Fossil Fuel Use Surges

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World use of oil—the dominant fossil fuel—surged by 3.4 percent in 2004, the fastest rate of increase in 16 years, and reached an average of 3,760 million tons of oil equivalent.[1] (See Figure 1.) Oil producers had difficulty keeping up with soaring demand—estimated by the International Energy Agency at 82.4 million barrels per day—pushing prices to a record nominal level of $55 per barrel in October before retreating at the end of the year.[2]

Although precise figures were not yet available, use of natural gas and coal also appears to have surged in 2004.[3] (See Figure 2.) The continuing rapid growth in coal use in China and India, where pollution controls are minimal, is adding to local and long-distance pollution, ranging from sulfur and nitrogen oxides to mercury.[4]

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China and the United States were the main engines driving fossil fuel markets in 2004, accounting between them for nearly half the increase in world oil demand. China alone increased its oil consumption 11 percent in 2004, cementing its position as the world's number two user at 6.6 million barrels per day.[5] (See Figure 3.) The United States increased its oil use to 20.5 million barrels a day—nearly 25 percent of the world total.[6]

The jump in oil use in 2004 stemmed from a dramatic rebound in the world economy and the entrance of large sections of the developing world into oil-intensive stages of economic development. Not only are automobile numbers rising rapidly, but oil is popular in industry and power generation wherever the infrastructure to use gas and coal is stretched thin. In China, 24 of 31 provinces were subject to power rationing in 2004, pushing many factory owners to install diesel generators and driving up oil demand.[7]

Growth in world oil use is expected to slow in 2005 to a more normal 2 percent.[8] Still, oil prices early in the year were gyrating around $45 per barrel—roughly double the $20–30 that was typical in the 1990s.[9]

Analysts disagree on whether the higher oil prices are an aberration caused by temporary constraints such as terrorism in Saudi Arabia and Iraq or something more fundamental. Some believe that enough oil remains for world production to keep rising indefinitely—up 40 percent to 115 million barrels per day by 2020, according to the International Energy Agency.[10] But a growing number of geologists question whether oil reserves are sufficient to keep production rising. For the past three decades, they argue, oil companies have not been finding as much oil as they have been extracting—a gap that has widened in recent years.[11]

Oil production is already falling in 33 of the 48 largest-oil producing countries, including 6 of the 11 members of the Organization of the Petroleum Exporting Countries.[12] In the continental United States (excluding offshore), oil production peaked at 8 million barrels per day in 1970 and fell to just 2.9 million barrels a day in 2004.[13] During the past few years, Russia and the Persian Gulf countries have accounted for most of the increase in world production. Russia's oil industry is still rebounding from its post-Soviet collapse, but output began to level off by late 2004.[14]

In 2004, Saudi Arabia and the other Persian Gulf countries were producing near their historic peaks of the early 1980s, and for the first time in decades they were down to roughly a million barrels per day of spare capacity.[15] Although some new oil fields came on line in late 2004 and others are planned in 2007, some analysts doubt the region's ability to continually boost production.[16] Some of the largest oil fields in the Persian Gulf are more than 30 years old, and no independent verification of their claimed oil reserves has been permitted for decades.[17]

These developments suggest that the relatively stable oil prices of the 1990s are not likely to reappear anytime soon. PFC Energy, a Washington-based forecasting group that has carefully analyzed global reserve figures, concluded in 2004 that world oil production might be unable to meet projected demand as early as the middle of the next decade.[18] PFC projects that global production will peak in the next 10–15 years.[19] In a world accustomed to sustaining demand growth of roughly 2 percent a year, that would be a crude shock—one that would drive prices through the roof.

Figure 1. World Oil Consumption, 1950–2004

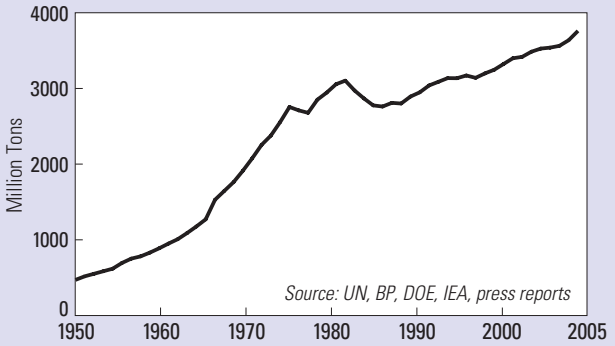


Figure 2. World Consumption of Coal and Natural Gas, 1950–2003

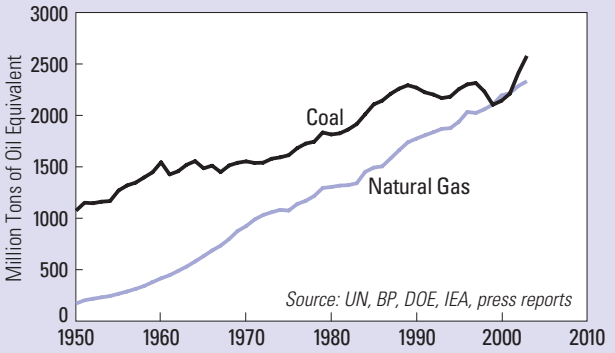
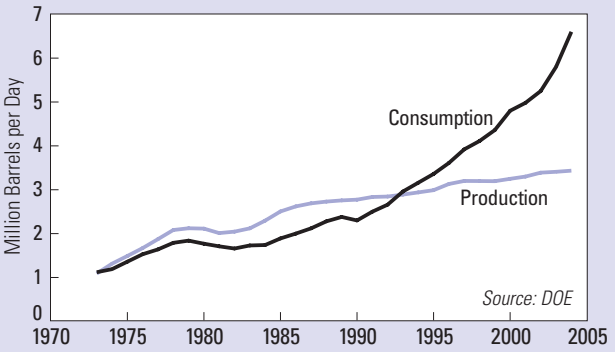


Figure 3. Oil Consumption and Production in China, 1973–2004



World Fossil Fuel Consumption, 1950–2004

Year	Oil	Coal	Natural Gas
	(million tons of oil equivalent)		
1950	470	1,074	171
1955	694	1,270	266
1960	951	1,544	416
1965	1,530	1,486	632
1970	2,254	1,553	924
1971	2,377	1,538	988
1972	2,556	1,540	1,032
1973	2,754	1,579	1,059
1974	2,710	1,592	1,082
1975	2,678	1,613	1,075
1976	2,852	1,681	1,138
1977	2,944	1,726	1,169
1978	3,055	1,744	1,216
1979	3,103	1,834	1,295
1980	2,972	1,814	1,304
1981	2,868	1,826	1,318
1982	2,776	1,863	1,322
1983	2,761	1,916	1,340
1984	2,809	2,011	1,451
1985	2,801	2,107	1,493
1986	2,893	2,143	1,504
1987	2,949	2,211	1,583
1988	3,039	2,261	1,663
1989	3,088	2,293	1,738
1990	3,136	2,270	1,774
1991	3,134	2,225	1,806
1992	3,170	2,203	1,836
1993	3,139	2,168	1,869
1994	3,199	2,182	1,876
1995	3,246	2,255	1,937
1996	3,323	2,302	2,033
1997	3,398	2,315	2,024
1998	3,417	2,233	2,059
1999	3,485	2,103	2,106
2000	3,526	2,141	2,194
2001	3,538	2,211	2,217
2002	3,563	2,412	2,286
2003	3,637	2,578	2,332
2004 (prel)	3,760	n.a.	n.a.

Source: UN, BP, DOE, IEA, press reports.

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