

Oil and natural gas extraction data

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

Copyright Climate Mitigation Services

China National Petroleum Corporation, China

www.petrochina.com.cn/ptr Beijing www.cnpc.com.cn/en

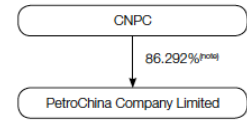
yellow column indicates original reported units **86.3% SOE**

Production / Extraction data

Year	Crude Oil & NGL			Natural Gas			Background data	
	Net production million bbl /yr	Net production million bbl /yr	Net production Million tonnes/yr	Net production Million cf/d	Net production Million SCM/d	Net production Billion cf/yr		
		China National Petroleum 1988-; PetroChina 1999-				China National Petroleum 1988-; PetroChina 1999-		



CNPC worldwide operations cnpc.com.cn/en/cnpcworldwide/



PetroChina Annual report 2011, page 14

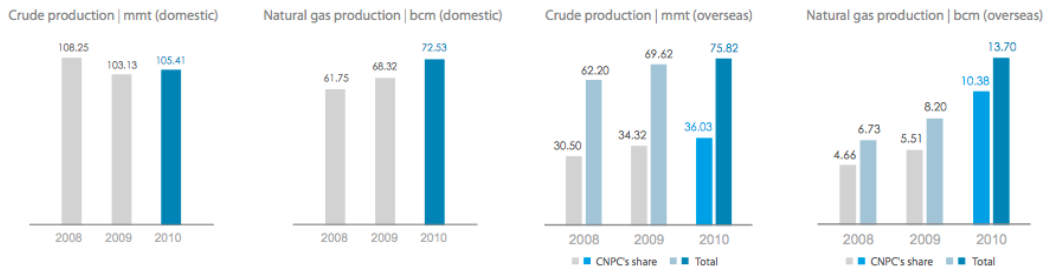
Note on China National Petroleum Company

CNPC founded 1988

PetroChina founded Nov1999

Also see CNOOC

Sinopec



CNPC Annual Report 2010, page 4.

This accounting is for CNPC; PetroChina is a subsidiary (~14 percent investor-owned)

Year	CNPC established in 1988			CNPC established in 1988		
	CNPC AnnRpt million tonnes/yr	CNPC million bbl /yr	CNPC million bbl /yr	CNPC AnnRpt Bcm /yr	CNPC Bcf/yr	CNPC Bcf/yr
1987		167	167		85	85
1988		1,001	1,001		513	513
1989		1,011	1,011		518	518
1990		1,022	1,022		540	540
1991		1,035	1,035		547	547
1992		1,061	1,061		585	585
1993		1,081	1,081		599	599
1994		1,098	1,098		608	608
1995		1,150	1,150		795	795
1996		1,172	1,172		740	740
1997		1,168	1,168		767	767
1998		1,062	1,062		860	860
1999		955	955		647	647
2000	interpolated					
2001	114.84	849	849	21.16	747	747
2002	117.57	869	869	23.30	823	823
2003	122.43	905	905	26.67	942	942
2004	120.97	894	894	31.25	1,104	1,104
2005	125.98	931	931	39.58	1,398	1,398
2006	134.71	995	995	48.01	1,695	1,695
2007	137.64	1,017	1,017	57.76	2,040	2,040
2008	138.75	1,025	1,025	66.41	2,345	2,345
2009	137.45	1,016	1,016	73.83	2,607	2,607
2010	141.44	1,045	1,045	82.91	2,928	2,928

1 m³ = 35.314667 cf
 1 tonne crude oil = 7.389 bbl

PetroChina million bbl /yr	PetroChina Bcf/yr
775	
765	
764	727
770	794
775	691
778	841
823	1,120
831	1,372
846	1,627
871	1,864
844	2,112
858	2,221



775	
765	
764	727
770	794
775	691
778	841
823	1,120
831	1,372
846	1,627
871	1,864
844	2,112
858	2,221

Total	na	22,527	22,527	na	24,433	9,699	13,369
-------	----	--------	--------	----	--------	-------	--------

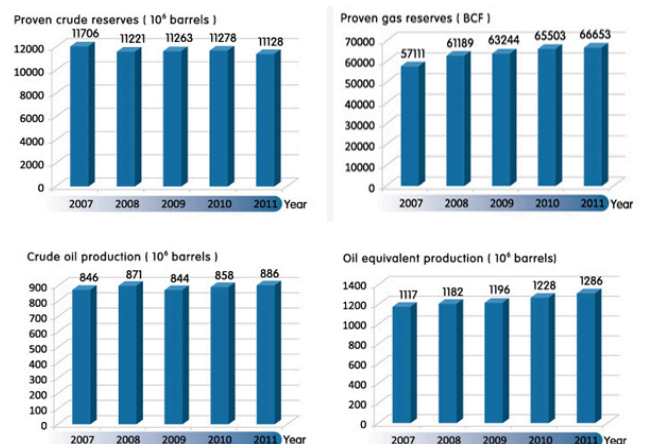
Alternate production estimate for 2008				
Thousand bbl /d	Million bbl /yr	Million cf/d	Bcf.yr	
2,694	983	5,354	1,954	

