

Dear Reader,

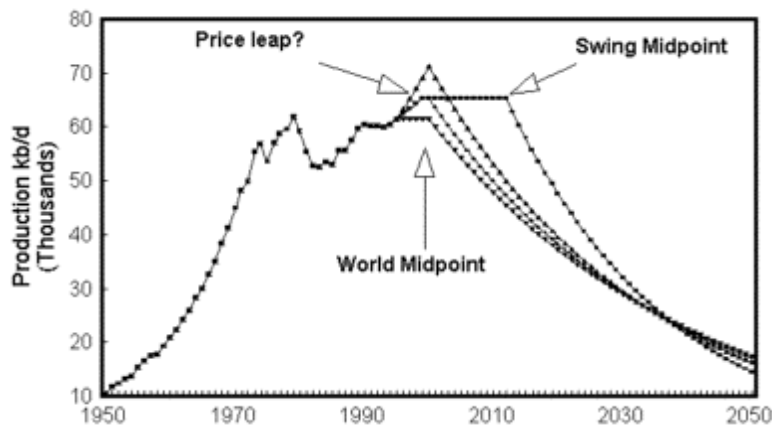
Civilization as we know it is coming to an end soon. This is not the wacky proclamation of a doomsday cult, apocalypse bible prophecy sect, or conspiracy theory society. Rather, it is the scientific conclusion of the best paid, most widely-respected geologists, physicists, and investment bankers in the world. These are rational, professional, conservative individuals who are absolutely terrified by a phenomenon known as global "Peak Oil."

"Are We 'Running Out'? I Thought There Was 40 Years of the Stuff Left"

Oil will not just "run out" because all oil production follows a bell curve. This is true whether we're talking about an individual field, a country, or on the planet as a whole.

Oil is increasingly plentiful on the upslope of the bell curve, increasingly scarce and expensive on the down slope. The peak of the curve coincides with the point at which the endowment of oil has been 50 percent depleted. Once the peak is passed, oil production begins to go down while cost begins to go up.

In practical and considerably oversimplified terms, this means that if 2000 was the year of global Peak Oil, worldwide oil production in the year 2020 will be the same as it was in 1980. However, the world's population in 2020 will be both much larger (approximately twice) and much more industrialized (oil-dependent) than it was in 1980. Consequently, worldwide demand for oil will outpace worldwide production of oil by a significant margin. As a result, the price will skyrocket, oil-dependant economies will crumble, and resource wars will explode.



(Graph: Dr. C.J. Campbell/Petroconsultants)

The issue is not one of "running out" so much as it is not having enough to keep our economy running. In this regard, the ramifications of Peak Oil for our civilization are similar to the ramifications of dehydration for the human body. The human body is 70 percent water. The body of a 200 pound man thus holds 140 pounds of water. Because water is so crucial to everything the human body does, the man doesn't need to lose all 140 pounds of water weight before collapsing due to dehydration. A loss of as little as 10-15 pounds of water may be enough to kill him.

In a similar sense, an oil-based economy such as ours doesn't need to deplete its entire reserve of oil before it begins to collapse. A shortfall between demand and supply as little as 10-15 percent is enough to wholly shatter an oil-dependent economy and reduce its citizenry to poverty.

The effects of even a small drop in production can be devastating. For instance, during the 1970s oil shocks, shortfalls in production as small as 5% caused the price of oil to nearly quadruple. The same thing happened in California a few years ago with natural gas: a production drop of less than 5% caused prices to skyrocket by 400%.

Fortunately, previous price shocks were only temporary.

The coming oil shocks won't be so short-lived. They represent the onset of a new, permanent condition. Once the decline gets under way, production will drop (conservatively) by 3% per year, every year.

