</i> <input checked="" type="checkbox"/> State and benefit indicators <input checked="" type="checkbox"/> Pressure indicators <input checked="" type="checkbox"/> Response indicators

[Fixed row]

(11.4) Does your organization have activities located in or near to areas important for biodiversity in the reporting year?

Legally protected areas

(11.4.1) Indicate whether any of your organization's activities are located in or near to this type of area important for bio diversity

Select from:

☒ No

(11.4.2) Comment

Ecopetrol S.A. declares that it does not have, nor does it plan to intervene with exploration, production or refining activities in areas of great value for biodiversity classified according to the International Union for Conservation of Nature - IUCN in categories I to IV.

UNESCO World Heritage sites

(11.4.1) Indicate whether any of your organization's activities are located in or near to this type of area important for bio diversity

Select from:

☒ No

(11.4.2) Comment

Ecopetrol has no projects or operations in areas declared World Heritage Sites by UNESCO, nor does it plan to intervene in this type of areas.

UNESCO Man and the Biosphere Reserves

(11.4.1) Indicate whether any of your organization's activities are located in or near to this type of area important for bio diversity

Select from:

☒ No

(11.4.2) Comment

Ecopetrol has no projects or operations in areas declared Man and the Biosphere Reserves by UNESCO, nor does it plan to intervene in this type of areas.

Ramsar sites

(11.4.1) Indicate whether any of your organization's activities are located in or near to this type of area important for bio diversity

Select from:

☒ No

(11.4.2) Comment

Ecopetrol has no projects or operations in areas declared as Ramsar sites, nor does it plan to intervene in this type of areas.

Key Biodiversity Areas

(11.4.1) Indicate whether any of your organization's activities are located in or near to this type of area important for bio diversity

Select from:

☒ No

(11.4.2) Comment

Ecopetrol has no projects or operations in key Biodiversity Areas, nor does it plan to intervene in this type of areas.

Other areas important for biodiversity

(11.4.1) Indicate whether any of your organization's activities are located in or near to this type of area important for bio diversity

Select from:

☒ No

(11.4.2) Comment

Ecopetrol operates in 4 assets that are located in proximity to two Protected Areas, known as Regional Integrated Management Districts (DRMI) - equivalent to category VI of the IUCN, named La Ciénaga San Silvestre and La Serranía de los Yariguíes located in the department of Santander, this category contemplates the sustainable use of natural resources. Ecopetrol operates legally in these four production assets, which were declared by regional authorities 50 years after the company began operations in the area.

[Fixed row]

C13. Further information & sign off

(13.1) Indicate if any environmental information included in your CDP response (not already reported in 7.9.1/2/3, 8.9.1/2/3/4, and 9.3.2) is verified and/or assured by a third party?

	Other environmental information included in your CDP response is verified and/or assured by a third party
	Select from: <input checked="" type="checkbox"/> Yes

[Fixed row]

(13.1.1) Which data points within your CDP response are verified and/or assured by a third party, and which standards were used?

Row 1

(13.1.1.1) Environmental issue for which data has been verified and/or assured

Select all that apply

☒ Climate change

(13.1.1.2) Disclosure module and data verified and/or assured

Environmental performance – Climate change

☒ Waste data

☒ Fuel consumption

☒ Methane emissions

☒ Product footprint

☒ Electricity/Steam/Heat/Cooling consumption

☒ Emissions reduction initiatives/activities

☒ Progress against targets

(13.1.1.3) Verification/assurance standard

General standards

☒ ISAE 3000

Climate change-related standards

☒ ISO 14064-3

(13.1.1.4) Further details of the third-party verification/assurance process

Partial Product carbon footprint (PPCF): Ecopetrol contracted an independent verification by SGS for a PPCF, “cradle-to-gate”, for three products, using ISO 14064-3 as verification standard, covering extraction, production and transportation processes: ·Fossil Diesel; ·Asphalt; ·Apiay Blend crude oil. 10% materiality was considered. Conclusion: The GHG information was verified by SGS to a limited assurance level, consistent with the objectives, criteria, and verification agreement. It is concluded, with limited assurance, that: ·The PPCF Statement is materially correct and is a fair representation of the GHG data and information. ·The applied GHG accounting methodology is solid, valid and in accordance with ISO 14067:2018. ·The PPCF is accurate, complete, consistent, transparent, and free of material errors or omissions. The three verification statements, originally in Spanish, are attached. GHG emissions reduction projects: Ecopetrol conducted a third-party verification process for two GHG emissions reduction projects: ·Program of recovery and energy use of associated gas from San Roque and Tisquirama fields; and ·Recovery of associated gas in Ecopetrol, using ISO 14064-3 as verification standard. Verified reduced emissions were 3,233 and 115,595 tCO₂e, respectively. Other climate-related metrics: Ecopetrol's Senior management reviewed and approved the 2023 Integrated Management Report and entrusted EY with the limited assurance of the social, environmental, and economic indicators. Some of the material topics were: ·Electricity consumption (GRI 302-1); ·GHG emissions reduction (GRI 305-5 – 581,532 tCO₂e); ·Fuel consumption (Own indicators – Volume of biofuels produced and purchased meeting sustainability criteria; ·Methane emissions are included in GRI 305 - 1 Direct (Scope 1) GHG emissions); ·Waste data (DJSI indicator – Waste disposal, and Hazardous Waste). The EY verification statement is attached.

