

Oil and natural gas extraction data

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 Climate Mitigation Services
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Petróleos de Venezuela S.A., PDVSA

www.pdvsa.com/en/ Caracas

yellow column indicates original reported units State-owned entity, 100%

Production / Extraction data

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



Year	Venezuela		Attribution %		PDVSA		Assumes PdV production equal to Venezuela as a whole		PDVSA	
	EIA	EIA data	10% Venezuela 1960-1975	60% Venezuela 1976-2013	Estimated	gross production	marketed prod	Est. PdV gas	Est. PdV gas	Est. PdV gas
	thousand bbl /d	Million bbl /yr			million bbl /yr	Bcf/yr	Bcf/yr	Billion cf /yr	Billion cf /yr	Billion cf /yr
1950										
1951										
1952										
1953										
1954										
1955										
1956										
1957										
1958										
1959										
1960	2,850	1,040	Corp. Venezolana del Petroleo	10%	104		190			19
1961	2,920	1,066		10%	107		200			20
1962	3,200	1,168		10%	117		214			21
1963	3,250	1,186		10%	119		230			23
1964	3,390	1,237		10%	124		251			25
1965	3,470	1,267		10%	127		250			25
1966	3,370	1,230		10%	123		264			26
1967	3,540	1,292		10%	129		293			29
1968	3,600	1,314		10%	131		301			30
1969	3,590	1,310		10%	131		314			31
1970	3,710	1,354		10%	135		349			35
1971	3,550	1,296		10%	130		368			37
1972	3,220	1,175		10%	118		388			39
1973	3,370	1,230		10%	123		460			46
1974	2,980	1,088		10%	109		476			48
1975	2,350	858	Nationalized 1975	10%	86		451			45
1976	2,290	836	PDVSA established January 1976	80%	669		480			384
1977	2,240	818		80%	654		550			440
1978	2,170	792		80%	634		620			496
1979	2,360	861		80%	689		691			552
1980	2,228	813		80%	651		761			609
1981	2,157	787		80%	630		572			458
1982	1,955	714		80%	571		600			480
1983	1,858	678		80%	543		576			461
1984	1,855	677		80%	542		610			488
1985	1,740	635		80%	508		618			494
1986	1,884	688		80%	550		674			539
1987	1,846	674	OGJ of EIA fraction	80%	539		657	OGJ100 1987-2013		526
1988	2,001	730	0.831	80%	584		656			525
1989	2,017	736	0.946	80%	589		769			615
1990	2,253	822	0.931	80%	658		885			708
1991	2,507	915	0.947	80%	732	1,475	926			740
1992	2,504	914	0.947	80%	731	1,495	897			718
1993	2,618	956	0.936	80%	764	1,500	954			763
1994	2,779	1,014	0.886	80%	811	1,489	1,022			818
1995	2,969	1,084	0.786	80%	867	1,569	1,058			846
1996	3,158	1,153	0.941	80%	922	1,679	1,136			909
1997	3,498	1,277	0.911	80%	1,021	1,926	1,208			967
1998	3,382	1,234	0.977	80%	988	2,089	1,350			1,080
1999	3,086	1,126	0.961	80%	901	2,167	1,350			951
2000	3,440	1,256	0.948	80%	1,004	2,015	1,189			980
2001	3,316	1,210	0.985	80%	968	2,137	1,225			1,069
2002	2,906	1,061	1.067	80%	849	2,203	1,337			936
2003	2,565	936	1.092	80%	749	2,189	1,170			802
2004	2,838	1,036	1.089	80%	829	1,854	1,003			896
2005	2,846	1,039	1.086	80%	831	2,027	1,119			938
2006	2,729	996	1.065	80%	797	2,590	1,172			856
2007	2,665	973	1.090	80%	778	1,872	1,070			945
2008	2,685	980	PDVSA AnnRpt		858	2,529	1,182			888
2009	2,695	984			792	2,542	1,151	PDVSA AnnRpt	888	OGJ data 2008-fwd
2010	2,585	944			814	2,549	1,123		830	
2011	2,675	976			912	2,510	1,201		830	
2012	2,675	976			909	2,588	1,206		713	
2013	2,675	976			905	2,683	1,231		893	
2014	2,899	1,058	PDVSA data		979	2,699	1,231		720	
2015	2,863	1,045	PDVSA data		968				773	OGJ100 Sep16
2016	2,571	938	PDVSA data		866				918	OGJ100 Sep16
2017					743				979	OGJ100 Sep17
2018					551				1,052	OGJ100 Sep18
									875	OGJ100 Sep19

