

88 A	ВС	D	Е		F	G	Н		I		J	K	L	М	N	0	Р	Q
89 90																		
91 92	US Energ	gy Information Ad			rnational En						Vente	d & Flar	red of					
93		Colombia Crude oil, conder	Color	mbia	Updated April		Colon Gross Nato		Colombia Prod Market Gas	s		gross	Colombia Vented & Flared	Colombia Dry NatGas Pro	ıd			
95 96	1980	k bbl per day 132	million bl	bl per yr 48			Bcf per NA		Bcf per year N	A	Bcf per year	%	Bcf per year 27	Bcf per year 9	19			
97 98 99	1981 1982 1983	131 147 156		48 54 57			NA NA NA		N/ N/ N/	A	-		28 28 26	10 10 10)6			
100 101	1984 1985	172 180		63 66			NA NA		N/ N/	A	-		24 21	14 14	13			
102 103	1986 1987	310 391		113 143			NA NA		N/ N/	A	-		18 18	14 14	ю			
104 105 106	1988 1989 1990	382 411 448		139 150 164			NA NA	183	N/ N/ 15	A	- - 19	4%	11 9 7	14 14 15	16			
107	1991 1992	425 439		155 160				186 187	16 15	1	18 16	4% 10%	, 7 19	15 15	55			
109 110	1993 1994	461 455		168 166				189 195	16: 16:	8	19 20	4% 4%	7	15 16	i2			
111 112 113	1995 1996 1997	590 633 656		215 231 240				271 333 453	16 17 22	6	87 139 214	6% 5% 4%	16 17 18	16 16 21	7			
114 115	1998 1999	737 821		269 300				508 534	23: 19:	3 5	254 318	4% 4%	20 21	22 18	:1 3			
116 117	2000 2001	694 627		253 229				513 529	21:	9	283 283	3% 3%	18 18	20 21	5			
118 119 120	2002 2003 2004	579 545 533		211 199 194				534 513 505	23: 23: 23:	1	283 265 247	3% 3% 3%	18 18 16	21 21 22	5			
120 121 122	2005 2006	531 540		194 197				555 783	25: 27:	3	290 498	2% 2%	12 12	23 25	6 5			
123 124 125	2007 2008 2009	538 596 684		196 218 250				932 1,026 1,197	30 35 42	7	618 653 750	1% 2% 2%	12 16 21	27 31 37	8			
126 127	2010 2011	799 932		292 340				1,124 1,115	45- 46-	4	646 623	2% 2%	24 25	39 38	8			
128 129 130	2012 2013	963 1,022		351 373				1,110			593 501	2% 3%	27 31	42 45	2			
131 132	2014 2015 2016	1,008 1,023 905		368 373 330			NA	1,043 979			454 396	3% 3%	28 29	44 42 38	1			
133 134 135	2017 2018	873 883		318 322			NA				-		-	35	i4			
136 137		Updated June 2019					Updated Ju	ine 2019			Updated June 2019			Updated June 20	019			
138 139 140		Crude oil, condensa	te, & NGPL										(dry	gas, EIA stat to	2017)			
141 142																		
143	The follo which cor	wing information co rrespond to official b	orresponds palanced of	to net p f reserves	prepared by	es owned the compa	by Ecope iny:	trol in 20	13, 2012,									
145 146 147			Oil	2013 Gas	Oil equivalent	Oil	2012 Gas	0	il ralent									
148 149	Drawad sassa	ves as at January 1	(Mbls) 1,370.3	(Gcf) 2,886.4	(Mbe) 1,876.7	(Mbls) 1,371.0	(Gcf) 2,768.4	(Mi	1,856.7					6104 South Carlbbean Deform	ed Belt			
150 151 152	Revisions Minerals purch	nases	172.7 7.5	337.5 11.0	231.9 9.4	42.7 0.0	8.8 0.0		44.2 0.0	_	'ARIBBEAN SEA	+	6095 Suajira B			6101 Los Bonaire Basin	ser Antilles Defe	ormed I
153	Improved rec Extensions a Sales	nd discoveries	23.2 66.2 (0.6)	19.9 49.3 (12.3)	26.7 74.9 (2.8)	65.3 90.5	0.0 298.5		65.3 142.9		ANIBBEAN SEA		Shew Nev 11 5		in Basis		Cartace Bases 6102	
155 156 157	Production	proved at the end of	1,433.6	3,068.4	1,971.9	1,370.3	2,886.4		1,876.7		for the same		A SS			TE	-	1
158	Mbls = Millions									4	and the	3		Bort	6097 nas-Apure Basin	1		2 62
160		s of barrels equivalent of barrels equivalent										1	610		-			N
162 163 164		Ecopetrol Consolida	ted Financia	al Report 2	2013, page 66	•						3		Sales II		0 5	0 6	8.00
165 166	4	La Company	And to be seen							-				6096 Lianos Basin		>	3	DE
167 168 169	. المراد										Pacific Offs Choc			≥ 0.0€			0 3	
170 171					/									600	[20	7	Stares.	
172 173 174				-/.	M					_	Byton Best		San San	000	5		2	7
175			/ / / / / / / / / / / / / / / / / / /	V		Popular					Sopt Mayl Bo		My	7	1	~	51	
176 177 178			Vela						b.		Program		Putemayo-Orlent-Are	ranon Basis	>	ر د	de la company	
179 180 181						TAY MAY		W. Y		-			3 :			Sallinyon	s Basin	
182							-				Takaa Basa (1 6080 Suchura Blada)	C.	36. Y			. %.	9	
184 185 186		Ecopetrol, Integrat	ed Sustaina	able Manac	ement Rot 20	112, page 1	06.				The second second	- Sign	geologic basins of	Colombia, USGS	1997.		0	
187 188		,,				,,-9-	-							,				