That estimate comes from numerous sources, not the least of which is Vice President Dick Cheney himself. In a 1999 speech he gave while still CEO of Halliburton, Cheney stated:

By some estimates, there will be an average of two-percent

annual growth in global oil demand over the years ahead,

*along with, **conservatively**, a three-percent natural decline*

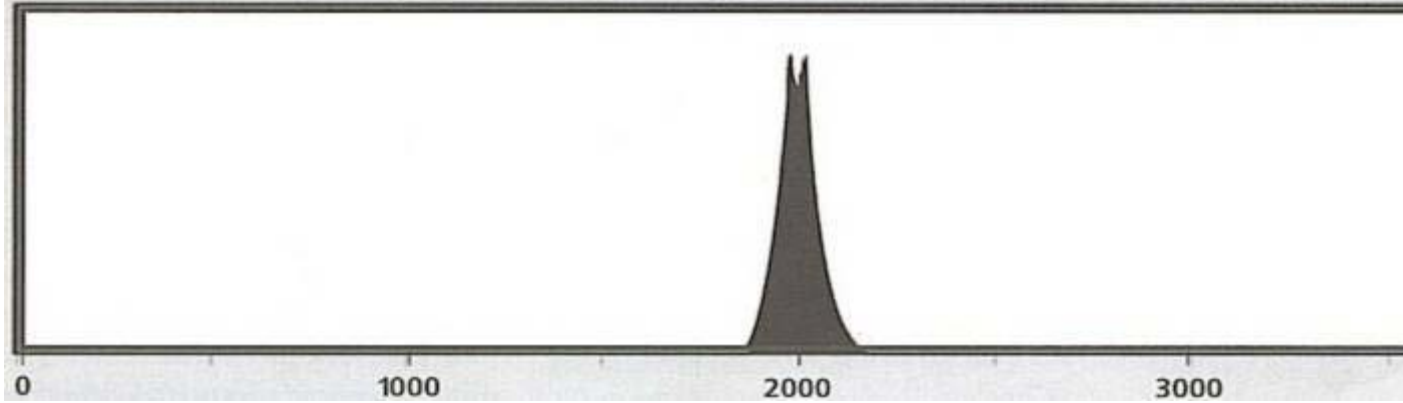
in production from existing reserves. That means by 2010 we

will need on the order of an additional 50 million barrels a day.

Cheney's assessment is supported by the estimates of numerous non-political, retired, and now disinterested scientists, many of whom believe global oil production will peak and go into terminal decline within the next five years.

Some geologists expect 2005 to be the last year of the cheap-oil bonanza, while estimates coming out of the oil industry indicate "a seemingly unbridgeable supply-demand gap opening up after 2007," which will lead to major fuel shortages and increasingly severe blackouts beginning around 2008-2012.

The long-term ramifications of Peak Oil on your way of life are nothing short of mind blowing. As we slide down the downslope slope of the global oil production curve, we may find ourselves slipping into what some scientists are calling a "post-industrial stone age."



Peak Oil is also called "Hubbert's Peak," named for the Shell geologist Dr. Marion King Hubbert. In 1956, Hubbert accurately predicted that US domestic oil production would peak in 1970. He also predicted global production would peak in 1995, which it would have had the politically created oil shocks of the 1970s not delayed the peak for about 10-15 years.

"Big deal. If gas prices get high, I'll just drive less. Why should I give a damn?"

Because petrochemicals are key components to much more than just the gas in your car. As geologist Dale Allen Pfeiffer points out in his article entitled, "Eating Fossil Fuels," approximately 10 calories of fossil fuels are required to produce every 1 calorie of food eaten in the US.

The size of this ratio stems from the fact that every step of modern food production is fossil fuel and petrochemical powered:

1. Pesticides are made from oil;
2. Commercial fertilizers are made from ammonia, which is made from natural gas, which will peak about 10 years after oil peaks;
3. With the exception of a few experimental prototypes, all farming implements such as tractors and trailers are constructed and powered using oil;
4. Food storage systems such as refrigerators are manufactured in oil-powered plants, distributed across

oil-powered transportation networks and usually run on electricity, which most often comes from natural gas or coal;

5. In the US, the average piece of food is transported almost 1,500 miles before it gets to your plate. In Canada, the average piece of food is transported 5,000 miles from where it is produced to where it is consumed.

In short, people gobble oil like two-legged SUVs.

It's not just transportation and agriculture that are entirely dependent on abundant, cheap oil. Modern medicine, water distribution, and national defense are each entirely powered by oil and petroleum derived chemicals.

In addition to transportation, food, water, and modern medicine, mass quantities of oil are required for all plastics, all computers and all high-tech devices.