Source: Hufts. & 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

Oil and natural gas production, China			
Year	Crude, lease condensate, & NGPLs		Natural Gas, dry
	thousand bbl /day	Updated April 2013	Bcf /yr
1980	2,114		505
1981	2,012		450
1982	2,045		381
1983	2,120		431
1984	2,296		438
1985	2,505		457
1986	2,620		484
1987	2,690		494
1988	2,730		491
1989	2,757		505
1990	2,774		508
1991	2,835		526
1992	2,845		533
1993	2,890		558
1994	2,939		589
1995	2,990		601
1996	3,131		712
1997	3,200		801
1998	3,198		822
1999	3,195		889
2000	3,249		962
2001	3,300		1,070
2002	3,390		1,153
2003	3,409		1,211
2004	3,485		1,439
2005	3,609		1,763
2006	3,673		2,067
2007	3,729		2,446
2008	3,790		2,685
2009	3,796		2,975
2010	4,078		3,334
2011	4,059		3,629
2012	4,129		

Energy Intelligence, London, "Top 100"				
	thousand bbl /d	million bbl /yr	million cf/d	Bcf/y
2000	2,091	763.22	1,375	502
2001	2,092	763.58	1,544	564

PetroChina -- reported production and reserves 2007-2011



www.petrochina.com.cn/Ptr/About_PetroChina/Core_Business/Exploration_and_production/

"In 2011, CNPC produced 149.27 million tons of crude oil and 88.19 billion cubic meters of natural gas, including 41.73 million tons and 12.57 billion cubic meters from overseas projects."

CNPC, 2011	149.27	7.39	1,103 million bbl
PetroChina, 2011			886 million bbl
CNPC production above PetroChina:			217 million bbl



For example, both entities report production in Iraq (Rumaila, Al-Ahdab).
 CNPC reports production or activities in: Algeria Azerbaijan Canada Chad Ecuador Guinea Equatorial Indonesia Iran Iraq Kazakhstan Libya Mauritania Mongolia Myanmar Niger Nigeria Oman Peru Russia Sudan Syria Thailand Tunisia Turkmenistan Uzbekistan Venezuela

Summary of Operations of the Exploration and Production Segment

	Unit	2012	2011	Year-on-year change (%)
Crude oil output	Million barrels	916.5	886.1	3.4
Marketable natural gas output	Billion cubic feet	2,558.8	2,396.4	6.8
Oil and natural gas equivalent output	Million barrels	1,343.1	1,285.6	4.5
Proved reserves of crude oil	Million barrels	11,018	11,128	(1.0)
Proved reserves of natural gas	Billion cubic feet	67,581	66,653	1.4
Proved developed reserves of crude oil	Million barrels	7,396	7,458	(0.8)
Proved developed reserves of natural gas	Billion cubic feet	31,606	32,329	(2.2)

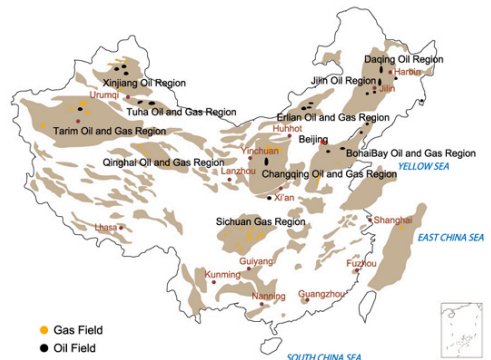
Note: Figures have been converted at the rate of 1 ton of crude oil = 7.389 barrels and 1 cubic metre of natural gas = 35.315 cubic feet.

PetroChina: Results for the year ended 31 Dec. 2012 (Summary of 2012 Annual Rpt), page 10.

