

THE LONG AND WINDING ROAD
(Toward Renewable Energy)

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*"To speak exclusively of conservation... is to duck some tough issues."*¹

-US Vice President Dick Cheney, 2001

If ever there was a wake-up call that shocked the United States, it occurred in 1973 during the infamous Oil Embargo. We have all seen the pictures of mile-long lines of cars waiting for a few gallons of precious gasoline; we have heard the stories of how, for a while, the entire country was at the mercy of a few foreign oil producers. The Embargo didn't have huge political or military repercussions (some would beg to differ), but it sure opened our eyes to the fact that America's lifeline of oil is a fragile thing- that although our demand for energy will never cease, the current sources of our energy will. Somewhere, a clock is ticking; when our fossil fuels are gone, they are gone.

The *International Energy Outlook 2008* forecasts that by the year 2020, the world will consume three times the energy it did in 1970 (EIA). The United States will no longer be the sole great consumer of fossil fuels. India and China, as well as a multitude of other developing nations, are the up and coming energy-consuming giants. In the next twenty years, China alone is expected to increase eight-fold in coal consumption from 1980 levels- from 13 quadrillion BTU's annually to 100+ quadrillion BTU's before 2030 (IEO2008). Similar spikes in previously considered third-world countries are going to influence the availability of petroleum products on international markets, and since energy consumption is directly related to a higher standard of living, there is no way these countries will curb their growth unless their demand for goods outweighs their supply. This is expected to be the case in China; even though China has great coal

¹ Courtesy of whitehouse.gov

reserves (9% of total world resources according to the International Energy Agency), it will soon consume more coal than it can produce, thus slowing industrial and economic growth.

Oil is primarily a transportation sector energy source. Dr. Michael Economides, a leading expert on the geopolitical aspects of the global petroleum industry, shows that the US, with a per capita GDP of \$43000, consumes twenty-six barrels of oil per capita per year, whereas China, with a per capita GDP of \$10000, consumes only two barrels of oil per capita per year.² From this data, China would consume roughly three and a half times as much oil as the United States- about 75 million barrels per day- if it reaches our standard of living (OECD). That kind of strain on the world market would leave no room for economically disadvantaged nations, much less smaller developed ones.

The US is accustomed to relying on a variety of different energy sources. In 1975, petroleum provided us with 40% of our energy, natural gas with 20%, coal with 15%, and nuclear, hydroelectric, and wood energy each providing about 5% of the nation's energy (History). Today, petroleum is still at 40%, coal and natural gas are both at 20%, and nuclear now supports 10% of the nation's power needs (EIA). Wood and hydroelectric energy sources have grown in proportion to demand. In the next two decades, the US is expected to increase energy demand by ten quadrillion BTU's, to a total of thirty-five quadrillion BTU's consumed annually (*IEO2008*). Nuclear, hydroelectric, solar, hydrogen, and wind power will gain more importance as we wean ourselves off fossil fuels. The US has great reserves of coal and oil shale, enough to last the next 164 years, and a sufficient oil supply, so neither transportation nor residential

² Courtesy of *Energy Politics*, Michael J. Economides, 2008

sectors will take a major hit (EIA). The only real factor that will discourage energy consumption in the United States will be the price of that energy; we saw just a few months ago how a few dollars' jump in gas prices can strain an economy and check demand.

During times of economic hardship (usually induced by fluctuation in energy supply and demand), so-called 'big oil' is often blamed for gouging the consumers for unfair profit. The US Supermajors, or big oil, are the major oil companies in America. The New Seven Sisters, foreign petroleum companies, are so huge that the largest US supermajor, ExxonMobil, ranks fourteenth among them (The Economist). Saudi Aramco and JSC Gazprom top the list of the New Seven Sisters. The Associated Press claims that big oil controls about 90% of the world's oil resources (Hoyos). That is enough oil to keep the world running for the next seventy years (The Economist). In the United States, where oil companies reaped \$500 billion in profits last year, there have been many allegations of unfair business practices. However, the US Federal Trade Commission has found no unfair manipulation of prices on behalf of the companies. Gouging or not, the US Supermajors today are considered as essential to our economy as Standard Oil was to the country's development a century ago.

The United States is the world's leading energy consumer. If we halved our per capita energy consumption, we would be about on par with countries like Spain and Ireland, countries that use about 132 kWh/day per person (IEA). The US could survive on this amount of energy if we didn't have to transport goods hundreds of miles between major cities, if we didn't have huge factories shipping good all over the world, if we didn't have to fill three hundred million houses with heat and light every day, not to

mention the energy needs of millions of the workplaces that keep the economy running. Conservation is the word of the century, and if we can stretch our non-renewable resources as long as possible, if we can use them as efficiently and cleanly as possible, it will benefit everyone as well as the environment. 'Turning off the lights' when one leaves the room does conserve energy, and simple things like turning off extra computer monitors, buying new microwaves and toasters, and installing LED lights will leave just that much more fossil fuel for future generations (World Outlook). If we don't demand it now, it will still be there later on. The world is going to use more and more energy no matter what, but as long as we can supply the demand, we can make the change to safer, more reliable, renewable energy sources before our nonrenewable resources are gone.

Works Consulted

- "Economic Growth, Stability, and Industrialization." OECD Annual Report 2008
OECD08(2008) 21-34. 8 Jan 2009.
<<http://www.oecd.org>>.
- "Energy in America's Future." The White House of President George W. Bush (2008)
8 Jan 2009.
<<http://www.whitehouse.gov/infocus/energy/>>.
- Energy Information Administration, "International Energy Outlook 2008 Statistics."
International Energy Outlook 2008 (2008) 8 Jan 2009.
<<http://www.eia.doe.gov/oiaf/ieo/highlights.html>>.
- "History of Energy Use in the United States, 1635-2000." Energy Information
Administration (2001) 8 Jan 2009.
<<http://www.eia.doe.gov/emeu/aer/eh/frame.html>>.
- Hoyos, Carola. "The New Seven Sisters Dominate Western Oil Rivals." Financial Times,
11 MAR 2007. 8 Jan 2009.
<<http://www.ft.com/cms/s/2/471ae1b8-d001-11db-94cb-000b5df10621.html>>.
- International Energy Agency, "Key World Energy Statistics ." Energy Statistics Manual
2008, (2008) 8 Jan 2009.
<http://www.iea.org/Textbase/publications/free_new_Desc.asp>.
- "OPEC Statistical Bulletin 2008." Organization of the Petroleum Exporting Countries,
(2008) 8 Jan 2009.
<<http://www.opec.org/library/Annual%20Statistical%20Bulletin/ASB2008.pdf>>.
- "Really Big Oil." The Economist. 10 AUG 2006, 8 Jan 2009.
<http://www.economist.com/opinion/displaystory.cfm?story_id=7276986>.
- "World Energy Outlook 2008." World Energy Outlook, (2008) 8 Jan 2009.
<<http://www.worldenergyoutlook.org/>>.