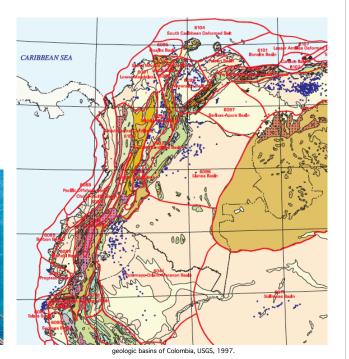
US En	ergy information Ac	iministration, inter	national Energy Sta	CI
		www.eia.gov	/emeu/international/ene	er
	Colombia	Colombia		
	Crude oil, conder	nsate, & NGPL	Updated April 2013	
	k bbl per day	million bbl per yr		L
1980	132	48		Γ
1981	131	48		l
1982	147	54		l
1983	156	57		l
1984	172	63		l
1985	180	66		l
1986	310	113		l
1987	391	143		l
1988	382	139		l
1989	411	150		l
1990	448	164		l
1991	425 439	155 160		l
1992	461			l
1993 1994	455	168		l
	590	166 215		l
1995 1996	633	231		l
1997	656	240		l
1998	737	269		l
1999	821	300		l
2000	694	253		l
2001	627	229		l
2002	579	211		l
2003	545	199		l
2004	533	194		l
2005	531	194		l
2006	540	197		l
2007	538	196		l
2008	596	218		l
2009	684	250		l
2010	799	292		l
2011	932	340		l
2012	963	351		l
2013	1,022	373		l
2014	1,008	368		l
2015	1,023	373		l
2016	905	330		l
2017	873	318		١
2018	883	322		L

ergy.html	'	Vent			
Colombia	Colombia	Colombia	gross	Colombia	Colombia
Gross NatGas Prod	Prod Market Gas	Reinjected NatGas		Vented & Flared	Dry NatGas Prod
Bcf per year	Bcf per year	Bcf per year	%	Bcf per year	Bcf per year
NA	NA	-		27	99
NA	NA	-		28	106
NA	NA	-		28	106
NA	NA	-		26	102
NA	NA	-		24	143
NA	NA	-		21	144
NA	NA	-		18	144
NA	NA	-		18	140
NA	NA	-		11	146
NA	NA	-		9	146
183	157	19	4%	7	151
186	161	18	4%	7	155
187	158	16	10%	19	151
189	163	19	4%	7	157
195	168	20	4%	7	162
271	168	87	6%	16	161
333	176	139	5%	17	167
453	222	214	4%	18	211
508	233	254	4%	20	221
534	195	318	4%	21	183
513	213	283	3%	18	201
529	229	283	3%	18	215
534	233	283	3%	18	218
513	231	265	3%	18	215
505	235	247	3%	16	225
555	253	290	2%	12	236
783	273	498	2%	12	255
932	302	618	1%	12	270
1,026	357	653	2%	16	318
1,197	425	750	2%	21	370
1,124	454	646	2%	24	398
1,115	466	623	2%	25	387
1,110		593	2%	27	421
1,101		501	3%	31	452
1,043		454	3%	28	448
979		396	3%	29	421
NA		-		-	383
NA		-		-	354

		2013		2012				
	Oil (Mbls)	Gas (Gcf)	Oil equivalent (Mbe)	Oil (Mbls)	Gas (Gcf)	Oil equivalent (Mbe)		
Proved reserves as at January 1	1,370.3	2,886.4	1,876.7	1,371.0	2,768.4	1,856.7		
Revisions	172.7	337.5	231.9	42.7	8.8	44.2		
Minerals purchases	7.5	11.0	9.4	0.0	0.0	0.0		
Improved recovery	23.2	19.9	26.7	65.3	0.0	65.3		
Extensions and discoveries	66.2	49.3	74.9	90.5	298.5	142.9		
Sales	(0.6)	(12.3)	(2.8)	-	-	-		
Production	(205.7)	(223.5)	(244.9)	(199.2)	(189.3)	(232.4)		
Net reserves proved at the end of the period	1,433.6	3,068.4	1,971.9	1,370.3	2,886.4	1,876.7		



Ecopetrol, Integrated Sustainable Management Rpt 2012, page 106.