Some specific examples may help illustrate the degree to which our technological base is dependent on fossil fuels:

1. The construction of an average car consumes the energy equivalent of approximately 27-54 barrels, which equates to 1,100-2,200 gallons, of oil. Ultimately, the construction of a car will consume an amount of fossil fuels equivalent to twice the car's final weight.
2. The production of one gram of microchips consumes 630 grams of fossil fuels. According to the American Chemical Society, the construction of single 32 megabyte DRAM chip requires 3.5 pounds of fossil fuels in addition to 70.5 pounds of water.
3. The construction of the average desktop computer consumes ten times its weight in fossil fuels.
4. The Environmental Literacy Council tells us that due to the "purity and sophistication of materials (needed for) a microchip, . . . the energy used in producing nine or ten computers is enough to produce an automobile."

When considering the role of oil in the production of modern technology, remember that most alternative systems of energy — including solar panels/solar-nanotechnology, windmills, hydrogen fuel cells, biodiesel production facilities, nuclear power plants, etc. — rely on sophisticated technology.

In fact, all electrical devices make use of silver, copper, and/or platinum, each of which is discovered, extracted, transported, and fashioned using oil-powered machinery. For instance, in his book, *The Lean Years: Politics of Scarcity*, author Richard J. Barnet writes:

To produce a ton of copper requires 112 million BTU's or the equivalent of 17.8 barrels of oil. The energy cost component of aluminum is twenty times higher.

Nuclear energy requires uranium, which is also discovered, extracted, and transported using oil-powered machinery.

Most of the feedstock (soybeans, corn) for biofuels such as biodiesel and ethanol are grown using the high-tech, oil-powered industrial methods of agriculture [described above](#).

In short, the so called "alternatives" to oil are actually "derivatives" of oil. Without an abundant and reliable supply of oil, we have no way of scaling these alternatives to the degree necessary to power the modern world.

(Note: alternatives to oil are discussed in depth on [Page Two](#))

"Is the Modern Banking System Entirely Dependent on Cheap Oil?"

Yes.

The global financial system is [entirely dependent on a constantly increasing supply of oil and natural gas](#). The relationship between the supply of oil and natural gas and the workings of the global financial system is arguably **the key issue** to understanding and dealing with Peak Oil, far more important than alternative sources of energy, energy conservation, or the development of new technologies, all of which are discussed in detail on [page two of this site](#).

Dr. Colin Campbell presents [an understandable model of this complex \(and often difficult to explain\) relationship](#):

It is becoming evident that the financial and investment community begins to accept the reality of Peak Oil, which ends the first half of the age of oil. They accept that banks created capital during this epoch by lending more than they had on deposit, being confident that tomorrow's expansion, fuelled by cheap oil-based energy, was adequate collateral for today's debt. The decline of oil, the principal driver of economic growth, undermines the validity of that collateral which in turn erodes the valuation of most entities quoted on Stock Exchanges. The investment community however faces a dilemma. It desires to protect its own fortunes and those of its privileged clients while at the same time is reluctant to take action that might itself trigger the meltdown. It is a closely knit community so that it is hard

for one to move without the others becoming aware of his actions.

The scene is set for the Second Great Depression, but the conservatism and outdated mindset of institutional investors, together with the momentum of the massive flows of institutional money they are required to place, may help to diminish the sense of panic that a vision of reality might impose. On the other hand, the very momentum of the flow may cause a greater deluge when the foundations of the dam finally crumble. It is a situation without precedent.

Commentator Robert Wise explains the connection between energy and the economic activity as follows:

It's not physics, but it's true: money equals energy. Real, liquid wealth represents usable energy. It can be exchanged for fuel, for work, or for something built by the work of humans or fuel-powered machines. Real cost reflects the energy cost of doing something; real value reflects the energy expended to build something.

Nearly all the work done in the world economy -- all the manufacturing, construction, and transportation -- is done with energy derived from fuel. The actual work done by human muscle power is miniscule by comparison. And, the lion's share of that fuel comes from oil and natural gas, the primary sources of the world's wealth.

In October 2005, the normally conservative London Times acknowledged that the world's wealth may soon evaporate as we enter a technological and economic "Dark Age." In an article entitled "Waiting for the Lights to Go Out" Times reporter Bryan Appleyard wrote the following:

Oil is running out; the climate is changing at a potentially catastrophic rate; wars over scarce resources are brewing; finally, most shocking of all, we don't seem to be having

enough ideas about how to fix any of these things.

