

Oil and natural gas extraction data

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Climate Mitigation Services
File started: 11 January 2005
Last modified: April 2013

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Petróleos de Venezuela S.A., Venezuela (PDVSA)

www.pdvs.com/en/ Caracas

yellow column indicates original State-owned entity, 100%

Production / Extraction data

Year	Crude Oil & NGL					Natural Gas					
	Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Million bbl /yr	Million bbl /yr	Million cf/d	Million cf/d	Million cf/d	Billion cf/yr	Billion cf/yr	Total
				PDVSA 1960-2010	CitGo (USA) 1950-1986				PDVSA 1960-2010	CitGo (USA) 1950-1986	Sum
					Sum						Sum



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- 68 2003
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- 70 2005
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- 74 2009
- 75 2010

Year	Venezuela EIA		Venezuela EIA data		Attribution %		PDVSA		Assumes PdV production equal to Venezuela as a whole		PDVSA	
	thousand bbl /d	Million bbl /yr	thousand bbl /d	Million bbl /yr	100% Venezuela 1960-1975	100% Venezuela 1976-2010	Estimated	million bbl /yr	gross production	marketed prod	Est. PdV gas	Billion cf /yr
1960	2,850	1,040			100%	100%	104	104	190		19	19
1961	2,920	1,066			100%	100%	107	107	200		20	20
1962	3,200	1,168			100%	100%	117	117	214		21	21
1963	3,250	1,186			100%	100%	119	119	230		23	23
1964	3,390	1,237			100%	100%	124	124	251		25	25
1965	3,470	1,267			100%	100%	127	127	250		25	25
1966	3,370	1,230			100%	100%	123	123	264		26	26
1967	3,540	1,292			100%	100%	129	129	293		29	29
1968	3,600	1,314			100%	100%	131	131	301		30	30
1969	3,590	1,310			100%	100%	131	131	1,635	314	31	31
1970	3,710	1,354			100%	100%	135	135	1,673	349	35	35
1971	3,550	1,296			100%	100%	130	130	1,710	368	37	37
1972	3,220	1,175			100%	100%	118	118	1,680	388	39	39
1973	3,370	1,230			100%	100%	123	123	1,625	460	46	46
1974	2,980	1,088			100%	100%	109	109	1,746	476	48	48
1975	2,350	858			100%	100%	86	86	1,640	451	45	45
1976	2,290	836			100%	100%	836	836	1,342	480	480	480
1977	2,240	818			100%	100%	818	818	1,311	550	550	550
1978	2,170	792			100%	100%	792	792	interpolated	620	620	620
1979	2,360	861			100%	100%	861	861	interpolated	691	691	691
1980	2,228	813			100%	100%	813	813	interpolated	761	761	761
1981	2,157	787			100%	100%	787	787	NA	572	572	572
1982	1,955	714			100%	100%	714	714	NA	600	600	600
1983	1,858	678			100%	100%	678	678	NA	576	576	576
1984	1,855	677			100%	100%	677	677	NA	610	610	610
1985	1,740	635			100%	100%	635	635	NA	618	618	618
1986	1,884	688			100%	100%	688	688	NA	674	674	674
1987	1,846	674	0.831	560	OGJ100	560	560	NA	657	1,276	1,276	1,276
1988	2,001	730	0.951	695	1987-2007	695	695	NA	656	1,375	1,375	1,375
1989	2,015	735	0.947	696		696	696	NA	769	1,420	1,420	1,420
1990	2,251	822	0.932	766		766	766	1,475	885	1,404	1,404	1,404
1991	2,492	910	0.953	867		867	867	1,495	926	1,495	1,495	1,495
1992	2,484	907	0.954	865		865	865	1,500	897	1,503	1,503	1,503
1993	2,593	946	0.945	894		894	894	1,489	954	1,589	1,589	1,589
1994	2,734	998	0.901	899		899	899	1,569	1,022	834	834	834
1995	2,899	1,058	0.806	852		852	852	1,679	1,058	897	897	897
1996	3,088	1,127	0.962	1,084		1,084	1,084	1,926	1,136	1,925	1,925	1,925
1997	3,423	1,249	0.930	1,163		1,163	1,163	2,089	1,208	1,925	1,925	1,925
1998	3,312	1,209	0.998	1,206		1,206	1,206	2,167	1,350	2,144	2,144	2,144
1999	2,996	1,093	0.990	1,082	IOC investment	1,082	1,082	2,015	1,189	2,075	2,075	2,075
2000	3,330	1,215	0.979	1,190		1,190	1,190	2,137	1,225	1,456	1,456	1,456
2001	3,210	1,172	1.018	1,193		1,193	1,193	2,203	1,337	1,494	1,494	1,494
2002	2,806	1,024	1.105	1,132		1,132	1,132	2,189	1,170	1,369	1,369	1,369
2003	2,499	912	1.121	1,022		1,022	1,022	2,189	1,003	2,373	2,373	2,373
2004	2,737	999	1.129	1,128		1,128	1,128	2,027	1,119	639	639	639
2005	2,771	1,011	1.115	1,128		1,128	1,128	2,041	1,172	701	701	701
2006	2,669	974	1.089	1,061		1,061	1,061	1,872	1,070	763	763	763
2007	2,665	973	1.090	1,060		1,060	1,060	2,529	1,182	826	826	826
2008	3,235	1,181	PDVSA AnnRpt	858	PDVSA 2008-2010	1,181	1,181	2,542	1,151	888	888	888
2009	3,012	1,099		792		792	792	2,549	1,123	830	830	830
2010	2,975	1,086		814		814	814	2,539	1,224	830	830	830

