

The *Lotus Live* Guide to **Petroleum**

(Updated December 24, 2007)

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Introduction

- This guide is your source for information about petroleum, discussing the environmental, social, and economic impacts of the world's petroleum dependence, and providing best practices for replacing oil with more responsible substitutes.
- As Lotus Live's knowledge base increases, and as new resources are created, this guide will be updated. The most recent version of this guide can be found [here](#).

Executive Summary

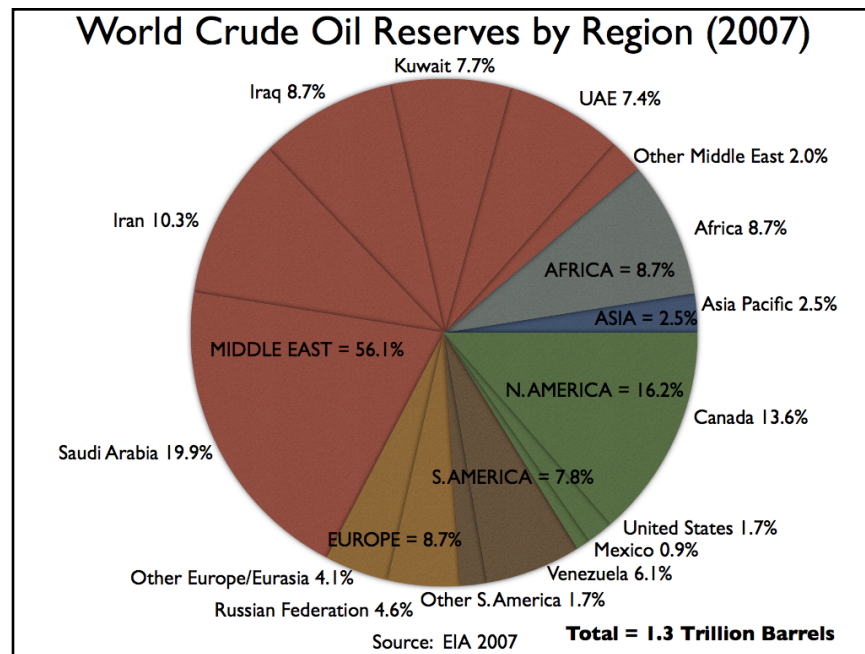
- **Data given here is the most recent available, usually 2005 or 2006.**
- **Petroleum is a fuel for mobility.** Petroleum provides 97% of the transportation energy needs in the United States, and only 1.6% of energy for electricity generation. It is also essential as an industrial feedstock.
- **The United States is the single largest consumer of petroleum,** using 20.2 million barrels per day, 24% of world consumption.
- **Saudi Arabia is the single largest producer of oil,** and has 20% of the world's proven reserves of oil. The Middle East as a whole controls 56% of the reserves.

History of Petroleum

- A Lotus Live summary of petroleum history will eventually be written. If you are serious about learning the history of petroleum, before or after that time, read Daniel Yergin's [The Prize: The Epic Quest for Oil, Money, and Power](#).

The Petroleum Resource

Proven Petroleum Reserves (Quantity and Distribution)



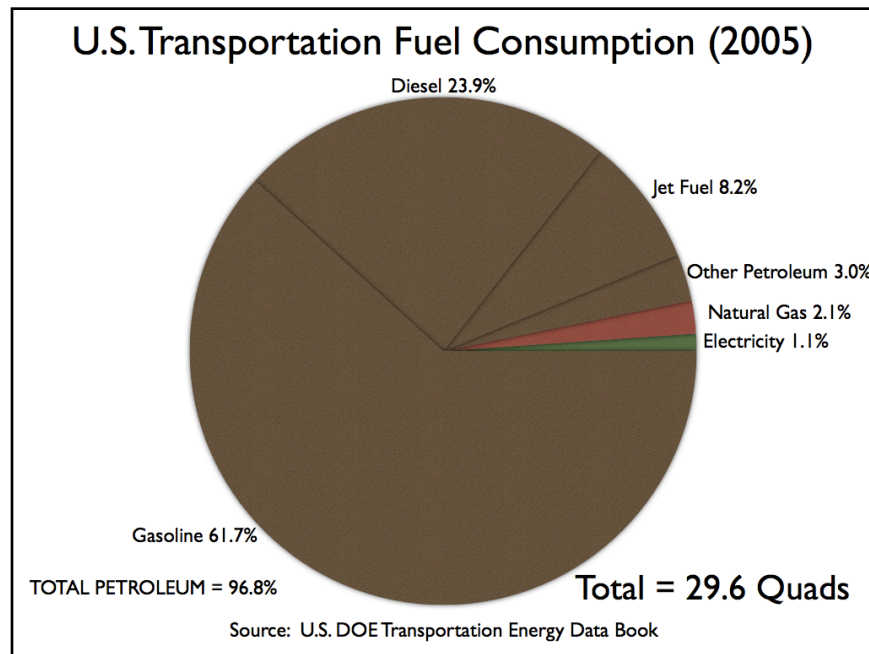
- Saudi Arabia leads the world in crude oil supply with 19.9% of the proven crude oil reserves. The Middle East controls 56.1% of the proven reserves, followed by North America (mostly Canada) with 16.2%, Africa with 8.7%, Europe with 8.7%, South America (mostly Venezuela) with 7.8%, and Asia Pacific with 2.5%. The United States has only 1.7% of the world's remaining proven oil reserves.¹

¹ [EIA - International Petroleum Reserves](#)

Why Petroleum Matters

Transportation Fuel

- In 2005, 96.8% of all transportation energy needs (29.6 Quads) in the U.S. were met by combustion of petroleum products.²



Industrial Building Block

- Petroleum is also a major industrial building block, integral in the making of plastics, fertilizers, pharmaceuticals, and other common chemicals.