Almost daily, new evidence is emerging that progress can no longer be taken for granted, that a new Dark Age is lying in wait for ourselves and our children.

. . . growth may be coming to an end. Since our entire financial order — interest rates, pension funds, insurance, stock markets — is predicated on growth, the social and economic consequences may be cataclysmic.

If you want to understand just how cataclysmic these consequences might be, consider the current crisis in the UK as a "preview of coming attractions." On October 23, 2005 [the London Telegraph reported:](#)

The Government has admitted that companies across Britain might be forced to close this winter because of fuel shortages. "The balance between supply and demand for energy is uncomfortably tight. I think if we have a colder-than-usual winter given the supply shortages, certain industries could suffer real difficulties." The admission was made after this newspaper revealed that Britain could be paralysed by energy shortages if the winter is colder than average.

The Met Office says there is a 67 per cent likelihood of prolonged cold this year after almost a decade of mild winters. That, coupled with high fuel prices, raises the fear that industry will not be able to cope.

The consequences of such relatively small shortfalls between supply and demand have prompted the UK government to look into draconian energy conservation measures that would be enforced [via house-to-house searches by a force of "energy-police."](#)

This is happening despite the fact we are probably at least a few years away from peaking. You have to ask yourself, "what's going to happen when the 'real problems' start showing up?"

Are the Banks Aware of This Situation?

The central ones certainly are. (Those new bankruptcy laws were passed for a reason.) On June 28, 2005, Gary Duncan, the economics editor for the UK based *Sunday Times*, reported that the Bank of International Settlements (BIS), aka "the central banker's central bank", had issued the following warnings regarding the economic fallout of further rises in the price of oil:

Oil prices may well remain high for a prolonged period of time . . . Further rises — if they materialize — may have more severe consequences than currently anticipated . . .

Everyone needs to commit to some unpleasant compromises now, in order to avoid even more unpleasant alternatives in the future . . .

Duncan goes on to summarize the bank's report as follows:

The US current account deficit meant that a further slide in the dollar was "almost inevitable", while the BIS sounded a warning that the deficit could yet lead to "a disorderly decline of the dollar, associated turmoil in other financial markets, and even recession."

A bank as crucially important to the world economy and as influential to the markets as the BIS doesn't just casually toss out terms like "unpleasant compromises", "severe consequences", "even more unpleasant alternatives", "turmoil," and "disorderly decline" in relation to the oil markets and the dollar (which is the reserve currency for all oil transactions in the world) unless something very nasty is brewing in the background.

(Note: to read the full text of the bank's report, [click here](#).)

On a similar note, Warren Buffet, the world's second richest man, recently warned of "mega-catastrophic risks" and "investment time bombs" currently threatening the global economy. Add those to a mix of sky-high energy prices, destabilizing resource wars, less than inspiring leadership, a possible currency collapse, more "petrodollar warfare", and well, the picture begins to look pretty grim, pretty quick.

What Does All of This Mean for Me?

What all of this means, in short, is that the aftermath of Peak Oil will extend far beyond how much you will pay for gas. If you are focusing solely on the price at the pump, more fuel-efficient forms of transportation, or alternative sources of energy, you aren't seeing the bigger picture.

"Is the Bush Administration Aware of This Situation?"

Of course they are.

As mentioned previously, Dick Cheney made the following statement in late 1999:

By some estimates, there will be an average of two-percent annual growth in global oil demand over the years ahead,

along with, **conservatively**, a three-percent natural decline

in production from existing reserves. That means by 2010

we will need on the order of an additional 50 million barrels a

day.

To put Cheney's statement in perspective, remember that the oil producing nations of the world are currently pumping at full capacity but are unable to produce much more than 80 million barrels per day. Cheney's statement was a tacit admission of the severity and imminence of Peak Oil as the possibility of the world raising its production by such a huge amount is borderline ridiculous.

A report commissioned by Cheney and released in April 2001 was no less disturbing:

The most significant difference between now and a decade

ago is the extraordinarily rapid erosion of spare capacities at

critical segments of energy chains. Today, shortfalls appear

to be endemic. Among the most extraordinary of these

losses of spare capacity is in the oil arena.

