



More on the Military concerns

Posted by [Heading Out](#) on March 21, 2006 - 5:54pm

Topic: [Supply/Production](#)

Tags: [army](#), [coal](#), [energy trends](#), [Ing](#), [natural gas](#), [nuclear](#), [peak oil](#), [renewables](#)
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The supply of fuel is critical to effective operations of any military unit. This has been true both for combat situations and for the effective use of the military bases that most countries operate.

It is a topic that [Yankee](#) has previously covered, but that, in light of a couple of recent articles, is worth a revisit. To answer one of her questions back then, as to exactly how much fuel the armed forces uses, comes a [Reuters Article](#)

The U.S. military consumed 144.8 million barrels of fuel in 2004, spending \$6.7 billion, according to the Defense Energy Support Center (DESC). Last year, it consumed only 128.3 million barrels, but spent \$8.8 billion, as the average price per barrel rose by almost 50 percent to more than \$68. For 2006, DESC estimates the military will need 130.6 million barrels and pay more than \$10 billion for it, at a price of more than \$77 per barrel.

Fuel supply, and the timely delivery of fuel is critical, though as the Defense Science Board [noted](#) the delivery may be very expensive in some circumstances. Fuel efficiency in the past has not been a major consideration in the development of new technology,

"Although significant warfighting, logistics and cost benefits occur when weapons systems are made more fuel-efficient, these benefits are not valued or emphasized" in any of the services, the Defense Science Board, the Pentagon's most prestigious technical advisory panel, concluded in 2001.

However, because of Iraq the Army and Marines are now using more than a third more fuel than they did in 2004, and this has put up the bill to the point that it is getting attention. As Reuters pointed out,

Two months later, the Pentagon also ordered all defense facilities to cut their energy consumption each year by 2 percent and to increase their use of renewable energy to 7.5 percent of total demand by 2013 and 25 percent by 2025.

Even as the White House repeatedly said the jury was still out on whether industrial emissions caused global warming, the Pentagon ordered facilities to cut greenhouse gas emissions by 30 percent from 1990 levels by 2010.

The Air Force [claims the lead](#) in this with some 11% of its base energy coming from renewable sources such as biomass and wind. That recognition is perhaps, in part, why there is the sudden

While the rising costs of fuel were not initially recognized as being due to the developing peaking of oil production, in either review, it has been the subject of an Army study, that has been addressed already somewhat in the [comments](#) but which deserves a thread of its own. It originally came from [Jeff Vail](#) thank'ee, kind sir. It can also be found [here](#). The Corps of Engineers, through work at CERL in Illinois, looked at the trend in energy supply and how it will influence the operation of existing installations.

As demand for natural gas and petroleum exceeds supply on a national or worldwide basis, prices rise. As the Earth's population swells and as standards of living are improved for the developing world, competition for finite resources will increase. The Army's energy demand at CONUS installations will grow as a major Base Realignment and Closure actions restation 70,000 troops from Europe and Asia to the United States

In regard to specific fuels, the report suggests that natural gas supplies will equilibrate to demand in about 10 years, with peaking in the 2030 to 2035 time frame. And as for oil

Oil production is approaching its peak; low growth in availability can be expected for the next 5 to 10 years. As worldwide petroleum production peaks, geopolitics and market economics will cause even more significant price increases and security risks. One can only speculate at the outcome from this scenario as world petroleum production declines.

The disruption of world oil markets may also affect world natural gas markets since most of the natural gas reserves are collocated with the oil reserves.

Perhaps the most optimistic part of the report is in regard to renewable energy

Renewable energy technologies will certainly be a growing part of the energy mix and will penetrate faster and further than conventional energy advocates think. Early adoption to promote this market and these technologies is inherently in the Army's interest. From an economic perspective, the cost of renewable technologies continues to fall while the cost of conventional energy sources continues to rise.

Put all together as a summary

The days of inexpensive, convenient, abundant energy sources are quickly drawing to a close. Domestic natural gas production peaked in 1973. The proved domestic reserve lifetime for natural gas at current consumption rates is about 8.4 yrs. The proved world reserve lifetime for natural gas is about 40 years, but will follow a traditional rise to a peak and then a rapid decline. Domestic oil production peaked in 1970 and continues to decline. Proved domestic reserve lifetime for oil is about 3.4 yrs. World oil production is at or near its peak and current world demand exceeds the supply. Saudi Arabia is considered the bellwether nation for oil production and has not increased production since April 2003. After peak production, supply no longer meets demand, prices and competition increase. World proved reserve lifetime for oil is about 41 years, most of this at a declining availability. Our current throw-away nuclear cycle will consume the world reserve of low-cost uranium in about 20 years. Unless we dramatically change our consumption practices, the Earth's finite resources of petroleum and natural gas will

become depleted in this century. Coal supplies may last into the next century depending on technology and consumption trends as it starts to replace oil and natural gas.

The Army is already addressing [some of these issues](#) and there is a [Strategy](#).

And for a fellow agency it was not a strong endorsement for the USGS projections

A 2000 U.S. Geological Survey report estimates a much higher availability for the future of petroleum based on three things--reserves growth, higher recoverable fractions, and greater amounts new discoveries (Ahlbrandt, Pierce et al. 2000). The USGS report presents an optimistic picture for the next 20 years or so. Even if there predictions are true, the overwhelming majority of this oil is projected to be in the former Soviet Union, the Middle East, and in North Africa.

But that theme deserves its own thread.

I could go on pulling quotes from the document all day, but will close with one relevant to recent posts on natural gas

In 1997, 600 rigs kept production flat. In 2001, more than 1,000 gas rigs were needed to keep production steady and in 2002, 725 rigs are deployed but U.S. natural gas production fell by 6 percent. There are only 1,200 to 1,300 gas rigs in existence making it difficult for U.S. producers to reverse these trends.

Since the document is free I strongly recommend you download and read it for yourself. (It is 86 pages long).

P.S. It is not impressed with the prospects for a hydrogen economy.

And just to add a small comment on the UK gas situation, I note that the long range storage situation does not look so [exciting](#) today, so hopefully the warm weather will help build those stocks back up.



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