Total	na	45,191	na	17,293	13	34,118	na	30,312	na	32,030	-	39,282
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
81																	
82																	
83				Alternate production estimate for 2008													
84				Oil	Oil			Natural gas	Natural gas								
85				Thousand bbl	Million bbl /yr			Million cf/d	Bcf/yr								
86		2008		2,275	830			876	320								

Source: Hults, & Thurber, 2012, Introduction, Table 1.1, page 24, in Victor et al, eds, 2012, *Oil and Governance*.
Table 1.1 is based on information from Wood Mackenzie's Pathfinder Database; www.woodmacresearch.com

US Energy Information Administration, International Energy Statistics												
www.eia.gov/emeu/internationalenergy.html												
	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela
	Crude oil, condensate, & NGL	Crude oil, condensate, & NGL	Prod NatGas	Prod Market Gas	Reinjected NatGas	Vented & Flared	Dry NatGas Prod	gross gas prod'n				
	k bbl per day	million bbl per yr	Bcf per year	Bcf per year	Bcf per year	Bcf per year	Bcf per year	Bcf per year	%			
97	1980	2,228	813	NA	NA	NA	79	517				
98	1981	2,157	787	NA	NA	NA	68	572				
99	1982	1,955	714	NA	NA	NA	63	600				
100	1983	1,858	678	NA	NA	NA	61	576				
101	1984	1,855	677	NA	NA	NA	60	610				
102	1985	1,740	635	NA	NA	NA	49	618				
103	1986	1,884	688	NA	NA	NA	90	674				
104	1987	1,846	674	NA	NA	NA	130	657				
105	1988	2,001	730	NA	NA	NA	127	656				
106	1989	2,015	735	NA	NA	NA	92	769				
107	1990	2,251	822	1,475	885	468	122	761	8%			
108	1991	2,492	910	1,495	926	447	122	793	8%			
109	1992	2,484	907	1,500	897	480	123	763	8%			
110	1993	2,593	946	1,489	954	418	117	815	8%			
111	1994	2,734	998	1,569	1,022	438	109	876	7%			
112	1995	2,899	1,058	1,679	1,058	495	126	890	8%			
113	1996	3,088	1,127	1,926	1,136	566	224	961	12%			
114	1997	3,423	1,249	2,089	1,208	651	230	994	11%			
115	1998	3,312	1,209	2,167	1,350	661	155	1,110	7%			
116	1999	2,996	1,093	2,015	1,189	696	131	946	6%			
117	2000	3,330	1,215	2,137	1,225	752	159	961	7%			
118	2001	3,210	1,172	2,203	1,337	749	117	1,120	5%			
119	2002	2,806	1,024	2,189	1,170	866	153	1,003	7%			
120	2003	2,499	912	1,854	1,003	742	109	862	6%			
121	2004	2,737	999	2,027	1,119	777	131	961	6%			
122	2005	2,771	1,011	2,041	1,172	742	250	828	12%			
123	2006	2,669	974	1,872	1,070	689	113	918	6%			
124	2007	2,665	973	2,529	1,182	1,094	254	732	10%			
125	2008	2,639	963	2,542	1,151	1,067	324	733	13%			
126	2009	2,494	910	2,549	1,123	1,117	309	651	12%			
127	2010	2,391	873	2,539	1,224	1,079	236	880	9%			
128	2011	2,475	903	2,599	1,252	1,052	295	887	11%			
129	2012	2,475	903									