Operation Highlights

	2009	2010	2011
Financial Index			
Operating income (billion RMB yuan)	1,220.5	1,720.9	2,381.3
Total profit (billion RMB yuan)	128.4	172.7	181.7
Net profit (billion RMB yuan)	87.2	124.2	130.5
Tax payable (billion RMB yuan)	229.6	313.2	401.5
Oil and Gas Production			
Oil production (mmt)	137.45	141.44	149.27
Domestic	103.13	105.41	107.54
Overseas (CNPC's share)	34.32	36.03	41.73
Gas production (bcm)	73.83	82.91	88.19
Domestic	68.32	72.53	75.62
Overseas (CNPC's share)	5.51	10.38	12.57

Domestic Exploration & Production Business



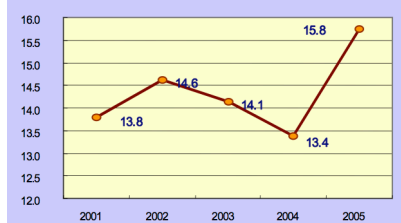
petrochina.com.cn/Ptr/About_PetroChina/Core_Business/Exploration_and_production/

CNPC, wikipedia Other notes:
 2003 Gas Leak in Chongqing On 23 December 2003, a gas blowout occurred at the LuoJia No. 16H gas well. 243 people died, 2,142 were hospitalised
 2006 Gas Leak in Chongqing A leak occurred on 25 March 2006 in the LuoJia No. 2 gas well. The third attempt six days after the blowout succeeded; 15,000 were evacuated.

CNPC Annual Report 2011, page 2.

FIGURE ONE:
 CNPC, SINOPEC AND CNOOC OIL PRODUCTION
 2000-2005 (IN THOUSAND B/D)¹³

	2000	2001	2002	2003	2004	2005	2005/2000
CNPC	2071.7	2067.8	2073.2	2080.2	2091.0	2119.0	102.2%
Sinopec	744.8	756.7	757.8	760.9	770.3	783.8	105.2%
CNOOC	351.4	364.4	419.7	437.1	487.9	552.6	157.2%



Guo, 2007, China's overseas equity oil production in percent of total imported oil.

FIGURE TWO:
 CNPC, SINOPEC AND CNOOC GAS PRODUCTION
 2000-2005 (IN MMCF/DAY)¹⁴

	2000	2001	2002	2003	2004	2005	2005/2000
CNPC	1771	1991	2367	2407	2772	3547	200.2%
Sinopec	378	446	478	500	550	590	156%
CNOOC	383	373	359	314	472	492	128.4%

Lewis, 2007, CNPC, Sinopec, & CNOOC oil and gas production, 2000-2005

APPENDIX A: CHINESE NOC CRUDE PRODUCTION 2000-2005
(UNIT: 10,000 TONS)

Fields/field companies	2000	2001	2002	2003	2004	2005
Daqing	5300	5150.16	5013.1	4840.03	4640.03	4495.1
Liaohe	1401	1385.01	1351.15	1322.1	1283.19	1242.02
Huabei	456	450.72	438	435.2	432.29	435.1
Dagang	400	395.16	393.91	421	488.38	509.95
Jilin	375	404.3	444.03	475.09	505.52	550.57
Xinjiang	920	968.3	1005.02	1060.1	1111.06	1125.37
Changqing	464	520.08	610.12	701.56	811	940
Yumen	43	52	60.1	70	75.03	77.01
Qinghai	200	206.02	214.02	220.02	222.02	221.49
Sichuan	17	14.28	13.8	13.7	13.81	13.81
Jidong	62	62.51	65.26	74.82	100.32	125.02
Tarim	435	472.63	502.01	525.28	538.36	600.06
Tuha	285	255.01	251	235.01	225	209.84
Zhejiang	—	—	—	—	—	0.03
South Co.*	—	3.05	4.71	7.57	9.13	10.07
CNPC Subtotal	10358.97	10339.21	10366.24	10401.49	10455.13	10595.42
Shengli	2675	2668	2671.52	2665.51	2674.3	2694.54
Zhongyuan	377	380.18	380.03	361.57	335.11	320.01
Henan	185	185.01	188.02	186	188.31	187.15
Jiangnan	87	95.21	96.53	95.12	96	95.61
Jiangsu	155	157.02	157.02	158.24	162	164.7
Yunnan-Guizhou-Guangxi	3	3.3	3.01	2.7	2.88	3.03
NewStar Co.**	240	294.15	292.98	—	—	—
Sinopec Northwest	—	—	—	292.83	358.17	420.01
Sinopec Southwest	—	—	—	0.93	1.09	0.8
Sinopec East	—	—	—	17.04	17.51	18
Sinopec North	—	—	—	—	0.19	2.3
Sinopec Northeast	—	—	—	4.42	5.15	4.72
Sinopec Central South	—	—	—	0.71	0.85	0.9
Sinopec NorthOil	—	—	—	11.69	10.03	7.7
Sinopec Subtotal	3724	3783.87	3789.11	3804.78	3851.59	3919.47
CNOOC	1757	1822	2098.6	2185.89	2439.72	2763.82
Shanghai Oil and Gas Corp.	—	58.93	47.32	38.02	31.86	25.27
Yanchang Group Ltd.	246	316.4	380.15	552.93	720.94	838.24
Rest of China	—	—	205.17	—	—	—
Total	16086	16317.21	16886.59	16983.11	17499.24	18142.22