Cell: 19

Comment: Rick Heede:

Wiki: Ecopetrol, formerly known as Empresa Colombiana de Petróleos S.A. is the largest and primary petroleum company in Colombia. As a result of its continuous growth, Ecopetrol forms part of the Fortune Global 500 and is ranked 303, it belongs to the group of the 25 largest petroleum companies in the world, and it is one of the four principal petroleum companies in Latin America.

The reversion of "De Mares Concession" ("Concesión De Mares") to the Colombian State on August 25, 1951 gave way to the Empresa Colombiana de Petróleos, which had been created in 1948 by means of Law 165 of that same year. The growing company assumed the reverted assets of the Tropical Oil Company that began oil activities in 1921 in Colombia with the implementation of the Cira-Infantas Field in the Middle Magdalena River Valley, located some 300 kilometers northeast of Bogotá. Ecopetrol undertook activities in the oil chain as a State-owned Industrial and Commercial Company in charge of administrating the nations hydrocarbon resources, and grew as other concessions reverted and became part of its operation.

In 1961, it assumed the direct management of the Barrancabermeja Refinery. Thirteen years later, it purchased the Cartagena Refinery, built by Intercol in 1956. In 1970, it adopted its first by-laws, which ratified its nature as a State-owned Commercial and Industrial Company, linked to the Ministry of Mines and Energy, fiscally supervised by the General Comptrollership of the Republic of Colombia. In September 1983, the best news for the history of Ecopetrol and some of the best news for Colombia was given: the discovery of the Cano Limón Field in association with OXY, a reservoir with reserves estimated at 1.1 billion barrels (170,000,000 m3). Thanks to this field, the Company began a new era and in the year 1986, Colombia began to export oil again. During the 1990s, Colombia extended its oil self-sufficiency with the discovery of the Cusiana and Cupiagua giants in the Foothills of the Plains region, in association with the British Petroleum Company.

In 2003, the Colombian government restructured the Empresa Colombiana de Petróleos, in order to internationalize it and make it more competitive in the framework of the world hydrocarbon industry. Decree 1760 / June 26, 2003 (available only in Spanish) modified the organic structure of the Empresa Colombiana de Petróleos and made it Ecopetrol S.A., a public stock-holding corporation, one hundred percent state-owned, associated with the Ministry of Mines and Energy, and governed by its by-laws contained in Notarized Document No. 2931 / July 7, 2003, issued by the Second Notary Public of the Bogotá D.C. Circle. The transformation of the Empresa Colombiana de Petróleos into the new Ecopetrol S.A., released the Company from State functions as the administrator of the oil source and the ANH (Agencia Nacional de Hidrocarburos) [National Hydrocarbons Agency] was created to carry out the function.

As of 2003, Ecopetrol S.A. began an era in which, with more autonomy, it has accelerated its exploratory activities, its capacity to obtain results with a business and commercial vision and the interest in improving its competitiveness on the world oil market. Wikipedia "Ecopetrol" accessed April 2013.

Cell: M9

Comment: Rick Heede:

World Bank, 2008b, page 329: "State- owned, public stock-holding corporation. Shares Controlled by Government: 80%."

World Bank (2008b) A Citizen's Guide to National Oil Companies, Part B: Data Directory, World Bank, Washington, & Center for Energy Economics, Bureau of Economic Geology Jackson School of Geosciences University of Texas, Austin, 764 pp.

Cell: D11

Comment: Rick Heede:

On this worksheet we report extractive data for each company or state-owned enterprise. Three columns under crude oil and natural gas allow for data reported in one of three formats (e.g., thousand barrels per day, or million barrels per year, or million tonnes per year). Coal is normally reported in U.S. or metric tonnes per year.

Note: the carbon content of the extracted resources is adjusted by a number of factors before emissions estimates are made in the worksheet 1 to the left. Most important is the subtraction of the fraction typically sequestered in petrochemicals and other non-combusted uses such as road oils, waxes, lubricants, greases, etc. See the comment for each extracted resource for detailed discussions of the combusted vs sequestered fractions.

Cell: F12

Comment: Rick Heede:

Total net worldwide crude oil plus natural gas liquids produced by each company or state-owned enterprise. Where data is available, we list gross production (before royalty production is netted out). More often, however, oil companies report production net of royalty production.

Oil & Gas Journal Data Book (our primary source for oil and gas production from 1988 through 2003) reports net production.

Crude production includes natural gas liquids (NGL) unless noted.