Gross production	
Bcf/yr	
1969	1,673
1970	1,710
1971	1,680

Energy Intelligence	
Bcf/yr	
2000	1,493
2001	1,467

Flaring of gross production			
Flaring, 1990-2011	#	83%	Gross prod 1990-2011 19,444.4
Flaring, 1990-2011	#	65%	Net prod 1990-2011 24,654.6

Flaring of net production

Información sobre Producción de Petróleo Crudo, Refinación y Exportaciones

A continuación se presenta un resumen sobre los datos operacionales, relacionados con la producción de petróleo crudo, refinación y exportaciones, con base en los registros auxiliares de PDVSA y en los reportes de producción fiscalizada del MENPET (expresados en miles de barriles diarios - MBD):

	Años terminados el 31 de diciembre de		
	2010	2009	2008
Producción de Crudo:			
Gestión directa ⁽¹⁾	2.130	2.269	2.382
Empresas mixtas liviano - mediano	373	349	378
Empresas mixtas de la Faja Petrolífera del Orinoco ⁽²⁾	472	394	446
Participación de PDVSA en las asociaciones de la Faja Petrolífera del Orinoco ⁽³⁾	-	-	29
Total producción propia de PDVSA	2.975	3.012	3.235
Producción Nación	2.975	3.012	3.235
Capacidad de refinación (no auditada):			
Sector nacional ⁽⁴⁾	1.303	1.303	1.303
Sector internacional ⁽⁵⁾	1.732	1.732	1.732
Total capacidad de refinación	3.035	3.035	3.035
Volumen de crudo procesado en las refinerías:			
Sector nacional	969	961	1.010
Sector internacional (no auditado)	1.269	1.373	1.431
Total volumen de crudo procesado en las refinerías	2.238	2.334	2.441
Exportación propia:			
Crudos	1.911	2.019	2.213
Productos	504	663	663
Total exportación propia	2.415	2.682	2.876
Exportación Nación ^{(6) y (9)}	2.415	2.682	2.897

(1) Incluye petróleo crudo condensado de planta por 1 MBD para el año 2010 y 8 MBD en los años 2009 y 2008.
(2) En Decreto Oficial N° 38.801, del 1° de noviembre de 2007, la Asamblea Nacional aprobó la creación de las empresas mixtas de la Faja Petrolífera del Orinoco, las cuales iniciaron sus operaciones en el año 2008 (véase la nota 5-4).
(3) Incluye los refinados del sector nacional: Casero Refinador Pergament - CEP (Atunay, Cudón y Enjo Grande), El Palto, Puerto la Cruz y San Roque.
(4) Incluye la alícuota correspondiente a PDVSA de las refinerías del sector internacional (Oyas AB, Ruler Oil GmbH, Hovensa LLC y Chalmers Refining LLC); únicamente en las refinerías Isla, Laka Charla, Lamont, Corpus Christi; la participación de PDVSA es de un 100%.
(5) Incluye vientos a la Empresa Pública de Hidrocarburos del Ecuador (EP Petroecuador) por 12 MBD en el año 2010, 21 MBD en el año 2009 y 38 MBD en el año 2008, las cuales se presentan en los estados financieros consolidados compensadas de los créditos realizados en el marco del convenio energético suscrito entre PDVSA y EP Petroecuador.
(6) Incluye 217 MBD, 254 MBD y 237 MBD por Convenios de Cooperación Energética en los años 2010, 2009 y 2008, respectivamente, y 244 MBD, 188 MBD y 86 MBD de Fondo Chino en los años 2010, 2009 y 2008, respectivamente, despatchados según acuerdos suscritos entre la República Bolivariana de Venezuela y los países integrantes de dichos acuerdos (véase la nota 13-9).