APPENDIX B: CHINESE NOC GAS PRODUCTION 2000-2005
(UNIT: 100 MILLION CUBICMETER)

Fields/field companies	2000	2001	2002	2003	2004	2005
Daqing	23	22.03	20.22	20.34	20.34	24.43
Liaohe	11.5	11.77	11.31	10.57	10.04	9.21
Huabei	4.4	4.63	5.33	5.75	5.85	5.73
Dagang	4	3.89	3.94	3.57	3.38	3.32
Xinjiang	16.2	17.6	20.19	22.1	25.5	28.95
Tarim	7.5	9.57	10.88	10.89	13.56	56.77
Tuha	9.2	10.48	11.43	12.34	13.26	15.32
Sichuan	79.9	83.59	87.61	91.88	97.77	118.3
Changqing	20.6	33.67	39.14	51.85	74.46	75.31
Qinghai	3.9	5.87	11.51	15.41	17.94	21.21
Yumen	0.2	0.37	0.62	0.21	0.2	0.79
Jidong	0.6	0.43	0.41	0.44	0.55	0.77
Jilin	2	1.91	2.17	2.32	2.47	2.73
South Co.*	—	—	0.52	1.14	1.29	1.66
Sichuan Bureau	—	—	—	—	—	2.19
CNPC Subtotal	183.1	205.81	224.75	248.82	286.6	366.67
Shengli	6.88	8.5	7.5	8.1	9	8.8
Zhongyuan	13.38	15.03	16.21	17.01	17.51	16.61
Henan	0.53	0.9	1.11	1	1.02	1.01
Jiangnan	0.91	0.75	1.16	1	1.08	1.21
Jiangsu	0.24	0.23	0.23	0.33	0.5	0.64
Yunnan-Guizhou-Guangxi	0.79	0.77	0.73	0.9	1.01	0.8
NewStar Co.**	16.53	19.94	22.51	—	—	—
Sinopec Northwest	—	—	—	4.52	4.9	5.2
Sinopec Southwest	—	—	—	17.01	19.1	21.03
Sinopec East	—	—	—	0.05	—	—
Sinopec North	—	—	—	0.07	0.98	3.98
Sinopec Northeast	—	—	—	1.7	1.81	1.75
Sinopec Subtotal	39.16	46.12	49.45	51.69	56.91	61.03
CNOOC	39.6	38.57	37.16	32.52	48.88	50.89
Shanghai Oil and Gas Corp.	—	3.3	4.33	4.97	5.73	6.04
Rest of China	—	8.89	10.62	3.28	11.68	14.87
Total	262	302.69	326.3	341.28	409.8	499.5

Tables this page from Xu, 2007, Chinese NOCs, appendix tables.

APPENDIX E: CNPC UPSTREAM OPERATING HIGHLIGHTS

	2003	2004	2005
Newly Proven Oil in Place (million metric tons)	928.09	758.5	772.93
Domestic	439.03	521.07	574.62
Overseas	489.06	237.43	198.31
Newly Proven Gas in Place (billion cubic meters)	384.53	200.88	362.44
Domestic	383.89	200.88	357.98
Overseas	0.64	0	4.46
Remaining Recoverable Oil Reserves (million metric tons)	2170.92	2208.16	2292.3
Domestic	1639.72	1648.58	1654.29
Overseas	531.2	559.58	638.01
Remaining Recoverable Gas Reserves (billion cubic meters)	1758.8	1885.4	2057.8
Domestic	1674	1804	1953.2
Overseas	84.8	81.4	104.6
Crude Oil Production (million metric tons)	116.946	120.974	125.976
Domestic	104.015	104.551	105.954
Overseas	12.931	16.423	20.021
Natural Gas Production (billion cubic meters)	26.27	31.25	39.58
Domestic	24.88	28.66	36.67
Overseas	1.39	2.59	2.91

(Source: CNPC Annual Report 2006)



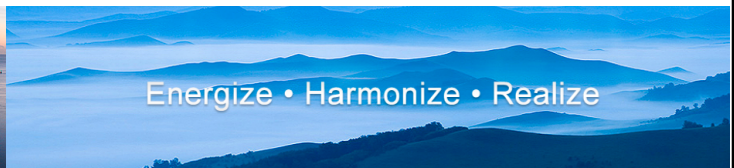
CNPC Annual report, 2011, page 38



Dalian LNG terminal, CNPC Annual report, 2011, page 33.



