

Fundamentals of the Global Oil Market



Securing America's
Future Energy

The Myth of “Foreign Oil”

- Oil is a fungible global commodity that essentially has a single world benchmark price. Therefore, a supply disruption anywhere in the world affects oil consumers everywhere in the world. A country’s exposure to world price shocks is a function of the amount of oil it consumes and is not significantly affected by the ratio of “domestic” to “imported” product.
- Given today’s precarious balance between oil supply and oil demand, even small supply disruptions can cause prices to rise dramatically. In Oil ShockWave, a crisis simulation developed by Securing America’s Future Energy (SAFE), a roughly 4 percent global shortfall in daily supply resulted in a 177 percent increase in the price of oil (from \$58 to \$161 per barrel). The magnitude of this price shock was modeled and vetted by industry analysts, public policy specialists, and oil traders.

“Demand Inelasticity”

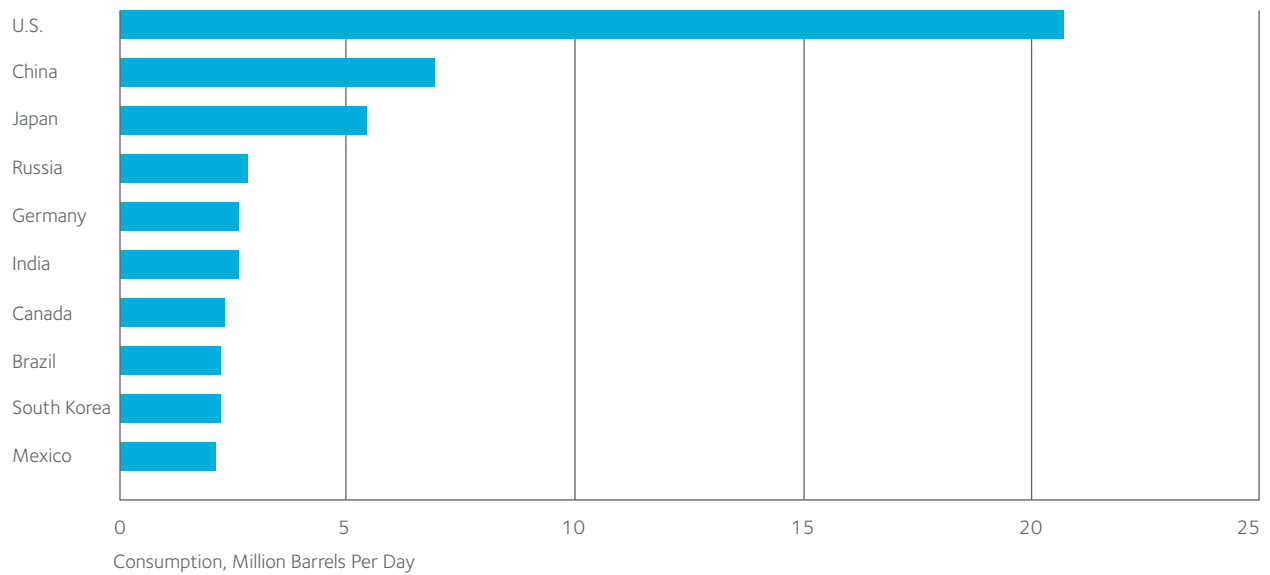
- Demand for oil is “demand inelastic” because there are no significant ready substitutes for oil, meaning that consumers have little flexibility to switch to other fuels for their daily oil consuming activities (such as transportation). When this reliance on oil is combined with tight supply conditions and growing oil demand, even relatively small shortages in supply can lead to sudden and large rises in the price of oil and have wide ranging ramifications for the economy. (As a rule of thumb, every 10% increase in the price of oil lowers U.S. GDP growth by up to 0.1 percentage points.)¹ As Alan Greenspan noted before the Joint Economic Committee in April in 2002, “all economic downturns in the United States since 1973... have been preceded by sharp increase increases in the price of oil.”

¹ Department of Energy (DOE), Energy Information Administration (EIA), “Rules-of-Thumb for Oil Supply Disruptions,” <http://www.eia.doe.gov/security/rule.html>, accessed 28 Nov 2006.

Consumption

- The U.S. accounts for more than 25% of global daily demand.²
- U.S. oil imports have increased steadily since the 1970s and net imports now account for 66% of total U.S. oil consumption.³

TOP OIL CONSUMERS, 2005



U.S. Department of Energy (DOE), Energy Information Administration (EIA), "Top World Oil Consumers, 2005," http://www.eia.doe.gov/emeu/cabs/topworldtables3_4.html, last accessed 1 November 2006.

