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No Technofixes for Peak Oil, Written by Alice Friedemann

When you read articles that promise renewable energy, go to the library and pore over old *Popular Science* and *Scientific American* magazines. You'll see a lot of Gee-Whiz contraptions that never materialized... The only information you can trust on matters of science and engineering are peer reviewed articles in respected journals, and even then you have to be a bit skeptical. For example, the Farrell Science paper on ethanol had to resort to the results of three non-peer reviewed USDA sponsored papers to come up with a very tiny favorable positive net energy result for ethanol (half of the papers cited).

Here are some books/links to read to understand the technical challenges of various proposed energy solutions: Howard Hayden, 2005 -- *The Solar Fraud: Why Solar Energy Won't Run the World* ... Martin Hoffert, et al.—*Advanced Technology Paths to Global Climate Stability: Energy for a Greenhouse Planet*, Nov.2002, *Science* ... Joseph J. Romm, 2004 -- *Hype About Hydrogen: Fact and Fiction in the Race to Save the Climate* ... U. Bossel & B. Eliasson—*Energy and the Hydrogen Economy* [www.methanol.org] ... Alice Friedemann, *The Hydrogen Economy: Energy and Economic Black Hole* [energybulletin.net] ... D. Pimentel, T. Patzek—*Ethanol Production Using Corn, Switchgrass, and Wood; Biodiesel Production Using Soybean and Sunflower*, 2005. *Natural Resources Research Vol. 14, No. 1*.

It's an ecological crash because so many threads of depletion and pollution are coming together at the same time, just as Meadows' *Limits to Growth* projected... Cheap and plentiful energy is hiding the fact that we're already in an ecological crisis. Energy is holding many existing environmental disasters at bay. Here are just a few:

- 1) Invasive species in the United States cause major environmental damage with losses of about \$137 billion per year, but with energy-intensive machinery and chemicals we are able to control the damage to a much larger extent than we could otherwise (i.e. getting invasive water weeds out of irrigation canals, etc).
- 2) Depletion of fisheries worldwide from overfishing, nitrogen-runoff dead zones, and mercury poisoning (which will only increase as we turn to coal). We still have enough energy now to send ships to the most remote corners of the planet to harvest the remaining fish and to grow fish on fish farms, but as energy declines, so too will seafood (as well as from all the other contingencies, such as refrigeration).
- 3) Now people don't need to burn wood to cook with and heat their homes, but as energy declines, the decimation of forests will accelerate.
- 4) Aging infrastructure will no longer be able to be repaired. We already have terrible grades in infrastructure while there's cheap energy. The American Society of Civil Engineers gave the following grades to our infrastructure in 2005.

Grade: Infrastructure Components – C+... Solid Waste – C... Bridges – D+... Aviation Transit – D... Dams, Energy, Hazardous Waste, Roads, Schools – D... Drinking Water, Wastewater, Navigable Waterways – D-... As bridges and roads fail, as water begins to carry disease, etc., the ability to deliver clean food and water will decline. Ninety percent of our life spans (from an average of 40 years a century ago to 80 years now) are due to clean food, water, use of natural gas and oil instead of coal and wood — only 10% from pharmaceuticals and medical technology.

- 5) Ground water depletion, which half of Americans rely on, to below what can be manually pumped.
- 6) Depletion of the Ogallala aquifer, where over a quarter of our grains, hogs, and cattle grow. This will lead to another dustbowl and turn the land into a desert across over 175,000 square miles of land in the ten high plains states. Already millions of acres have been abandoned because the energy costs to pump water up are too high.

The time remaining for serious action on energy is short, By Norm Erickson -- 10/18/2007

Gustavus Adolphus College in St. Peter, Minn., just hosted its 43rd Nobel Conference. The theme this year was "Heating up the energy debate." Here are some highlights... The conference lectures began with Dr. Steven Chu, director of the Lawrence Berkeley Lab and 1997 Nobel Prize winner. Chu said climate changes are occurring much faster than predicted just a few years ago. Forty percent of British Columbia's pine forests are already dead, and most of the rest will be gone by 2013 due to warming that allows predatory beetles to survive winters in the pine forests... Tibetan glacial ice provides summer runoff that supplies water to one-third of the population of the world. Tibetan glaciers are rapidly melting and dependent streams will seasonally run dry as the glaciers disappear.

Chu said free markets alone fail if there is a "common problem," such as air pollution, water pollution, or global warming. He gave this example of the power of a free market system to improve products, given the proper incentives: In 1975, refrigerators selling for about the same price had an energy efficiency range of 4:1. Since they sold for about the same price, it was obvious that efficiency was not an expensive attribute. Energy efficiency standards and ratings were established, and by 2004 refrigerators had increased in size by 25 percent while the cost dropped by 50 percent and the energy use dropped by 80 percent... Chu said biofuels will be an important but inadequate replacement for CO₂-emitting fossil fuels. We also need great improvements in energy conservation, efficiency, and clean energy supplies such as solar and wind energy.

Ken Deffeyes, geologist and a Professor of Geosciences, Emeritus at Princeton University, discussed the rapid depletion of crude oil. The global discovery of conventional crude oil peaked in 1964 and production peaked in 2005, according to Deffeyes. The upward trend in oil prices we are now experiencing is a natural outcome of growing global demand and depleting reserves.

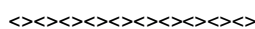
Competition to secure access to the remaining reserves is underway between large consuming nations such as Russia, India, the U.S., Canada, Japan, and the European Union... The rapid loss of Arctic ice has led nations to lay claims to possible energy reserves under the thinning polar ice cap. Deffeyes said more than 100 deep-sea holes have been drilled elsewhere, and no oil has been found. A set of special conditions are all required to produce oil and natural gas reserves, and most of the planet never had all of them. There may be no significant reserves beneath the Arctic ocean

Deffeyes noted that the time remaining for serious action on energy is relatively short, perhaps five years. The path we have been on will likely lead to war and famine, but, we still have choices in that regard.