CNPC annual report



Cell: I9

Comment: Rick Heede:

cnpc.com / about CNPC: "CNPC is China's largest oil and gas producer and supplier, as well as one of the world's major oilfield service providers and a globally reputed contractor in engineering construction. With a presence in almost 70 countries, we are seeking an even greater international role."

Video history of Petroleum Ministry's evolution, oil and gas discoveries, "17Sep88 The State Council dissolved the Ministry of Petroleum Industry and China National Petroleum Corporation (CNPC) was established."

www.petrochina.com: "PetroChina Company Limited ("PetroChina") is the largest oil and gas producer and distributor, playing a dominant role in the oil and gas industry in China. It is not only one of the companies with the biggest sales revenue in China, but also one of the largest oil companies in the world. PetroChina was established as a joint stock company with limited liabilities by China National Petroleum Corporation under the Company Law and the Special Regulations on the Overseas Offering and Listing of Shares by Joint Stock Limited Companies on November 5th, 1999. The American Depository Shares (ADS) and H shares of PetroChina were listed on the New York Stock Exchange on April 6, 2000 (stock code: PTR) and the Stock Exchange of Hong Kong Limited on April 7, 2000 (stock code: 857) respectively. It was listed on Shanghai Stock Exchange on November 5, 2007 (stock code: 601857).

Since the foundation, PetroChina has established and improved standard corporate governance structure, in accordance with the applicable laws and regulations including the Company Law and the Mandatory Provisions for the Articles of Association of Companies to be Listed Overseas and the Articles of Association. The shareholders' meeting, the Board of Directors and the Supervisory Committee of the Company can operate independently and effectively in accordance with the Articles of Association.

PetroChina commits itself to becoming an international energy company with strong competitiveness and one of the major producers and distributors of petroleum and petrochemical products in the world. It engages in wide range of activities related to oil and natural gas, including: exploration, development, production and marketing of crude oil and natural gas; refining, transportation, storage and marketing of crude oil and oil products; the production and marketing of primary petrochemical products, derivative chemicals and other chemicals; transportation of natural gas, crude oil and refined oil, and marketing of natural gas.

PetroChina, under the guidance of the concept of scientific development, is dedicated to implementing three strategies of resources, markets and internationalization. PetroChina is committed to accelerating the transformation of economic growth, improving the self-innovation capacity, establishing long-efficient mechanism of safety, environmental protection and energy conservation and creating a harmonious enterprise, in order to transform itself to an international energy company with strong competitiveness.

China National Petroleum Corporation (CNPC) is the sole sponsor and controlling shareholder of PetroChina. It is a large petroleum and petrochemical corporate group, established in July 1998, in accordance with Plan for the Organizations Structure Reform of the State Council. CNPC is a large state-owned enterprise managed by the investment organs authorized by the state and State-owned Assets Supervision and Administration Commission."

www.petrochina.com.cn/Ptr/About_PetroChina/Company_Profile/
PetroChina (wikipedia: en.wikipedia.org/wiki/PetroChina) "PetroChina Company Limited (SEHK: 0857, SSE: 601857, NYSE: PTR) is a Chinese oil company and is the listed arm of state-owned China National Petroleum Corporation (CNPC), headquartered in Dongcheng District, Beijing. It is China's biggest oil producer. Traded in Hong Kong and New York, the mainland enterprise announced its plans to issue stock in Shanghai in November 2007, and subsequently entered trading on the Shanghai index.

PetroChina was established as a joint stock company with limited liabilities under the Company Law of the People's Republic of China (the PRC) on November 5, 1999, as part of the restructuring of CNPC. In the restructuring, CNPC injected into PetroChina most of the assets and liabilities of CNPC relating to its exploration and production, refining and marketing, chemicals and natural gas businesses. Although PetroChina is the most profitable company in Asia, this success may be the result of corporate management, but can also be attributed to the near duopoly on the wholesale and retail business of oil products it shares with Sinopec in China.

Because of Sinopec's link to Sudan through parent company China Petrochemical Corporation, several institutional investors such as Harvard and Yale decided, in 2005, to divest from Sinopec. Sudan divestment efforts have continued to be concentrated on PetroChina since then.[5] Fidelity Investments, after pressure from activist groups, also announced in a filing in the US that it had sold 91 per cent of its American Depository Receipts in PetroChina in the first quarter of 2007.

At the beginning of May 2007, the company announced it had made China's largest oil find in a decade off the country's northeast coast, in an oilfield named Jidong Nanpu in Bohai Bay. In May 2008 these expectations were lowered.

On November 7, 2007, Hang Seng Index Services Company announced that PetroChina would be a Hang Seng Index Constituent Stock, effective December 10, 2007. PetroChina has also come under scrutiny from international organizations for its part in trading with the Sudanese government who continues the ongoing war in Darfur.