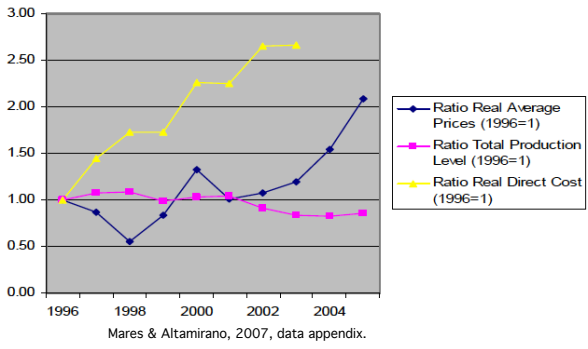
PDVSA (2011) Estados Financieros Consolidados, page 83.

Reservas de Gas Natural (en millardos de pies cúbicos)

	Años terminados el 31 de diciembre		
	2010	2009	2008
Reservas probadas desarrolladas y no desarrolladas de gas natural al 1° de enero -	151.278	151.976	152.021
Revisiones	511	544	1.151
Extensiones y descubrimientos	8.964	148	101
Producción	(1.338)	(1.390)	(1.297)

PDVSA (2011) Estados Financieros Consolidados, page 94.
"en millardos de pies cúbicos" translation: in billion cubic feet

Figure A12: Prices, Costs and Production Ratios, 1996-2005



Mares & Altamirano, 2007, data appendix.

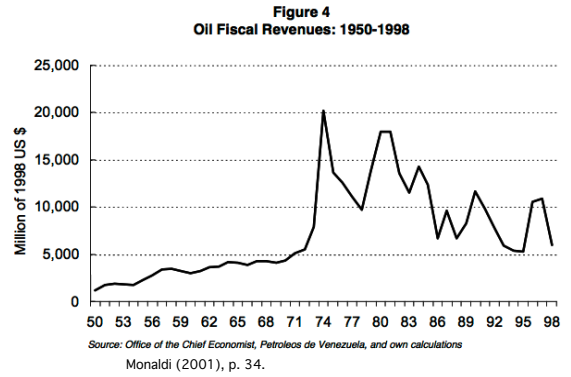
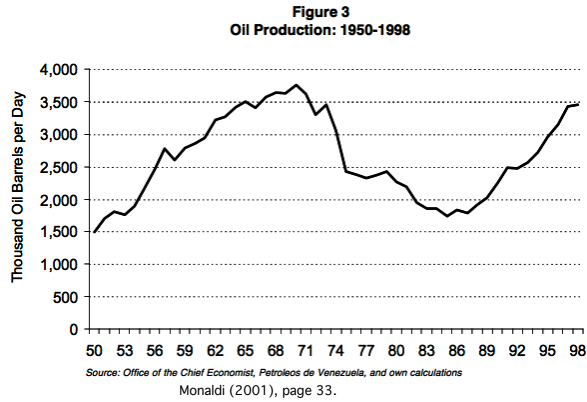