- Transportation accounts for 67% of U.S. oil consumption.⁴
- 97% of transportation in the U.S. is fueled by oil, with little or no substitutes.⁵

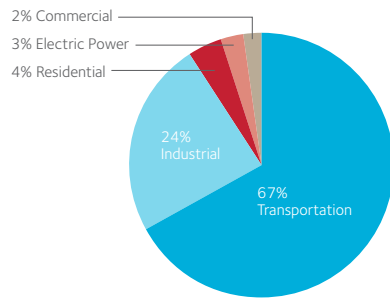
² DOE, EIA, Office of Integrated Analysis and Forecasting, "International Energy Outlook 2006," (2006), Table A4. Henceforth cited as *IEO* (2006).

³ DOE, EIA, Office of Integrated Analysis and Forecasting, "Annual Energy Outlook 2006," (February 2006), Table A1. Henceforth cited as *AEO* (2006).

⁴ *AEO* (2006) Table A2.

⁵ *Ibid.*

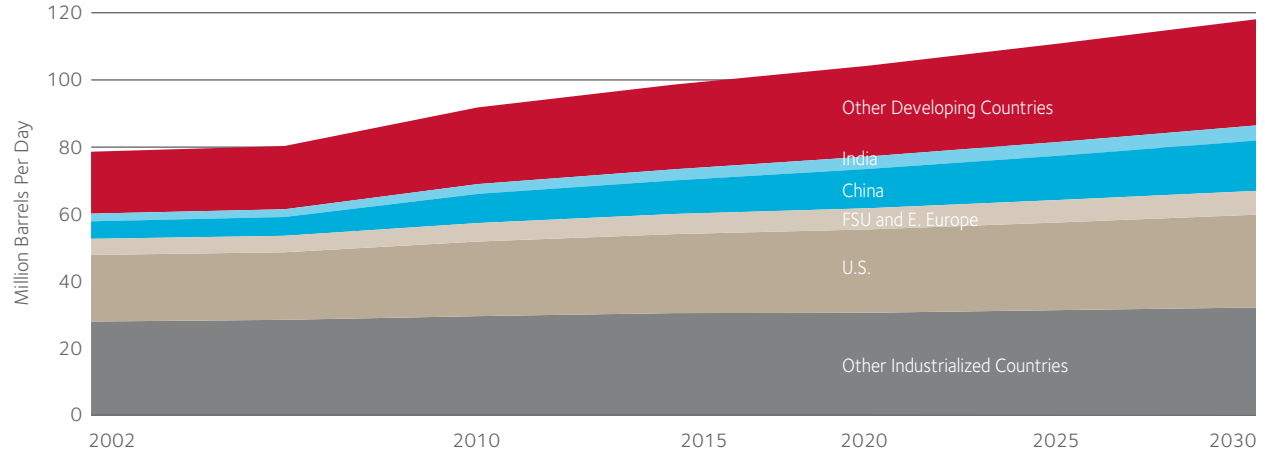
U.S. OIL DEMAND BY SECTOR, 2005



DOE, EIA, Office of Integrated Analysis and Forecasting, Annual Energy Outlook 2006 (February 2006), Tables A2 and A7; henceforth cited as EIA, AEO (2006). See also AEO online supplemental Table 33 at http://www.eia.doe.gov/oiaf/aeo/supplement/pdf/suptab_33.pdf.

- U.S. and world demand for oil is expected to increase substantially going forward. By 2025, U.S. demand is expected to grow 24% (from 21 to 26 million barrels per day) and world demand is projected to increase 33% (from 84 to 110 million barrels per day).⁶
- Demand in China and India will increase 98% during this period.⁷

WORLD OIL DEMAND FORECAST



DOE, EIA, Office of Integrated Analysis and Forecasting, International Energy Outlook 2006 (June 2006), Table A4. Henceforth cited as EIA, IEO (2006).