Cell: J12

Comment: Rick Heede:

Natural gas is typically reported as dry gas; natural gas liquids are reported under crude oil.

Carbon dioxide is normally removed from the gas flow at the production site (see "Vented Carbon Dioxide").

"SCM/d" = standard cubic meters per day, "cf/d" = cubic feet per day.

Cell: E53

Comment: Rick Heede:

Oil & Gas Journal OGJ100 for Empresa Colombiana de Petroleos and Ecopetrol, various vears.

Cell: J53

Comment: Rick Heede:

Oil & Gas Journal OGJ100 for Empresa Colombiana de Petroleos and Ecopetrol, various years,

Cell: E64

Comment: Rick Heede: Cell: D66

No report for EcoPetrol for 1998-1999. Instead production reported for Empresa Colombiana de Petroleos. Verify same company.

Comment: Rick Heede:

Oil and gas production data from Energy Intelligence (2003) Top 100: Ranking the World's Oil Companies, p. 136.

Cell: D70

Comment: Rick Heede (Dec09):

Ecopetrol Annual Rpt 2008, data for 2004-2008, in thousand bbl per day.

CMS note: Oil & Gas Journal OGJ100 data is significantly lower: 112.0 million bbl in 2004, NA 2005, 115.7 million bbl in 2006, 119.5 million bbl in 2007, and 32.1 million bbl in 2008.

Cell: 170

Comment: Rick Heede (Dec09):

EcoPetrol Annual Rpt 2008, Data for 2004-2008, in "Mpcd", which appears to be Spanish contraction for million cubic feet per day,

Cell: D72

Comment: Rick Heede:

Ecopetrol Annual Report 2010 (see chart above) for 2006-2010.

Cell: H72

Comment: Rick Heede: Ecopetrol Annual Report 2010 (see chart above) for 2006-2010.

Cell: 175

Comment: Rick Heede: online annual report, reported production in Kbdpe; assumes 5,700 cf per barrel.

Cell: D77

Comment: Rick Heede: Ecopetrol, Integrated Sustainable Management Report 2012, page 93. Oil (presumably including NGLs) in thousand bbl per day. No data for 2013.

Cell: H77 Comment: Rick Heede:

Ecopetrol, Integrated Sustainable Management Report 2012, page 93. In thousand BOE per day (Ecopetrol uses 5,700 cf per bbl).

Cell: 177

Comment: Rick Heede

Ecopetrol S.A. SEC rpt 40-F for 2014 shows gas production for 2012-2014, in thousand boe per day (at conversion rate of 5,700 cf per boe).

Cell: D79

Comment: Rick Heede:

Ecopetrol S.A. SEC rpt 40-F for 2014 shows oil production for 2012-2014. 2014 total: 579.7 thousand bbl per day, of which 44.5 kbbl is light oil, 198.5 is medium oil, and 336.6 kbbl is heavy oil.

Cell: E79

Comment: Rick Heede:

Ecopetrol Consolidated Financial Report 2013, page 66 (see page 2 below). No explicit production table available in Ecopetrols' SEC Form 20-F or annual report, nor in Oil & Gas Journal OGJ100 (NA), hence resort to debits from the Ecopetrol reserves table.

Cell: J79

Comment: Rick Heede:

Ecopetrol Consolidated Financial Report 2013, page 66 (see page 2 below). No explicit production table available in Ecopetrols' SEC Form 20-F or annual report, nor in Oil & Gas Journal OGJ100 (NA), hence resort to debits from the Ecopetrol reserves table.

Cell: D81

Comment: Rick Heede:

Ecopetrol Fourth Quarter and Full Year 2016 (and 2015), page 21. Crude oil and natural gas.

Cell: D82

Comment: Rick Heede:

Ecopetrol Q4 and full year 2017, page 17. Table 16: Gorss Production - Ecopetrol Business Group. (See table this page.) Ecopetrol S.A.: 2017: 545 kbpd crude oil, plus Hocol, Equion, Savia, Ecopetrol America. Total group: 590.9 kbpd.

Cell: E84

Comment: Rick Heede:

Oil & Gas Journal OGJ100, September 2019, page 32. Oil production in 2018: 216.3 Mb. OGJ agrees with Ecopetrol Q data for 2017.

Cell: J84

Comment: Rick Heede:

Oil & Gas Journal OGJ100, September 2019, page 32. Gas production in 2018: 266.1 Bcf. OGJ agrees with Ecopetrol Q data for 2017.

Cell: L186

Comment: Rick Heede:

U.S. Geological Survey (1997) Maps Showing Geology, Oil and Gas Fields, and Geologic Provinces of the South America Region, Compiled by Christopher J. Schenk, Roland J. Viger, & Christopher P. Anderson, USGS Open File Rpt 97-470D, Denver, pubs.usgs.gov/of/ 1997/ofr-97-470/OF97-470D/index.html#TOP