Table A2: Operating Data

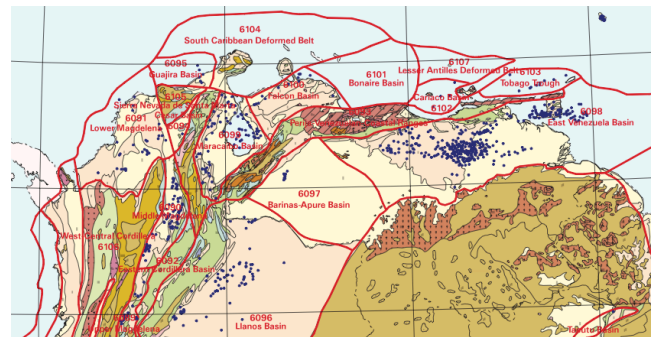
MBPD, unless otherwise indicated

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Production (000 barrels Per Day)										
Condensate	47	42	43	43	50	48	46	22		
Light crude oil (API 30° or higher)	1,186	1,264	1,233	1,189	1,174	1,135	774	727		
Medium crude oil (API between 21° and 30°)	918	1,002	1,137	1,095	1,047	1,018	962	914		
Heavy crude oil (API less than 21°)	833	940	866	623	814	893	877	788		
Total crude oil	2,984	3,248	3,279	2,950	3,085	3,094	2,659	2,451		
Liquid petroleum gas	167	176	170	177	167	173	173	144		
Total crude oil and liquid petroleum gas	3,151	3,424	3,449	3,127	3,252	3,267	2,832	2,595		
Net natural gas (MMCFD)	3,798	3,930	3,965	3,766	3,979	4,093	3,672	3,432		
TOTAL PRODUCTION (co. lpg. and ng-BOE)	3,806	4,101	4,133	3,776	3,938	3,973	3,464	3,187	3148**	3274**
Exports (000 barrels Per Day)										
Exports of crude oil with 30° or greater API	627	736	889	1,010	716	659	672	657		
Exports of crude oil with less than 30° API	1,349	1,475	1,372	913	1,282	1,406	1,092	991		
Total Crude Oil Exports	1,976	2,211	2,261	1,923	1,998	2,065	1,764	1,648	1568*	1603*
Exports of refined petroleum products	775	841	855	861	825	697	647	502	600*	697*
TOTAL EXPORTS	2,751	3,052	3,116	2,784	2,823	2,762	2,411	2,150	2167*	2300*
Average Export Price(\$ per barrel)										
Exports of crude oil with 30° or greater API	19.49	17.32	11.38	17.08	28.2	22.47	23.46	27.16		
Exports of crude oil with less than 30° API	16.49	13.99	8.08	13.45	23.12	17.29	20.24	22.56		
Exports of refined petroleum products	21.03	19.76	13.88	17.8	28.4	23.94	24.23	26.53		
Weighted average export prices	18.4	16.31	10.57	16.04	25.91	20.21	21.94	24.89	32.88	46.15
WTI 40 API (PODE 2004)	22.21	20.56	14.36	19.3	30.37	26	26.13	31.09	41.44	56.22

Mares & Altamirano, 2007, data appendix.

Mares & Altamirano, 2007, data appendix.

	Liquids, k bbl /d	Liquids, million bbl	% of clmn "I"	Gas, Mcf /d	Gas, Bcf	% clmn "P"
1996	3,151	1,150	129%	3,798	1,386	87%
1997	3,424	1,250	139%	3,930	1,434	172%
1998	3,449	1,259	148%	3,965	1,447	161%
1999	3,127	1,141	105%	3,766	1,375	71%
2000	3,252	1,187	102%	3,979	1,452	75%
2001	3,267	1,192	99%	4,093	1,494	70%
2002	2,832	1,034	96%	3,672	1,340	65%
2003	2,595	947	80%	3,432	1,253	86%



2nd Quarter 2005: 3.312 million bbl /day
pdvsa.com: Exploration and Production

Yes to the Kyoto Protocol

PDVSA environmental education video

Cell: L9

Comment: Rick Heede:

Petróleos de Venezuela S.A., the state-owned corporation of the Bolivarian Republic of Venezuela, is responsible for the efficient, profitable, and dependable exploration, production, refining, transport and commerce of hydrocarbons. This company is deeply committed to environmental protection and its main objectives are to foster the harmonic development of the country, to guarantee sovereignty of national resources, to increase endogenous development and to serve and benefit the Venezuelan people, who correspond to their share of the country's national wealth. The Venezuelan State is PDVSA's sole stockholder under the provisions of the Constitution of the Bolivarian Republic of Venezuela and represents the economic and political sovereignty exerted by the Venezuelan people over oil, their major energy resource. Therefore, its actions must follow the Ministry of Energy and Petroleum's guidelines, plans and strategies, as well as the norms issued by the National Development Plans for the hydrocarbon sector. The state corporation, created in 1975 by the Organic Law that Reserves the Industry and Commerce in Hydrocarbons to the State (LOREICH), relies on workers committed to the defense of energy sovereignty and the duty of adding the greatest possible value to oil resources, led by principles of unity, command, teamwork, the spirit of collaboration and efficient use of reserves. www.pdvsa.com (Dec11).

Cell: P9

Comment: Rick Heede:

100 percent state-owned. 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. At page 389. Also see: Mares, David R., & Nelson Altamirano (2007) Venezuela's PDVSA and World Energy Markets: Corporate Strategies and Political Factors Determining Its Behavior and Influence, Data Appendix, Baker Inst. for Public Policy, 48 pp.

