

Summary

Although oil was discovered in China in 1907, only 2 (two) barrels per day were produced in 1949 when the People's Republic (PRC) was founded.

The first field in the Daiqing area of northeastern China was discovered in 1958. Discovery of the first field in the Sheng Li area southeast of Beijing followed in 1961. By 1969 PRC was self-sufficient in oil. It became a net exporter—as exports of crude oil exceeded imports of refined products—in 1972 when production of crude oil reached 1.097 million barrels per day (mmbd).

PRC remained a net exporter of oil until 1994. First production offshore was in 1985. In 1994 production of crude oil was 2.896 mmbd — 2.765 mmbd onshore and 0.131 mmbd offshore. In 1998, as onshore crude oil production peaked, at 2.844 mmbd, the PRC oil industry was reorganized. Until March 1998 the organization was along functional lines. China National Petroleum Corporation (CNPC) was responsible for onshore production. China National Offshore Oil Corporation (CNOOC) and China National Star Petroleum Corporation ("Star") produced offshore. Aside from a large number of local refineries, China Petroleum and Chemical Corporation (Sinopec) was in charge of refining and petrochemicals.

In the reorganization CNPC and Sinopec both became integrated companies, Star was later absorbed by Sinopec. CNPC, Sinopec, and CNOOC all created publicly traded subsidiaries with minority foreign interests. All three now operate both inside and outside of China. CNPC now produces about 0.45 mmbd of crude oil in Sudan and Kazakhstan. Virtually every major producing area in the world, including the US Gulf of Mexico, has some participation by one or more of the three.

Efforts to attract foreign investment in PRC began in 1978. CNPC has consistently relegated foreign operators to marginal areas and results have been negligible. CNOOC, in contrast, has done well. In 2005 foreign ownership in the offshore production was over 39 percent.

Figure 1 presents forecast production and consumption as an extension of the history.

By type the production is as follows:

	Thousand Barrels Per Day (mmbd)			
	Crude Oil		Other	Total
	Onshore	Offshore		
1995	2,787	189	20	2,996
1996	2,806	298	23	3,127
1997	3,539	353	23	3,915
1998	2,843	345	23	3,211
1999	2,747	381	34	3,162
2000	2,717	443	32	3,192
2001	2,764	403	31	3,198
2002	2,759	463	27	3,249
2003	2,798	477	23	3,298
2004	2,877	519	22	3,418
2005	2,903	586	19	3,508
2006	2,811	638	20	3,469
<u>Forecast</u>				
2007	2,742	641	19	3,402
2008	2,642	615	20	3,277
2009	2,567	671	22	3,260
2010	2,482	655	23	3,160
2011	2,375	600	22	2,997
2012	2,254	538	20	2,812
2013	2,148	468	18	2,634
2014	2,052	408	18	2,478
2015	1,950	373	16	2,339

The second peak in onshore production of crude oil, 2.903 mmbd in 2005, was achieved by an intensive effort in the western basins to offset declining production from Daiqing, Sheng Li, and other eastern areas. Average production in the eastern basins is now nearly 8 barrels of water per barrel of crude oil.

A unique feature of PRC offshore production is heavy crude — with an API gravity of 22° or less. Peng Lai, which is likely to turn out to be the largest field in the Northern Sea (Bo Hai) basin, produces 17.5° API gravity oil. Production from Nan Boa field is only 15° API gravity oil. Including production from the onshore Liao He (Liao River) area, total heavy crude oil production in PRC was over 0.46 mmbd in 2006. Very little (if any) of the heavy crude is refined. Over 20 percent of it is used for construction of roads — as an alternative to asphalt — and the rest is burned — as a substitute for residual fuel oils (which are typically 17.5° - 18.5° API gravity).

Summary (Continued)

Figure 2 is a record and forecast of PRC deliveries of distillates, gasoline, and residual fuels as well as direct use of crude oil. Distillates — diesel fuel and heating oil — are the major product, but the split is a mystery. Diesel fuel volume is probably something less than that of gasoline, which would make heating oil (for space heating and generation of electricity) over half of the total distillates volume.

PRC refining is complex by Asian standards. It remains a small exporter of gasoline. Since 1997 the yield of residual fuel has been reduced from nearly 15 percent of crude run to a little over 8 percent. The five major refinery projects under construction are consistent with two objectives:

1. Achieve self-sufficiency in refined products (i.e. eliminate current imports of 0.40 to 0.50 mmbd).
2. Refine most — if not all — of the heavy crude.

PRC is best thought of as a natural gas province — both onshore and offshore. Along with coal and nuclear fission, increased use of natural gas can be expected to reduce consumption of residual fuels and crude oil.

Forecast oil balances for PRC compare with our estimate for 2006 as follows:

Million Barrels Per Day (mmbd)

	2006	Forecast		
		2007	2010	2015
Deliveries	6.90	7.05	7.08	7.30
Supply				
Production	3.47	3.40	3.16	2.34
Imports				
Crude	2.90	3.05	3.55	4.50
Products	0.53	0.45	0.03	-
Exports				
Crude	(0.08)	(0.05)	-	-
Products	(0.28)	(0.21)	(0.10)	-
Processing Gain	0.41	0.42	0.44	0.46
Supply	6.95	7.06	7.08	7.30
Stocks Up or (Down)	0.05	0.01	-	-

Longer term oil consumption in PRC can be expected to drop back below 7 mmbd as more of the distillates production becomes diesel fuel.