Dr. Lee Rybeck Lynd is an Adjunct Professor of Biology at Dartmouth College. He said "plant biomass is the only foreseeable sustainable source of organic fuels, chemicals and materials." Crude oil and natural gas were formed from deposits of algae in ancient shallow sea beds 90 to 150 million years ago. Those fuels have been referred to as "ancient sunlight." Lynd's biofuels are powered by "current budget sunlight"...While he estimated that a biomass fuel processing plant would service an area with a radius of about 50 miles and may produce up to 50 million gallons of fuel per year, his opinion is that biomass fuels will not solve our sustainability problems.

The audience was urged to contact their elected officials and relate their concerns and willingness to pay higher energy costs for climate change mitigation and fuel conservation. Failing to act decisively now will become far more costly in the years ahead.

Norm Erickson of Rochester is a retired IBM technical educator who has spent years studying the world's fuel supplies



Report: 'World at peak oil output' -- [http://edition.cnn.com/BUSINESS/10/24/oil.decline/index.html]

London, England (CNN) -- The world has reached the point of maximum oil output and production levels will halve by 2030 -- a situation that will eventually lead to war and disaster, a report claims. The German-based Energy Watch Group released a report Tuesday saying the world's oil production peaked in 2006 and from now

By December 31, 2008, according to Foreign Minister Hoshiyar Zebari, the government of Iraq intends to have replaced the existing mandate for a multinational security force with a conventional bilateral security agreement with the United States, an agreement of the sort that Washington has with Kuwait, Saudi Arabia, and several other countries in the Middle East. The Security Council has always paired the annual renewal of its mandate for the multinational force with the renewal of a second mandate for the management of Iraqi oil revenues. This happens through the "Development Fund for Iraq," a kind of escrow account set up by the occupying powers after the overthrow of the Saddam Hussein regime and recognized in 2003 by U.N. Security Council Resolution 1483. The oil game will be up if and when Iraq announces that this mandate, too, will be terminated at a date certain in favor of resource-development agreements that -- like the envisioned security agreement -- match those of other states in the region.

The game will be up because, as Antonia Juhasz pointed out last March in a *New York Times* op-ed, "Whose Oil Is It, Anyway?"

"Iraq's neighbors Iran, Kuwait, and Saudi Arabia have outlawed foreign control over oil development. They all hire international oil companies as contractors to provide specific services as needed, for a limited duration, and without giving the foreign company any direct interest in the oil produced."

By contrast, the oil legislation now pending in the Iraqi parliament awards foreign oil companies coveted, long-term, 20-35 year contracts of just the sort that neighboring oil producers have rejected for decades. It also places the Iraqi oil industry under the control of an appointed body that would include representatives of international oil companies as full voting members.

The news that the duly elected government of Iraq is exercising its limited sovereignty to set a date for termination of the American occupation radically undercuts all discussion in Congress or by American presidential candidates of how soon the U.S. occupation of Iraq may "safely" end. Yet if, by the same route, Iraq were to resume full and independent control over the world's third-largest proven oil reserves -- 200 to 300 million barrels of light crude worth as much as **\$30 trillion** at today's prices -- a politically incorrect question might break rudely out of the Internet universe and into the mainstream media world, into, that is, the open. Has the Iraq war been an oil war from the outset?

Former Federal Reserve Chairman Alan Greenspan evidently thought so or so he indicated in a single sentence in his recent memoir: "I am saddened that it is politically inconvenient to acknowledge what everyone knows: the Iraq war is largely about oil." When asked, Gen. John Abizaid, former CENTCOM commander who oversaw three-and-a-half years of the American occupation of Iraq, agreed. "Of course it's about oil, we can't really deny that," he said during a roundtable discussion at Stanford University. These confessions validated the suspicions of foreign observers too numerous to count, veteran security analyst Thomas Powers observed in the *New York Review of Books* recently:

What it was only feared the Russians might do [by invading Afghanistan in the 1980s] the Americans have actually done -- they have planted themselves squarely astride the world's largest pool of oil, in a position potentially to control its movement and to coerce all the governments who depend on that oil. Americans naturally do not suspect their own motives, but others do. The reaction of the Russians, the Germans, and the French in the months leading up to the war suggests that none of them wished to give Americans the power which [former National Security Adviser Zbigniew] Brzezinski had feared was the goal of the Soviets.

Apologists for the war point out lamely that the United States imports only a small fraction of its oil from Iraq, but what matters, rather obviously, is not Iraq's current exports but its reserves.

Before the invasion of Iraq in March 2003, media mogul Rupert Murdoch said, "The greatest thing to come out of this for the world economy, if you could put it that way, would be \$20 a barrel for oil." In the twenty-first century's version of the "Great Game" of nineteenth century imperialism, the Bush administration made a colossal gamble that Iraq could become a kind of West Germany or South Korea on the Persian Gulf -- a federal republic with a robust, oil-exporting economy, a rising standard of living, and a set of U.S. bases that would guarantee lasting American domination of the most resource-strategic region on the planet. The political half of that gamble has already been lost, but the Bush administration has proven adamantly unwilling to accept the loss of the economic half, the oil half, without a desperate fight. Perhaps the five super-bases that the U.S. has been constructing in Iraq for as many as 20,000 troops each, plus the ill-built super-embassy (the largest on the planet) it has been constructing inside the Green Zone, will suffice to maintain American control