Total	na	45,545	na	17,293	25	34,760	na	30,312	na	35,129	-	32,961
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A B C D E F G H I J K L M N O P Q

Alternate production estimate for 2008			
Oil	Oil	Natural gas	Natural gas
Million bbl /yr	Million bbl /yr	Million cf/d	Bcf/yr
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

National oil & gas / Venezuela

BP Stat Rev 2014	BP Stat Rev 2018
Crude oil & NGL	Natural Gas
Mb	Bcf
1,370	302
1,319	293
1,205	290
1,261	359
1,117	379
884	369
865	456
845	499
813	503
885	564
813	579
789	584
713	623
676	613
676	676
637	679
688	748
697	729
729	744
734	766
819	861
913	859
912	845
946	914
1,004	967
1,080	1,078
1,145	1,162
1,212	1,209
1,258	1,268
1,130	1,074
1,136	1,092
1,159	1,160
1,086	1,114
1,047	989
1,207	1,110
1,205	1,075
1,219	1,234
1,182	1,315
1,178	1,177
1,109	1,123
1,037	1,075
1,006	1,068
987	1,124
978	1,080
983	1,123
960	1,274
857	1,311
765	1,363
553	1,173

US Energy Information Administration, International Energy Statistics

www.eia.gov/emeu/international/energy.html

Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Vented & Flared of
Crude oil, condensate, & NGL	Crude oil, condensate, & NGL	Prod NatGas	Prod Market Gas	Reinjected NatGas	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	%
2,228	813	NA	NA	-	79	517
2,157	787	NA	NA	-	68	572
1,955	714	NA	NA	-	63	600
1,858	678	NA	NA	-	61	576
1,855	677	NA	NA	-	60	610
1,740	635	NA	NA	-	49	618
1,884	688	NA	NA	-	90	674
1,846	674	NA	NA	-	130	657
2,001	730	NA	NA	-	127	656
2,017	736	NA	NA	-	92	769
2,253	822	1,475	885	468	122	761
2,507	915	1,495	926	447	122	793
2,504	914	1,500	897	480	123	763
2,618	956	1,489	954	418	117	815
2,779	1,014	1,569	1,022	438	109	876
2,969	1,084	1,679	1,058	495	126	890
3,158	1,153	1,926	1,136	566	224	961
3,498	1,277	2,089	1,208	651	230	994
3,382	1,234	2,167	1,350	661	155	1,110
3,086	1,126	2,015	1,189	696	131	946
3,440	1,256	2,137	1,225	752	159	961
3,316	1,210	2,203	1,337	749	117	1,120
2,906	1,061	2,189	1,170	866	153	1,003
2,565	936	1,854	1,003	742	109	862
2,838	1,036	2,027	1,119	777	131	961
2,846	1,039	2,590	1,172	1,073	250	828
2,729	996	1,872	1,070	689	113	918
2,665	973	2,529	1,182	1,094	254	732
2,685	980	2,542	1,151	1,067	324	733
2,695	984	2,549	1,123	1,117	309	651
2,585	944	2,510	1,201	1,073	236	697
2,675	976	2,588	1,206	1,053	328	733
2,675	976	2,683	1,231	1,051	401	803
2,675	976	2,699	1,231	1,016	485	771
2,675	976	2,709	1,231	955	541	773
2,579	942	2,832	1,231	898	584	918
2,344	856	NA	-	-	-	972
2,067	755	NA	-	-	-	956
1,516	553	NA	-	-	-	956

Updated June 2019 Crude oil, condensate, & NGL Updated June 2019 Updated June 2019 Updated June 2019 (dry gas, EIA stat to 2017)

Flaring of gross production		
Flaring, 1990-2011	#	86%
Flaring, 1990-2011	Net prod 1990-2011	19,107.4
		24,585.3

Energy Intelligence

	Bcf/yr
2000	1,493
2001	1,467

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 (4)	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 (5 y 6)	2.415	2.682	2.897

(1) Incluye petróleo crudo condensado de planta por 5 MBD para el año 2010 y 6 MBD en los años 2009 y 2008.
(2) En Gaceta 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 8-5).
(3) Incluye las refinerías del sector nacional: Centro Refinador Paraguana - CRP (Amay, Carlos y Bajo Grande), El Palito, Puerto la Cruz y San Roque.
(4) Incluye la alcuota correspondiente a PDVSA de las refinerías del sector internacional (Nynas AB, Bahar Oil GmbH, Hovensa LLC y Chalmers Refining LLC); asimismo en las refinerías Lita, Lita Charles, Lemont, Corpus Christi; la participación de PDVSA es de un 100%.
(5) Incluye ventas a la Empresa Pública de Hidrocarburos del Ecuador (EP Petroecuador) por 12 MBD en el año 2010, 21 MBD en el año 2009 y 18 MBD en el año 2008, las cuales se presentan en los estados financieros consolidados compuestos de las empresas mixtas en el marco del convenio energético suscritos entre PDVSA y EP Petroecuador.
(6) Incluye 257 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 Común 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-g).