Cell: D12

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 net production. Crude production includes natural gas liquids (NGL) and condensates, unless noted.

Cell: K12

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. Net production typically excludes a number of diverted gas streams. Quantities and fractions vary; ExxonMobil's exclusions are probably typical of the industry: "Net production available for sale quantities are the volumes withdrawn from ... natural gas reserves, excluding royalties and volumes due to others when produced, and excluding gas purchased from others, gas consumed in producing operations, field processing plant losses, volumes used for gas lift, gas injections and cycling operations, quantities flared, and volume shrinkage due to the removal of condensate or natural gas liquids production." ExxonMobil Corporation (2004) 2003 Financial and Operating Review, www.exxonmobil.com, p. 55.

Cell: H15

Comment: Rick Heede:

"On September 15th 1986, Petróleos de Venezuela acquired Citgo in Tulsa, United States. This is the most important investment for PDVSA's hydrocarbon commercialization strategy in the United States. Citgo has more than 1,000 branded retail outlets and almost 20% market share regarding gasoline sales in the USA." www.pdvsa.com/en/pdvsa_historia_2_1.html CITGO was a fuel refiner, transporter and marketer, not an oil producer.

Cell: H22

Comment: Rick Heede:

See cell note G27 (Corporacion Venezolana del Petroleo) for details on the 10 percent attribution 1960-1976. The assumed royalty rate of 10 percent may be revised. We use Oil & Gas Journal production data for PDSVA for 1987 to 2007, and PDVSA data for 2008-2010.

Cell: P23

Comment: Rick Heede:

CMS has not investigated the details of PdV's production regions and quantities and years. If Oil & Gas Journal data is accurate, the PdV produces far more gas than all of Venezuela, presumably due to production outside of Venezuela. CMS has thus, conservatively we hope, NOT applied the paverage productio factor of PdV relative to Venezuela (see box around cell S59 summarizing gas production 1987-2004). This creates an obvious discontinuity at 1986/1987. PdV's actual production may have been considerably higher prior to 1987, but we know it was not zero. Further research or data from PdV will help improve the accuracy of our calculations. Bear in mind also that gross production is very much higher than net or marketed production in Venezuela, as in many other countries with undeveloped gas delivery infrastructure. As shown in cells M36-M38 for 1968-1970, Venezuela's gross production was ~1,700 Bcf/yr and marketed production averaged ~340 Bcf/yr over those years. Much of this gas was probably re-injected in order to maintain oil well productivity, or used in refineries, or vented, or flared. None of this gross over net production has been included in CMS' accounts of carbon dioxide emissions, since we lack detail on the disposition of these large quantities of natural gas.

Cell: D25

Comment: Rick Heede:

Energy Information Administration International Energy Annual 2003, Table G.1 World Production of Crude Oil, NGPL, and Other Liquids, 1980-2003.

Cell: G27

Comment: Rick Heede:

Venezuelan President Romulo Betancourt's administration established Corporacion Venezolana del Petroleo, CVP, in 1960 as a national oil company, and while the company later foundered it was absorbed by PDVSA upon nationalization. CMS allocates 10 of Venezuelan oil and gas production on the assumption that the state, through both concessions and the establishment of CVP, receives a percentage of national production by the IOCs from 1960 to 1976. As information on production attributable to the state of Venezuela becomes available we may revise this 10 percent royalty percentage. Betancourt's oil minister Juan Pablo Perez Alfonso referred to oil as "el excremento del diablo" and predicted it would lead to the country's ruin. Hults, 2012, p. 424.

Cell: L27

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1964.

Cell: L32

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1968.

Cell: L36

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1971, page 764. Lists both gross and marketed production of natural gas by country.

Cell: L39

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1974, page 870. Lists marketed and gross production of natural gas by country.

Cell: D47

Comment: Rick Heede (Jan10):

Energy Information Administration International Statistics, 1980-2010. See page 2 for details. Sums crude oil, lease condensate, and natural gas plant liquids (NGPLs) production.