On August 19, 2009, PetroChina signed an AU\$50 billion deal with ExxonMobil to purchase liquefied natural gas from the Gorgon field in Western Australia, considered the largest contract ever signed between China and Australia, which ensures China a steady supply of LNG fuel for 20 years, and also forms as China's largest supply of relatively "clean energy". This deal has been formally secured, despite relations between Australia and China being at their lowest point in years, following the Rio Tinto espionage case and the granting of visas to Rebiya Kadeer to visit Australia.

PetroChina's Dushanzi District refinery became fully operational on September 24, 2009. The refinery is China's largest refinery with annual capacity of 10 million tons of oil and 1 million tons of ethylene. The refinery is an integral part of China's ambitions to import oil from Kazakhstan.

February 2011: PetroChina has agreed to pay \$5.4 billion for a gas field stake owned by Encana. It is the China's biggest investments in shale gas which is difficult-to-extract."

Also see: Xu, Xiaojie (2007) Chinese NOCs' Overseas Strategies: Background, Comparison, and Remarks, Baker Institute for Public Policy, March, 39 pp.

Jiang, BinBin (2012) "China National Petroleum Corporation (CNPC): a balancing act between enterprise and government," in Victor et al, eds, Oil & Governance, pp. 379-417.

Guo, Sizhi (2007) The Business Development of China's National Oil Companies: The Government to Business Relationship in China, Case Study Series: The Changing Role of National Oil Companies in International Energy Markets, Baker Institute for Public Policy, March, 30 pp.

Barnes, Joe, & Matthew E. Chen (2007) NOCs and U.S. Foreign Policy, Case Study Series: The Changing Role of National Oil Companies in International Energy Markets, Baker Institute for Public Policy, March, 64 pp.

Lewis, Stephen W. (2007b) "Energy Security and the Consuming Country: China's NOCs," Baker Institute, in: The Changing Role of National Oil Companies in International Energy Markets, Baker Institute for Public Policy, Rice Univ., 1 March 2007.

Cell: M9

Comment: Rick Heede:

The controlling shareholder of the Company is CNPC which was established in July 1998. CNPC is a petroleum and petrochemical conglomerate that was formed in the wake of the restructuring launched by the State Council to restructure the predecessor of CNPC, China National Petroleum Company. CNPC is also a state-authorized investment corporation and state-owned enterprise and its registered capital is RMB297,870.99 million. Its legal representative is Mr Jiang Jiemin. CNPC is an integrated energy corporation with businesses covering oil and gas exploration and development, refining and petrochemical, oil product marketing, oil and gas storage and transportation, oil trading, engineering and technical services and petroleum equipment manufacturing.

PetroChina Annual report 2011, page 14.

Also see: Xu, Xiaojie (2007) Chinese NOCs' Overseas Strategies: Background, Comparison, and Remarks, Baker Institute for Public Policy, March, 39 pp.

Jiang, BinBin (2012) "China National Petroleum Corporation (CNPC): a balancing act between enterprise and government," in Victor et al, eds, Oil & Governance, pp. 379-417.

Cell: E12

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) unless noted.

Cell: I12

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: E15

Comment: Rick Heede:

"Most of the assets and liabilities of CNPC (China National Petroleum Corporation) relating to its exploration and production, refining and marketing, chemicals, and natural gas business were transferred to PetroChina in November 1999." OGJ (2002) OGJ100, p. 16 text.

Cell: M25**Comment:** Rick Heede:

Downs quotes CNPC's CFO discussing the company's first overseas acquisition, that "we can hardly expect big production increases at home. Overseas production will become the new driving force in the future." Downs, page 79.

Jiang, in table 9.3 (p. 408) "comparison of key ratios for CNPC, PetroChina, and ExxonMobil, 2007:" of which CNPC's rate of return on equity was 0.17, PetroChina's 0.25, and XOM's 0.46. Operating expense ratios were 0.68, 0.49, and 0.05, respectively. Number of employees were 760,000, 466,500, and 80,800, respectively. And, most telling, revenue per full-time employee was \$0.2 million, \$0.4 million, and \$4.8 million, respectively.

Downs, Erica S. (2010) "Who's Afraid of China's Oil Companies?," pp. 73-102, Ch. 4, Carlos Pascual, & Jonathan Elkind, eds (2010) Energy Security: Economics, Politics, Strategies, and Implications, Brookings Institution, Washington, 279 pp.

Jiang, BinBin (2012) "China National Petroleum Corporation (CNPC): a balancing act between enterprise and government," in Victor et al, eds, Oil & Governance, pp. 379-417.