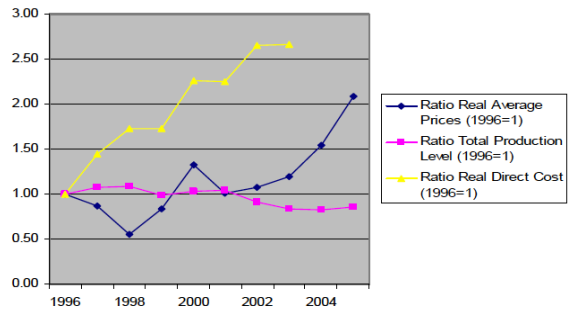
PDVSA (2011) Estados Financieros Consolidados, page 83.

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.

A B C D E F G H I J K L M N O P Q

Figure 3
Oil Production: 1950-1998

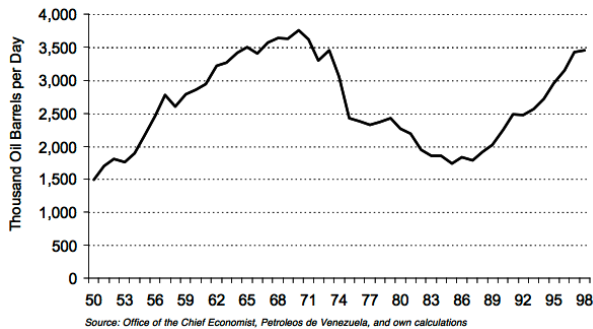
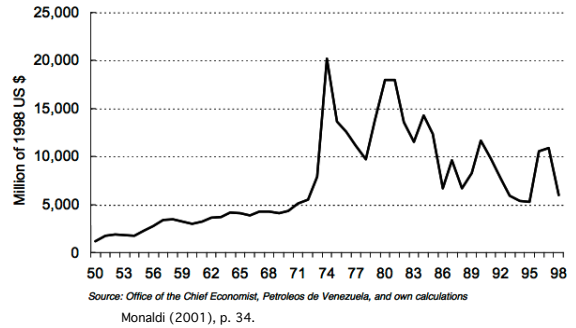


Figure 4
Oil Fiscal Revenues: 1950-1998



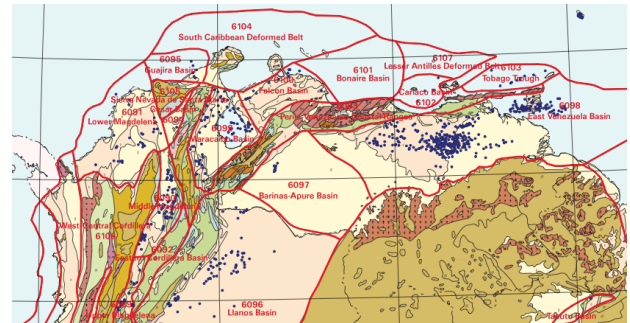
TableA2: Operating Data

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	150%	3,798	1,386	182%
1997	3,424	1,250	154%	3,930	1,434	175%
1998	3,449	1,259	145%	3,965	1,447	171%
1999	3,127	1,141	124%	3,766	1,375	151%
2000	3,252	1,187	116%	3,979	1,452	150%
2001	3,267	1,192	121%	4,093	1,494	138%
2002	2,832	1,034	115%	3,672	1,340	141%
2003	2,595	947	94%	3,432	1,253	128%