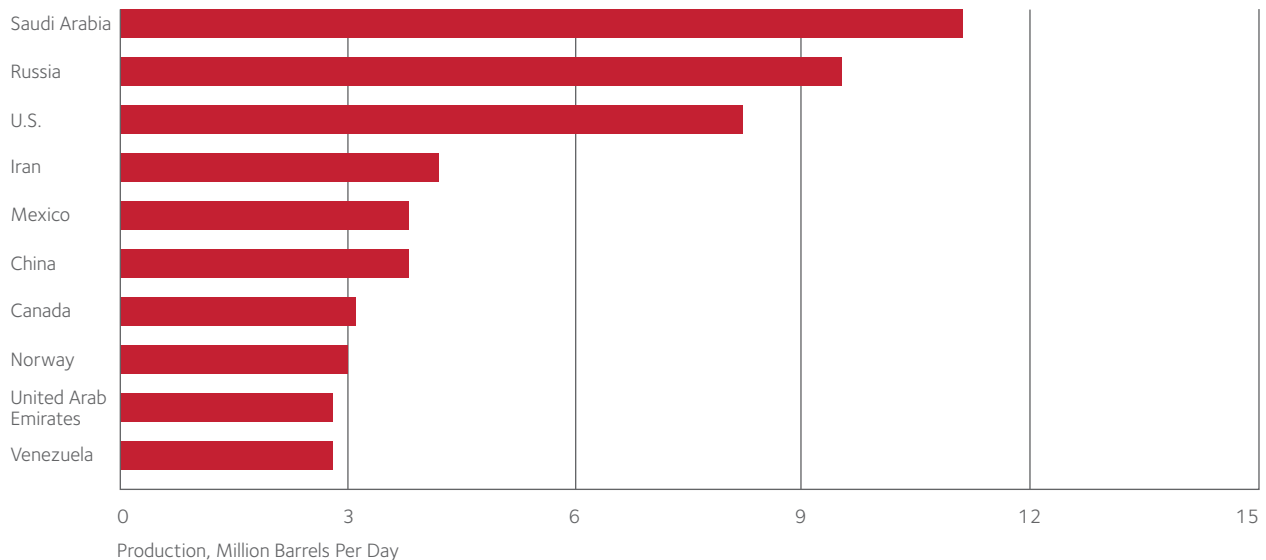
⁶ IEO (2006), Table A4. Some figures extrapolated from table data.

⁷ Ibid.

Production

- The United States is the world's third largest producer of oil, after Saudi Arabia and Russia.⁸
- Only four of the world's top 10 oil producers are established liberal democracies (U.S., Mexico, Canada, and Norway).

TOP OIL PRODUCERS



DOE, EIA, "Top World Oil Producers, 2005," http://www.eia.doe.gov/emeu/cabs/topworldtables1_2.html, last accessed 1 November 2006.

- By 2025, production in former Soviet Union countries (Russia and the Caspian Sea area) is projected to increase from current production levels by over 50% (from an estimated 11.2 to 17.3 million barrels per day). In OPEC countries, production over this time period is expected to increase by 25%.⁹
- By 2025, production in the U.S. and other industrialized countries is projected to decrease by 4% from current production levels.¹⁰
- The world will increasingly rely on unstable, undemocratic nations to supply the oil needed to meet future demand. Today, only two of the world's top 10 oil exporters are established liberal democracies (Norway and Mexico).¹¹

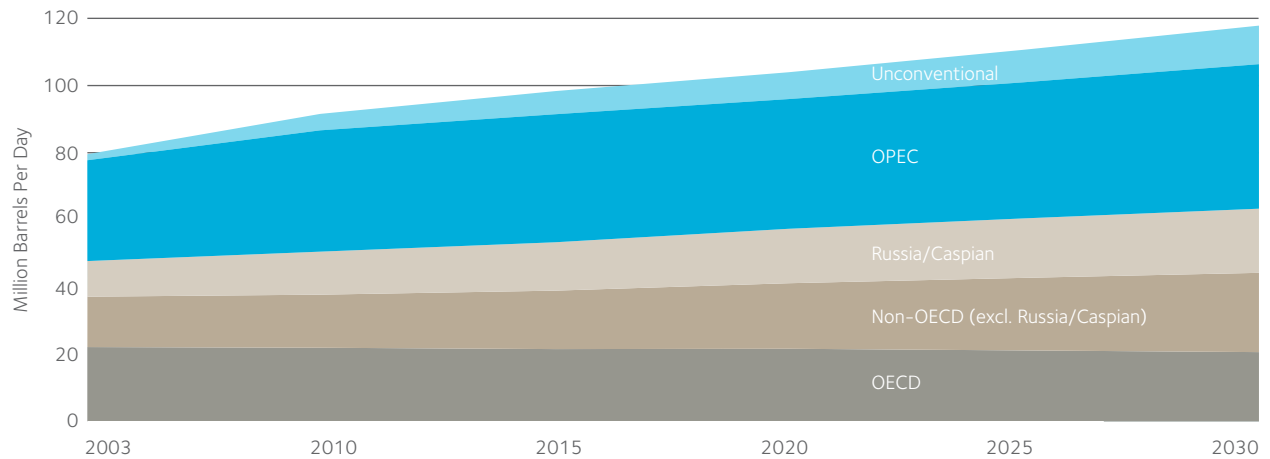
⁸ DOE, EIA, "Top World Oil Producers, 2005," http://www.eia.doe.gov/emeu/cabs/topworldtables1_2.html, accessed 27 Nov 2006.