Not surprisingly, George W. Bush has echoed Dick Cheney's sentiments. In May 2001, Bush stated, "What people need to hear loud and clear is that we're running out of energy in America."

One of George W. Bush's energy advisors, energy investment banker Matthew Simmons, has spoken at length about the impending crisis.

(Note: Although he has advised Bush/Cheney, Simmons considers himself strongly non-partisan on energy issues. His writings are highly regarded amongst the energy and banking community for their grounding in nonpartisan, heavily documented, and virtually infallible research & analysis.)

Simmons' investment bank, Simmons and Company International, is considered the most reputable and reliable energy investment bank in the world.

Given Simmons' background, what he has to say about the situation is truly terrifying. For instance, in an August 2003 interview with *From the Wilderness* publisher Michael Ruppert, Simmons was asked if it was time for Peak Oil to become part of the public policy debate. He responded:

It is past time. As I have said, the experts and politicians

have no Plan B to fall back on. If energy peaks, particularly while 5 of the world's 6.5 billion people have little or no use

of modern energy, it will be a tremendous jolt to our

economic well-being and to our health — greater than

anyone could ever imagine.

When asked if there is a solution to the impending natural gas crisis, Simmons responded:

I don't think there is one. The solution is to pray. Under the

best of circumstances, if all prayers are answered there will

be no crisis for maybe two years. After that it's a certainty.

In May 2004, Simmons explained that in order for demand to be appropriately controlled, the price of oil would have to reach \$182 per barrel. Simmons explained that with oil prices at \$182 per barrel, gas prices would likely rise to \$7.00 per gallon.

Simmons predictions are downright tame compared to what other analysts in the world of investment banking are preparing themselves for. For instance, in April 2005, French investment bank Ixis-CIB warned, "crude oil prices could touch \$380 a barrel by 2015."

If you want to ponder just how devastating oil prices in the \$200-\$400/barrel range will be for the US economy, consider the fact that one of Osama Bin-Laden's primary goals has been to force oil prices into the \$200 range.

Oil prices that far north of \$100/barrel would almost certainly trigger massive, last-ditch global resource wars as the industrialized nations of the world scramble to grab what little of the black stuff is remaining. This may explain why the director of the Selective Service recently recommended the military draft be expanded to include both genders, ages 18-to-35.

A March 2005 report prepared for the US Department of Energy confirmed dire warnings of the investment banking community. Entitled "The Mitigation of the Peaking of World Oil Production," the report observed:

Without timely mitigation, world supply/demand balance will be achieved through massive demand destruction (shortages), accompanied by huge oil price increases, both of which would create a long period of significant economic hardship worldwide.

Waiting until world conventional oil production peaks before initiating crash program mitigation leaves the world with a significant liquid fuel deficit for two decades or longer.

The report went on to say:

The problems associated with world oil production peaking will not be temporary, and past 'energy crisis' experience will provide relatively little guidance. The challenge of oil peaking deserves immediate, serious attention, if risks are to be fully understood and mitigation begun on a timely basis.

. . . the world has never faced a problem like this. Without massive mitigation more than a decade before the fact, the problem will be pervasive and will not be temporary.

Previous energy transitions were gradual and evolutionary.

Oil peaking will be abrupt and revolutionary.

As one commentator recently observed, the reason our leaders are acting like desperados is because we have a desperate situation on our hands.

If you've been wondering why the Bush administration has been spending money, cutting social programs, and starting wars like there's no tomorrow, now you have your answer: as far as they are concerned, there is no tomorrow.

From a purely Machiavellian standpoint, they are probably correct in their thinking.

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Topics Covered on Page Two Include: Increased Discovery/Exploration for Oil, Oil Sands and Oil Shale, Oil Industry Reactions to Peak Oil, Abiotic Oil Theory, Drilling in ANWR, Laws of Supply and Demand/Market Forces, Alternative Energy, Solar, Wind, Geothermal, Wave, Hydrogen, Nuclear, Coal, Ethanol, Biodiesel, Thermal Depolymerization, Solar-Nanotechnology, Space-Based Solar Arrays, Hybrid Vehicles, Conservation and Energy Efficiency, Jevon's Paradox, Wars in Iraq, Iran, Syria, and Venezuela, the Military Draft, Possible Solutions and Ways to Prepare