Cell: M27**Comment:** Rick Heede:

History: Instead of Chinese Petroleum Corporation, ceased to Taiwan, following Republic of China government, CNPC can be traced from the beginning as a governmental department of the PRC government. In 1949, the Chinese government formed a Fuel Industry Ministry dedicated to the management of fuel. In January 1952 a sub department of the fuel ministry was formed to manage petroleum exploration and mining, it was called the Chief Petroleum Administration Bureau. In July 1955 a new ministry was created to replace the Fuel Industry Ministry, it was called the Ministry of Petroleum. From 1955 to 1969, approximately 4 oil fields were found in 4 areas in Qinghai, Heilongjiang (Daqing oilfield), Bohai Bay and Songliao basin. CNPC was finally created in 17 September 1988 when the government decided to disband the Ministry of Petroleum and created a state owned company to handle all Petroleum activities in China.

1993 marks the beginning of CNPC international operation. CNPC sign a service contract with the government of Peru to manage the Talara oilfield. It was followed by an oil contract with the government of Sudan to manage Block 1/2/4 in the Muglad oilfield. Then in June 1997 the company bought a 60.3% stake in the Aktobe Oil Company of Kazakhstan, the next month CNPC won an oil contract for the Intercampo oilfield and East Caracoles oilfield in Venezuela. Further In July 1998, the company was restructured by the government in accordance with the upstream and downstream principle of oil industry.

In August 2005 it was announced that CNPC agreed to buy the Alberta-headquartered PetroKazakhstan for US\$4.18 billion. This would be the largest overseas acquisition by a Chinese company. The acquisition was successfully completed 26 October 2005 after a Canadian court turned down an attempt by LUKoil to block the sale. In 2006 67% of shares were sold from the parent company to PetroChina. On 5 November 2007, CNPC's HK listed subsidiary PetroChina was also listed as an A share in the Shanghai Stock Exchange.

Operations: CNPC holds proved reserves of 3.7 billion barrels (590,000,000 m³) of oil equivalent. In 2007, CNPC produced 54 billion cubic metres of natural gas. CNPC spun off most of its domestic assets into a separate company, PetroChina, during a restructuring. CNPC has 30 international exploration and production projects with operations in Azerbaijan, Canada, Iran, Indonesia, Myanmar, Oman, Peru, Sudan, Thailand, Turkmenistan, and Venezuela. The exploration projects, both domestic and overseas, are run by a wholly owned subsidiary, the Great Wall Drilling Company (GWDC).

CNPC, wikipedia, accessed March 2013.

Cell: M29**Comment:** Rick Heede:

History: PetroChina was established as a joint stock company with limited liabilities under the Company Law of the People's Republic of China (the PRC) on November 5, 1999, as part of the restructuring of CNPC. In the restructuring, CNPC injected into PetroChina most of the assets and liabilities of CNPC relating to its exploration and production, refining and marketing, chemicals and natural gas businesses.

Although PetroChina is the most profitable company in Asia, this success may be the result of corporate management, but can also be attributed to the near duopoly on the wholesale and retail business of oil products it shares with Sinopec in China.

Because of Sinopec's link to Sudan through parent company China Petrochemical Corporation, several institutional investors such as Harvard and Yale decided, in 2005, to divest from Sinopec. Sudan divestment efforts have continued to be concentrated on PetroChina since then. Fidelity Investments, after pressure from activist groups, also announced in a filing in the US that it had sold 91 per cent of its American Depositary Receipts in PetroChina in the first quarter of 2007.

At the beginning of May 2007, the company announced it had made China's largest oil find in a decade off the country's northeast coast, in an oilfield named Jidong Nanpu in Bohai Bay. In May 2008 these expectations were lowered.

On November 7, 2007, Hang Seng Index Services Company announced that PetroChina would be a Hang Seng Index Constituent Stock, effective December 10, 2007. PetroChina has also come under scrutiny from international organizations for its part in trading with the Sudanese government who continues the ongoing war in Darfur.

On August 19, 2009, PetroChina signed an A\$50 billion deal with ExxonMobil to purchase liquefied natural gas from the Gorgon field in Western Australia, considered the largest contract ever signed between China and Australia, which ensures China a steady supply of LNG fuel for 20 years, and also forms as China's largest supply of relatively "clean energy". This deal has been formally secured, despite relations between Australia and China being at their lowest point in years, following the Rio Tinto espionage case and the granting of visas to Rebiya Kadeer to visit Australia.

PetroChina's Dushanzi District refinery became fully operational on September 24, 2009. The refinery is China's largest refinery with annual capacity of 10 million tons of oil and 1 million tons of ethylene.

The refinery is an integral part of China's ambitions to import oil from Kazakhstan.

February 2011: PetroChina has agreed to pay \$5.4 billion for a gas field stake owned by Encana. It is the China's biggest investments in shale gas which is difficult-to-extract.

Wikipedia, accessed March 2013.