Why Is Oil So Desirable?

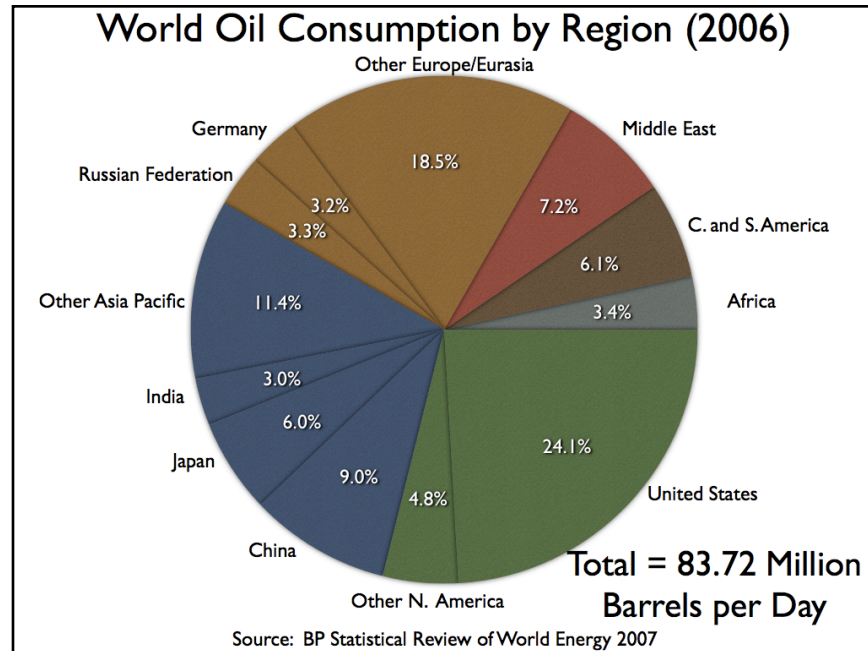
- Oil is an easily transportable liquid with high energy density.
- We currently lack access to substitutes for oil - if you don't feel like a soda, you can drink milk, juice, or water. You don't have those choices for transportation fuel. If you want a vehicle for long distance personal travel, it has to run on petroleum right now.³

² [U.S. DOE - Transportation Energy Data Book \(2007\)](#)

³ [Freedom From Oil](#) by David Sandalow, p. 12

Consumption of Petroleum

Consumption of Petroleum by Region



- In 2006, the United States was the largest single consumer of petroleum, using 20.2 million barrels per day, 24.1% of the world's consumption. China consumed 9%, Japan 6%, Russian Federation 3.3%, Germany 3.2%, and India 3%.⁴
- In 2006, Asia/Pacific consumed 29.5%, North America consumed 28.9%, Europe/Eurasia 24.9%, Middle East 7.2%, Central and South America 6.1%, and Africa 3.4%.⁵

Per Capita Consumption of Selected Countries

- In 2007, in the United States, 2.9 gallons of oil are consumed each day for each person. In China, 0.2 gallons of oil are consumed per day for each person. In Japan, 1.8 gallons. In the Virgin Islands, 44.5 gallons (they have oil-fired electricity).⁶

⁴ [BP Statistical Review of World Energy 2007](#)

⁵ [BP Statistical Review of World Energy 2007](#)

⁶ [Nationmaster - Oil Consumption per Capita](#) (from CIA Factbook 2007) assuming 42 gallons of oil per barrel

Economics of Petroleum

Cost of Production

- The cost of oil production varies greatly, depending on the accessibility of the original resource base, and the level of depletion of the resource. In Saudi Arabia, it may cost as little as \$2 to produce a barrel of oil - in the United States, \$15 to \$20 per barrel - in Canada, \$30 per barrel.⁷

Oil and Electricity Generation

Oil's Share of Electricity Generation

- In 2006, oil accounted for only 1.6% of electricity generation in the United States (down from 3% in 2005).⁸

Electricity's Share of Oil Consumption

- In 2006, only 290,000 of the 20,590,000 barrels (1.4%) used per day in the U.S. were for electricity generation.⁹

Exceptions: Island Electricity

- However, in some remote places, like Hawaii, petroleum is an integral part of the fuel mix. 79% of Hawaiian electricity generation in 2007 was petroleum-fired.¹⁰

⁷ [Freedom From Oil](#) by David Sandalow, p. 17

⁸ [EIA - Electricity Data, Analysis, Surveys - "Net Generation by Energy Source"](#)

⁹ [EIA - Annual Energy Review - "Petroleum Flow"](#)

¹⁰ [EIA - State Energy Profiles - "Hawaii"](#)

About this Guide

Author: [Nick Enge](#)

General References: [Freedom From Oil](#) by David Sandalow, [The Prize](#) by Daniel Yergin

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If you have any ideas, suggestions, or corrections you would like to contribute to this guide on Petroleum, please send us an email at [energy@lotuslive.org](mailto:energy@lotuslive.org).

Feel free to make use of any of the information in this guide for any purpose--we simply ask that you credit us and our predecessors, and link to us.

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