PRODUCCIÓN PROMEDIO

CRUDO + LGN
2.863 MBD

GAS NATURAL
7.756 MMPCD

LA NUEVA PDVSA RINDE CUENTAS GESTION Y RESULTADOS 2015



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

2830.94

RESERVAS PROBADAS

CRUDO
300.878 MMBI
1ra EN RESERVAS PROBADAS DE CRUDO

GAS NATURAL
201.349 MMMPC

LA NUEVA PDVSA RINDE CUENTAS GESTION Y RESULTADOS 2015

Yes to the Kyoto Protocol

PDVSA environmental education video

Cell: K9**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. "PDVSA itself produces around 60% of total Venezuelan production, or probably around 1.6 million barrels per day." Hulst, David (2007) Petróleos de Venezuela, S.A.: The Right-Hand Man of the Government, Program on Energy and Sustainable Development, Stanford University, Working Paper #70, Page 15. This is significantly less than PDVSA's own production data for the few years that we have specific production data. Furthermore, Wood Mackenzie estimates PDVSA's "working interest" liquids production at 2,275 thousand bbl per day (830 million bbl) in 2008 – which is 86.2 percent of EIA production data for Venezuela. Insofar as we do not have a detailed history of Venezuelan oil production by PDVSA we attribute 80 percent of Venezuelan production to the company until a complete history is made available by analysts or the company.

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. Hulst, 2012, p. 424.

Cell: L27**Comment:** Rick Heede:

PDVSA "working interest natural gas production in 2008" at 876 thousand cf per day. Victor, Hulst, & 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

Cell: L32**Comment:** Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1968, page 750. Lists marketed production of natural gas by country for 1965-1968.

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.

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: 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.
While the PDVSA website does not show any annual reports or production data, it does explain the production cut authorized after the OPEC meeting in Algeria in Dec 2008 that PDVSA would comply with cuts of 189 thousand bbl per day: "This production cut of 189,000 b/d, effective from the January 1st, 2009, adds to the reductions of 46,000 b/d and 129,000 b/d, implemented by PDVSA, according to the OPEC decisions, determined during the meetings of September and October of 2008, for a total general reduction of 364,000 b/d, that place the current Venezuelan production on 3 millions 11 thousand barrels per day of oil." 3.011 million bbl /d = 1,099 million bbl in 2009.

Cell: H75

Comment: Rick Heede:
Conservatively we use 80% of EIA's estimate of Venezuela's marketed natural gas production up to 2007, then cite OGJ estimates for PDVSA production 2008-forward. Future analysts may acquire more complete data for gas production attributable to PDVSA.

Cell: I75

Comment: Rick Heede:
PDVSA production data for 2008-2010.

Cell: N75

Comment: Rick Heede:
OGJ100, 6Sep2010 pg 67.

Cell: O75

Comment: Rick Heede:
Conservatively we use 80% of EIA's estimate of Venezuela's marketed natural gas production up to 2007, then cite OGJ estimates for PDVSA production 2008-forward. Future analysts may acquire more complete data for gas production attributable to PDVSA.

Cell: D81

Comment: Rick Heede:
PDVSA Annual report 2016, page 67: Oil & NGL production: 2,571 TBPD, 2015: 2,863 TBPD, 2014: 2,899 TBPD. (presumably k bpd)
OGJ data lower: 2014: 979 Mb, 2015: 968 Mb, 2016: 866 Mb.
We use PDVSA's declared data.

Cell: G81

Comment: Rick Heede:
Oil & Gas Journal, Sep 2016: 979 Mb in 2014 and 968 Mb in 2015 (2014 revised from 912.5 Mb in 2015 OGJ).

Cell: N81

Comment: Rick Heede:
Oil & Gas Journal, Sep 2016: 772.6 Bcf in 2014 and 918.3 Bcf in 2015 (2014 revised from 420 Bcf in 2015 OGJ).

Cell: D82

Comment: Rick Heede:
PDVSA rpt: LA NUEVA PDVSA RINDE CUENTAS GESTION Y RESULTADOS 2015, "produccion promedio crudo + LGN" of 2.863 MBD" (chart reproduced below).

Cell: K82

Comment: Rick Heede:
PDVSA rpt: LA NUEVA PDVSA RINDE CUENTAS GESTION Y RESULTADOS 2015, "produccion promedio gas natural" of 7.756 MMPCD" (chart reproduced below).

Cell: G83

Comment: Rick Heede:
Oil & Gas Journal OGJ100, Sep2017. PDVSA, 2016: 866 Mb. Also 978.8 Bcf natural gas.

PDVSA

Cell: G84

Comment: Rick Heede:
Oil & Gas Journal OGJ100, 3 September, page 43.

Cell: G85

Comment: Rick Heede:
Oil & Gas Journal OGJ100, 2 Septembe 2019r, page 32.

Cell: E94

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: I94

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: P149

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.

Cell: E216

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: E294

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."