(13.1.1.5) Attach verification/assurance evidence/report (optional)

Additional_Verification_Statements.pdf

[Add row]

(13.2) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

(13.2.1) Additional information

Ecopetrol S.A. defined climate change as a material issue considering the direct impact on operations, infrastructure, the sustainability of the company and decisions towards the different stakeholders. This issue is managed from the components of decarbonization (mitigation), compensation and adaptation to climate change in line with the 2040 strategy "Energy that Transforms". The mitigation component includes the management of information on greenhouse gas emissions, the analysis of scenarios, the definition and implementation of GHG reduction opportunities and the strategic management of the company's asset portfolio to guide additional actions that contribute to avoiding the increase in GHG emissions. Although the management of GHG emissions is focused on reducing GHG emissions following the concept of the mitigation hierarchy, the company also has an offsetting component to support the fulfilment of climate ambition, through the consolidation of a portfolio of Natural Climate Solutions. For its part, the adaptation component contributes to managing the physical risks of the climate considering the direct impact on operations, infrastructure and the environment, due to the increase in the global average temperature and its consequent effect on climatic conditions (precipitation and temperature) in the areas where the company operates, based on future climate scenarios. This component includes the analyses associated with physical risks in terms of exposure and vulnerability to natural hazards, in addition to developing transition risks, which evaluate the speed of acceleration of decarbonization and its effect on the company's asset portfolio. In addition, it incorporates a governance component that develops the means of implementation, through the appropriation of climate-related issues at the different levels and areas of the organization, the allocation of resources for the implementation of mitigation and adaptation actions, and the monitoring and dissemination of climate-related issues and metrics. The plan is built following the recommendations of the guidelines for the formulation of the Comprehensive Business Climate Change Management Plans (PIGCCe), published by the Ministry of Mines and Energy in 2023, whose objective is to guide companies in the mining and energy sector in the identification, definition, implementation and monitoring of initiatives or measures for the management of climate change. PIGCCe FIGURES AND DATA In 2018, the Mines and Energy sector developed the Comprehensive Change Management Plan (PIGCCME) with a vision for 2050 in line with Law 1931 of 2018, which establishes the guidelines for the management of climate change in Colombia and the Long-Term Climate Strategy (E2050). The PIGCCME establishes mitigation and adaptation commitments, as well as actions and guidelines to achieve the climate objectives of the mining and energy sector. Mitigation figures: - Colombia committed to reducing 51% of Greenhouse Gas (GHG) emissions by 2030, which correspond to 176.4 MtCO₂e, in addition to being a carbon neutral country by 2050. - In 2018, the Ministry of Mines and Energy formulated the Comprehensive Plan for the Management of Climate Change in Mines and Energy (PIGCCME), in which it established an emissions reduction target for the sector of 11.2 MtCO₂e by 2030. - For its part, Ecopetrol committed to achieving Zero Net Emissions (Scopes 1 and 2) by 2050 and a 50% reduction in scope 1, 2 and 3 emissions by 2019 compared to 2019. This commitment also includes a 25% reduction in scope 1 and 2 emissions by 2030, which represents approximately a reduction of between 5 and 6 MtCO₂e. Adaptation figures: - Colombia is one of the most vulnerable countries to climate change in the world; due to its geographical location, its water resources and crops could be affected. - 13% of the departments in Colombia have a high vulnerability to climate change, mainly associated with the management of water resources, biodiversity and ecosystem services. -In Colombia, extreme weather events (El Niño/La Niña) have substantially affected the country, impacting territorial and sectoral development. The analyses indicate that a reduction in the quantities of water and the increase in electricity prices could jointly impact 0.6% of GDP. The PIGCCe contributes directly to the challenges related to climate change in the country.

(13.2.2) Attachment (optional)

Ecopetrol SA PIGCCe version 1 EN.pdf
[Fixed row]

(13.3) Provide the following information for the person that has signed off (approved) your CDP response.

(13.3.1) Job title

CEO

(13.3.2) Corresponding job category

Select from:

☒ Chief Executive Officer (CEO)

[Fixed row]

(13.4) Please indicate your consent for CDP to share contact details with the Pacific Institute to support content for its Water Action Hub website.

Select from:

☒ Yes, CDP may share our Disclosure Submission Lead contact details with the Pacific Institute

