

# News and Views from the Dismal Science

Dr. Econ's commentary on local, regional, national, and global economic affairs

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## Power Shift: East and West

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With a population of 300 million people, the United States is not small. At 500 million people, the 27 countries of the European Union pack an even larger population count. But even if the numbers are combined, this amounts to only 12 percent of the world population. If one includes all of the OECD countries (about 30 “rich” countries), the total jumps to roughly 1.2 billion, or 18 percent of the world population. In 2005, the OECD countries consumed almost half of the world's total primary energy supply (TPES) and produced slightly more than half of the world's economic output (measured in so-called international dollars, or PPP\$).

Enter China and India. At well over a billion people each, they hold more than double the OECD's combined population. While the OECD has an 18% share of the world population, China and India have over 37%. China and India – or Chindia for short – consume about 20% of the world's energy and produce about 20% of world economic output (see the Table below).

2005	pop (millions)	gdp (ppp\$ bn)	tpes (mtoe)	gdp/pop (thousands)	tpes/pop	gdp/tpes	pop_share	gdp_share	tpes_share
world	6432	54618	11434	8.49	1.78	4.78			
oecd	1172	30321	5548	25.87	4.73	5.47	18.22%	55.51%	48.52%
us	297	10996	2340	37.02	7.88	4.70	4.62%	20.13%	20.47%
china	1311	8057	1735	6.15	1.32	4.64	20.38%	14.75%	15.17%
india	1095	3362	537	3.07	0.49	6.26	17.02%	6.16%	4.70%
chindia	2406	11419	2272	4.75	0.94	5.03	37.41%	20.91%	19.87%

Source: [http://www.iea.org/textbase/nppdf/free/2007/key\\_stats\\_2007.pdf](http://www.iea.org/textbase/nppdf/free/2007/key_stats_2007.pdf)

But Chindia uses only 0.94 units of energy per person, whereas the OECD uses about five times as much, namely 4.73 units per person. At \$25,870, the average OECD person also earned about five times as much as the average Chindian (\$4,750).

Energy input and economic output go together. The more work the machines do, the more stuff we can consume. Since one cannot reasonably expect Chindians to stay relatively poor so that OECDans – and Americans in particular – can drive monster trucks, it stands to reason that Chindians' demand for energy supplies will increase. But if it increases, say, five times as much, the energy demand by Chindia alone will equal the current world total! Total demand would zoom to 20,522 mtoe's (millions of tonnes of oil equivalent), an increase of 180% over current demand.

Chindia and the United States – to engage in a more direct comparison – are already on equal energy and total economic footing, both consuming about 20% of world energy supplies and producing about 20% of world output. But Americans haul in almost eight times as much income because they consume about eight times as much energy. So, suppose then that

Chindians aspire not to OECDans standard of living but to American standards. Demand goes up to 27,338 mtoe's, or 240% of current levels.

A barrel of oil already trades for about \$100 each and as people substitute to natural gas and other sources (coal, thermal, hydro, wind, solar, nuclear), the extra demand exerted on those markets drives their prices up as well.

It is clear that the historic economic power shift from the West to the East implies another power shift – a battle for energy sources. While it is well-known that China is dabbling in places like the Sudan in Africa, it is less well appreciated that the current energy hot-spots lie in Central Asia, places like Kazakhstan and Turkmenistan. Unlike Saudi Arabia and Iraq, unlike Angola and Nigeria, unlike Venezuela and Ecuador, even unlike Norway and the United Kingdom – all of which have direct access to the sea – Central Asia is landlocked. To get to oil and gas terminals and the sea, thousands of miles of oil and gas pipelines will need to cross geologically rough terrain. (But unlike oil, which is easily stored and moved about on tankers and is truly a global commodity, natural gas needs to be converted to liquified natural gas, LNG, for seaborne shipment. This is so expensive that LNG is essentially a regional, pipeline-restricted commodity.)

The pipelines will also need to cross dicey political borders. Russia has already shown that it is quite willing to use its power as a producer and as a transit country to hold gas recipients hostage to higher prices. It was not pleased at prospects of Kazakhstan selling directly to China and wants to prevent Turkmenistan from selling to India via Afghanistan and Pakistan (the so-called TAPI line). Another gas pipeline currently under discussion would run from Iran through Pakistan to India (the IPI line). One analyst called it the line “from hell to hell through hell.” That is unkind to India in particular, but one gets the point.

But there are other ways to fight the coming energy battle than that implied by this political constellation. Apart from the stopgap measure of more exploration – although both Brazil and India recently have found new fossil fuel fields – I can think of two ways in particular: conservation and switching. Like fresh water, energy is irretrievably wasted on a royal scale. But even if we all were good little Danes or Swiss or Irish, who press nearly twice as much economic output out of a unit of energy than Americans do, conservation alone will not bring Chindians up to OECD or American living standards. In fact, conservation alone may hardly keep pace with the energy demand growth implied by world population growth. So, there is really but one direction to go: to finally spend some real money to research and develop alternative, limitless, nonpolluting energy sources. Otherwise – but for reasons unrelated to carbon emissions – this planet might get real hot real soon.