GHG Emissions						
	Unidad	**2019**	**2021**	**2022**	**2023**	**2024**
Total emissions by GHG [1]						
Total GHG emissions	**tCO_2e**	**13.642.001**	**12.455.075**	**12.459.912**	**12.609.083**	**12.677.105**
Total CO_2 emissions	tCO_2e	11.750.577	10.700.948	10.900.352	11.156.415	11.274.296
Total CH_4 emissions [2]	tCO_2e	1.856.840	1.721.143	1.525.332	1.420.618	1.371.465
Total N_2O emissions [2]	tCO_2e	34.584	32.984	34.227	32.050	31.344
Total GHG emissions by scope						
Scope 1	**tCO_2e**	**12.985.973**	**11.872.054**	**11.960.859**	**11.868.593**	**11.817.213**
Combustion	tCO_2e	8.719.734	8.129.563	8.337.077	8.345.769	8.308.256
Fugitive	tCO_2e	242.553	184.151	111.137	114.190	91.283
Mobile	tCO_2e	53	286	246	153	127
Flaring	tCO_2e	1.197.874	942.512	976.262	870.254	906.514
Venting	tCO_2e	2.825.760	2.615.542	2.536.138	2.538.227	2.511.033
Scope 2 [3,4]	**tCO_2e**	**656.028**	**583.022**	**499.052**	**740.490**	**859.892**
Market-based	tCO_2e	656.028	583.022	499.052	740.490	859.892
Location-based	tCO_2e	377.169	299.879	304.580	534.308	548.401
Scope 3 [5]	**tCO_2e**	**143.717.415**	**140.912.781**	**150.914.463**	**155.060.112**	**151.117.258**
Category 11 - Use of sold products	tCO_2e	134.123.150	131.756.864	140.785.917	146.055.905	142.056.821
Category 1 - Purchased goods and services	tCO_2e	7.608.166	7.703.577	8.667.008	7.878.693	7.984.322
Other categories	tCO_2e	1.986.099	1.452.340	1.461.538	1.125.514	1.076.114
Total GHG emissions by business						
Upstream GHG emissions	**tCO_2e**	**8.154.413**	**7.526.443**	**7.186.107**	**6.984.077**	**7.029.552**
Scope 1	tCO_2e	7.499.395	6.944.025	6.687.894	6.246.251	6.173.291
Scope 2	tCO_2e	655.018	582.418	498.212	737.827	856.261
Methane	tCH4	64.292	59.446	52.485	48.721	46.907
		-	-	-	-	-
Carbon intensity	$kgCO_2e$/BOE [6]	35,51	37,09	35,47	33,57	34,66
		-	-	-	-	-
Downstream GHG emissions	**tCO_2e**	**5.487.588**	**4.928.633**	**5.273.805**	**5.625.006**	**5.647.553**
Scope 1	tCO_2e	5.486.578	4.928.029	5.272.965	5.622.342	5.643.922
Scope 2	tCO_2e	1.009	604	840	2.664	3.631
Methane	tCH4	2.023	2.024	1.991	2.015	2.074
		-	-	-	-	-
Carbon intensity	$kgCO_2e$/BOE [6]	40,24	38,17	40,41	36,80	37,29

Notes

General note:

Ecopetrol's Scope 1, 2, and 3 greenhouse gas (GHG) emissions inventory is structured under an operational control approach, including Cartagena refinery. The report is consolidated from information provided by operational areas, and projections are made based on the average of the current year for some emissions sources that do not have complete activity data as of December 2024. Ecopetrol seeks to continue improving its processes and systems to ensure this report has as much real information as possible.

(1). Total scopes 1 and 2 GHG emissions.

(2). GHG emissions were calculated using global warming potential (GWP) factors from the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, 2014) on a 100-year time horizon.

(3). Scope 2 emissions only include electricity imports because Ecopetrol does not purchase any other types of energy, such as steam, heating, or cooling.

(4). Scope 2 emissions are reported using market-based method, which includes emissions generated by electricity imports from both the National Interconnected System (SIN, from its Spanish acronym) and local generation centers. While Ecopetrol calculates scope 2 emissions by location-based method, which is estimated using the SIN emission factor for all electricity purchases, it is decided to report by market-based method because it provides a higher result and better describes the operational reality. It should be highlighted that electricity purchase from local suppliers is favored for reasons such as: facilities location in areas with deficient national electrification, low reliability of the system, or in some cases due to the use of gas in the decarbonisation plan framework.

(5). Since 2021, Ecopetrol has estimated its Scope 3 emissions inventory for each GHG Protocol category that applies to the business. Over the entire historical series, categories 11 and 1 have contributed to more than 99% of total Scope 3 emissions.

(6). Upstream carbon intensity is calculated by dividing scopes 1 and 2 emissions generated in the segment by net production, which includes crude oil, gas, and whites, expressed in terms of barrels of oil equivalent (BOE). Downstream carbon intensity is calculated by dividing scopes 1 and 2 emissions generated in the segment by the annual input streams (load) to Barrancabermeja and Cartagena refineries, expressed in terms of barrels of oil equivalent (BOE). Both intensities are calculated under operational control approach.