Cell: M33**Comment:** Rick Heede:

Sinopec (China Petroleum & Chemical Corporation) was formed in 1983, from the disbanded Ministry of Petroleum Industry; Sinopec Group was formed in 1998 as a state-owned company; its publicly listed subsidiary is Sinopec Corporation (in 1983).

Sinopec is chiefly a petrochemical and petroleum products refiner.

Sinopec Annual Report 2010, page 7: 75.84 percent of Sinopec owned by China Petrochemical Corporation.

2010 crude oil production: 327.87 million bbl (China 302.18 MMbbl, plus Africa [Sudan?] 25.67 million bbl). Natural gas: 441.39 Bcf. 2008-2010 Operating Summary reproduced at right.

CMS has not included Sinopec production; did not meet threshold of 8 MtC in 2005, but we may reconsider.

See Downs, Erica S. (2010) "Who's Afraid of China's Oil Companies?," pp. 73-102, Ch. 4, Carlos Pascual, & Jonathan Elkind, eds (2010) Energy Security: Economics, Politics, Strategies, and Implications, Brookings Institution, Washington, 279 pp.

Also see: Jiang, BinBin (2012) "China National Petroleum Corporation (CNPC): a balancing act between enterprise and government," in Victor et al, eds, Oil & Governance, pp. 379-417.

Cell: D52**Comment:** Rick Heede:

CNPC Annual report 2008, page 8, "crude production" 2006-2008. Conversion to million bbl per year (at 7.389 bbl per tonne (CNPC's conversion factor), e.g., in 2008: 108.25 million tonnes equals 800 million bbl; Oil & Gas Journal data is somewhat higher (871 million bbl in 2008). While OGJ100 data may include condensate production (which CNPC does not mention, CMS reports CNPC production data.

Cell: H52**Comment:** Rick Heede:

CNPC Annual report 2008, page 8, "crude production" 2006-2008. Conversion to million bbl per year (at 7.389 bbl per tonne (CNPC's conversion factor), e.g., in 2008: 108.25 million tonnes equals 800 million bbl; Oil & Gas Journal data is somewhat higher (871 million bbl in 2008). While OGJ100 data may include condensate production (which CNPC does not mention, CMS reports CNPC production data.

Cell: I56**Comment:** Rick Heede:

Oil & Gas Journal, Sep 1993, OGJ 100, China National Petroleum Company, Bcf per year, 1991 and 1992. O&GJ, various years.

Cell: L65**Comment:** Rick Heede:

Oil & Gas Journal OGJ 100, various years.

Cell: D67

Comment: Rick Heede:
CNPC Annual report 2003, Highlights, oil and gas production 2001-2003, in million tonnes and Bcm.

Cell: L69

Comment: Rick Heede:
PetroChina Annual Reports 2004 and 2006.

Cell: D70

Comment: Rick Heede:
CNPC Annual Reports 2008 and 2006, in milion tonnes, sum of domestic and overseas production. Also natural gas, domestic and overseas (equity) production, in Bcm.

Cell: H70

Comment: Rick Heede:
CNPC Annual Reports 2010, 2008, 2006, natural gas production, sum of domestic and overseas (equity) production, in Bcm.

Cell: D74

Comment: Rick Heede:
CNPC Annual report 2010, sum of domestic and overseas (equity) production for crude oil in million tonnes, and natural gas in Bcm, 2008-2010. No mention of natural gas liquids production, though presumably included in crude production,

Cell: M75

Comment: Rick Heede:
PetroChina Annual Report 2010, Summary of Operations, page 21, "marketable natural gas output, 2009 and 2010," in Bcf.

Cell: E83

Comment: Rick Heede:
CNPC (including PetroChina) "working interest liquids production in 2008" at 2,694 thousand bbl per day.
Victor, 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

Cell: J83

Comment: Rick Heede:
CNPC (including PetroChina) "working interest natural gas production in 2008" at 5,354 thousand cf per day.
Victor, 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

Cell: I90

Comment: Rick Heede:
Oil and gas data from EI (2003) Top 100, p. 205.

Cell: K171

Comment: Rick Heede:
Guo, Sizhi (2007) The Business Development of China's National Oil Companies: The Government to Business Relationship in China, Case Study Series: The Changing Role of National Oil Companies in International Energy Markets, Baker Institute for Public Policy, March, 30 pp. Figure 4.

Cell: H176

Comment: Rick Heede:
Lewis, Stephen W. (2007b) "Energy Security and the Consuming Country: China's NOCs," Baker Institute, in: The Changing Role of National Oil Companies in International Energy Markets, Baker Institute for Public Policy, Rice Univ., 1 March 2007.

Cell: M372

Comment: Rick Heede:

Page intentionally left blank.