PDVSA

Cell: K47

Comment: Rick Heede (Jan10):

Energy Information Administration International Energy Statistics Gross Natural Gas Production, 1990 - 2010, in Bcf per year. See page 2 for details

Cell: G54

Comment: Rick Heede:

Oil & Gas Journal OGJ100 crude oil production data, various years.

Cell: I54

Comment: Rick Heede:

O&G data for 1987-2007.

Cell: H66

Comment: Rick Heede:

PDVSA has invited investment and participation in Venezuela's oil development, particularly in producing, upgrading and refining its heavy crudes in the Faja del Orinoco region. These include association agreements (AAs) and operational service agreements (OSAs) with BP, Chevron, Statoil, Total, ConocoPhillips, and ExxonMobil. The details of these contracts and the royalties due PDVSA are not clear, and CMS does not make adjustments to the reported production attributed to PDVSA by the Oil & Gas Journal data or PDVSA's own annual reports. See Hulst (2012), Manzano & Monaldi (2008), and Monaldi (2001) for discussion.

Cell: N70

Comment: Rick Heede:

We do not know the reason for the anomalies in the 2003 and 2004 OGJ100 data for PDVSA.

Cell: G71

Comment: Rick Heede:

OGJ100 (Sep05) for 2004 = 1,127.9 million bbl.

Cell: I71

Comment: Rick Heede:

World Bank, averaging 2004-2007, attributes 1,054 million bbl of oil production -- or slightly lower than the OGJ data. 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. At page 390.

Cell: N71

Comment: Rick Heede:

OGJ100 data for 2004 show 638.8 Bcf; also shows 568.7 Bcf in 2003: note: previous OGJ data for 2003 showed 2,372.5 and in agreement with data series since 1986. The stark difference is presumably that 2004 is "after royalty." (OGJ, 2005, note 5.)

Cell: P71

Comment: Rick Heede:

World Bank averages 2004-2007 gas production (gross or net is not specified) at 2,519 Bcf per year -- substantially higher than the OGJ datum for 2004 (or PDVSA for 2008). 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. At page 390.

Cell: G72

Comment: Rick Heede (Jan10):

Oil & Gas Journal OGJ100, various years.

Cell: I72

Comment: Rick Heede:

PDVSA website, caption to photo gallery at Exploration and Development: "At the finish the second quarter of 2005, PDVSA'S production oil average was located in 3 million 312 thousand daily barrels." (equals 1,209 million bbl for the year.)

Cell: N72

Comment: Rick Heede (Jan10):

Oil & Gas Journal OGJ100, various years. No estimates available for 2005 and 2008. CMS interpolates 2005 to 2007.

Cell: F75

Comment: Rick Heede:

PDVSA (2011) Estados Financieros Consolidados, page 83. See image at right. Original data in thousand bbl per day (cells D75-D77), converted to million bbl per year. CMS uses PDVSA data instead of the lower production data in O&GJ, column G.

Cell: G75

Comment: Rick Heede:

OGJ100 6Sep2010 pg 67;
OGJ 3 Oct 2011 pg 49

Cell: I75

Comment: Rick Heede:

PDVSA production data for 2008-2010.

Cell: N75

Comment: Rick Heede:

OGJ100, 6Sep2010 pg 67.

Cell: E86

Comment: Rick Heede:

Wood Mackenzie estimates PDVSA's "working interest" liquids production at 2,275 thousand bbl per day (830 million bbl) in 2008.

Cell: I86

Comment: Rick Heede:

Wood Mackenzie estimates PDVSA's "working interest" natural gas production at 876 million cubic feet per day (320 Bcf) in 2008.

Cell: P115

Comment: Rick Heede:

Energy Intelligence Gas production data 2000 and 2001, 4,090 million cf per day and 4,019 million cf per day, respectively, which equals 1,493 Bcf and 1,467 Bcf per year.

PDVSA

Cell: E206

Comment: Rick Heede:

Monaldi, Francisco (2001) Sunk Costs, Institutions, and Commitments: Foreign investment in the Venezuelan oil industry, Dept of Political Science, Stanford University;
www.stanford.edu/class/polisci313/papers/MonaldiFeb04.pdf

Cell: E276

Comment: Rick Heede:

Photo caption: "At the finish the second quarter of 2005, PDVSA'S production oil average was located in 3 million 312 thousand daily barrels."