⁹ *IEO* (2005), Table E4. Some figures extrapolated from table data.

¹⁰ *Ibid.*

¹¹ DOE, EIA, "Top World Oil Exporters, 2005," http://www.eia.doe.gov/emeu/cabs/topworldtables1_2.html, accessed 27 Nov 2006.

WORLD OIL PRODUCTION FORECAST



DOE, EIA *IEO* (2006), Table E.4

- Currently, there is little spare production capacity (1–2 mbd) available worldwide that could be used to provide quick output increases in the event of a supply disruption.¹²

Reserves

- The U.S. holds less than 3% of the world’s proved oil reserves. The Middle East holds more than 61% of global reserves. Only 8% of world reserves are held by countries considered “free” by Freedom House.¹³

Region	% of world’s proved reserves
Middle East	65.5%
Europe/Eurasia	10.0%
Africa	10.4%
South & Central America	7.0%
North America	3.8%
Asia Pacific	3.4%

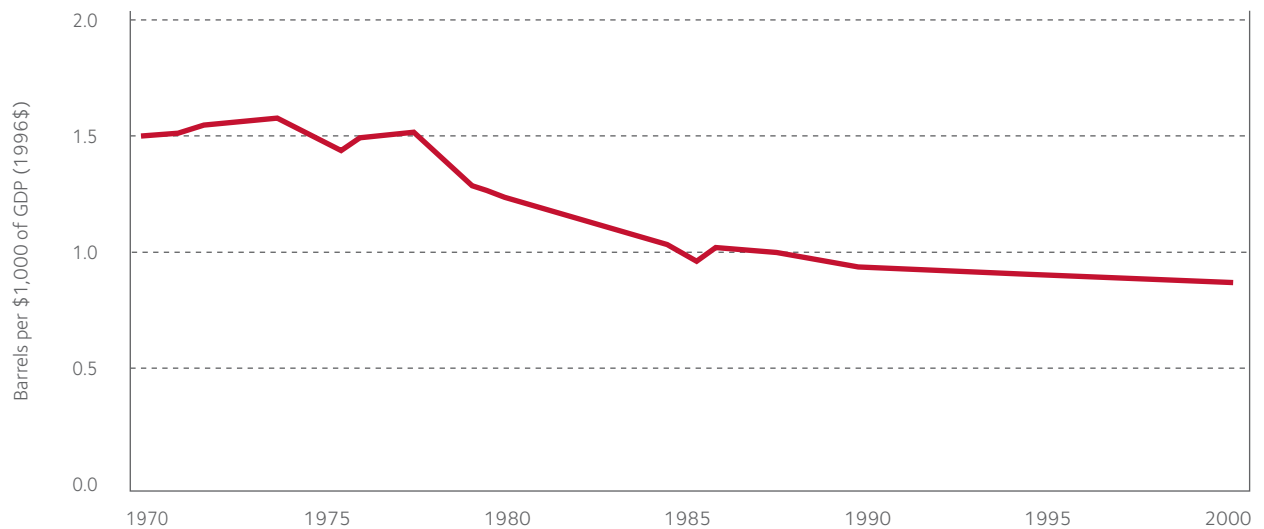
¹² DOE, EIA, “Short Term Energy Outlook,” (November 2006), Table 3a, <http://www.eia.doe.gov/emeu/steo/pub/3atab.html>, accessed 28 Nov 2006.

¹³ DOE, EIA, “International Energy Annual 2004,” (2006), Table 8.1, <http://www.eia.doe.gov/iea>, accessed 27 Nov 2006; Freedom House, “Country Report: 2006 Edition,” <http://www.freedomhouse.org/template.cfm?page=15>, accessed 27 Nov 2006.

Energy Intensity

- The U.S. uses half as much oil to produce the same amount of gross domestic product (GDP) as it did in the 1970s. As a result, the U.S. economy is in a better position to weather oil prices shocks. However, the rate of decline in oil use relative to the economy has slowed in recent years as vehicle fuel efficiency has stagnated.

DECREASING OIL INTENSITY



Resources for the Future, 2004