

## PEAK OIL ANSWERS

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File Notes

**File Note #1.** This file has a ton of great cards and some of them are quite long. The file is designed to have all of the thirteen answers in the frontline. But sometimes it is just not possible to read them all in a speech due to time constraints. The first five arguments in the file would also act as a good shield. The arguments after that are generally shorter and less important. However, they almost all have specific extensions blocks ready to go. I suggest that you carefully read through this file to understand all of its little tricks and the scientific jargon. All blocks are underlined down.

**File Note #2.** The vast majority of authors on our side have great qualifications while the other side (the the 'peak oil is true' crowd) generally does not. This can be a major argument (see 1NC #2 and the extensions on that) but it obviously only matters when debaters actually read the qualifications in a speech.

**PEAK OIL ANSWERS – FRONTLINE****1. The Twilight of Fuel is coming, not a peak. Four independent reasons:**

- a. NOT VITAL to the economy, price and supply shocks have little effect**
- b. DEMAND is soft. Renewables, hybrid cars, and electric cars will slow consumption,**
- c. TECHNOLOGICAL progress will increase SUPPLY, will find new fuel sources and increase efficiencies,**
- d. ABUNDANT planet easily supplies PLENTY of cheap energy,**

**Huber, Senior Fellow, The Manhattan Institute, and Mills, former staff consultant to The White House Science Office, member of the American Physical Society, '05**

(Peter W., and Mark P., "The Art of Energy," Slate Magazine, February 1, <http://slate.msn.com/id/2112806/> )

The past, present, and future of our energy economy are on display at the Museum of Modern Art. Don't look for a barrel of crude; admire, instead, what curator Terence Riley describes as "a remarkably beautiful object, half metal, half composite, that goes together in this crazy way that only a computer could understand." A mere 4 feet long, this relatively small but stupendously powerful exemplar of indigenous American craft is a fan blade from a jet engine that powers a Boeing 777. The unnamed artists who created it work for General Electric, the corporate Medici of the modern turbine.

Oil is not the dominant fuel of our modern economy. Oil supplies about 40 percent of the raw energy we use, and we use it mainly in our cars. Coal, uranium, gas, and hydroelectric power supply the other 60 percent or so. And by far the most important use of this not-oil fuel is to produce high-speed streams of hot gas that spin much larger versions of the blade on display at MoMA in New York. The blades spin the shafts that turn the generators that power our homes and offices.

And electricity—not oil—defines the fast-expanding center of our energy economy today. About 60 percent of our GDP now comes from industries and services that run on electricity. All the fastest growth sectors of the economy—information technology and telecom, most notably—depend entirely on electricity. More than 85 percent of the growth in U.S. energy demand since 1980 has been met by electricity.

The electrification of our economy is accelerating. In factories and refineries, electrically powered microwave ovens, lasers, welders, dryers are steadily displacing gas-fired ovens—because these new tools are far more precise and ultimately cheaper. This will move about 15 percent of our energy economy into the electrical sector over the next 20 years.

Even more significantly, the car is now being transformed into a sort of giant electrical appliance. Hybrid cars propelled by onboard, gasoline-fired electrical generators are indeed coming. Not for their fuel efficiency, or because they run cleaner—though they are efficient, and they do run clean. But because the new electrical drive trains that carmakers can now build offer much better performance, lower cost, and less weight. Five to 10 years from now—sooner than you think—you'll be driving around in a sort of two-ton Cuisinart.

It won't run more than about five miles on its onboard batteries—that's why it will still have a gasoline engine. But its batteries will take it about that far—a hefty onboard battery pack is essential to provide bursts of power for acceleration. As our city streets begin to fill up with these monster appliances, people will begin topping off their batteries from the grid. The vast majority of trips are under five miles. Cars spend most of their day parked. And the grid—fired by much more efficient power plants that burn much cheaper fuels—can recharge a hybrid car's battery for between one-third and one-tenth of the cost of power generated by the car's onboard gasoline-fired generator. Within a decade, we could readily be shifting a quarter or more of a typical driver's most fuel-hungry miles from the gas tank to the grid, very little of which is lighted by oil.

Now, back to art. Blades like the one on display at MoMA cost a lot. America currently spends about \$400 billion a year on raw fuel—make that \$500 billion if oil stays at \$50 per barrel, which it won't. But we spend at least \$500 billion a year on blades, furnaces, generators, car engines, motors, light bulbs, lasers—all the things that we use to transform, refine, and purify energy as we dig it out of the ground, and turn heat into motion, and motion into electricity, and electricity into laser light, and so forth.

The upshot: We are far less sensitive to the cost of raw fuel than we used to be, when the art-to-fuel ratio was a lot lower. Raw fuel accounts for about one-third of coal-fired power—which is to say, half of all our electricity—and only one-tenth of our nuclear electricity. Fuel costs represent under 20 percent of the typical cost of driving—not because gas is cheap, but because we spend so much more turning the exploding gasoline into a safe, comfortable ride. And you hardly think about raw-fuel costs at all when you check in for laser surgery and use half-cent-per-kilowatt-hour coal in an industrial boiler to create the \$200 light of an ytterbium laser.

↓.....Huber and Mills continues.....↓

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↓.....Huber and Mills continues.....↓

We are thus witnessing the economic twilight of fuel. America burns enough fuel to release 100 quadrillion BTUs of raw thermal energy every year. That's a gargantuan amount, and it keeps rising geometrically. Yet year by year, the cost of all those quads grows less and less important in our modern economy. The quality and cost of the engineering hardware matters far more.

If the future favored by the greens ever comes to pass, the art will count for everything. The 130 turbines GE is building for America's first offshore wind park five miles off Cape Cod will have 150-foot blades, mounted on towers rising 400 feet above the water. The wind is free and will blow forever; the art will account for the entire cost of the power. But that doesn't mean that wind is the way to go. Modern engineering art isn't cheap, conventional fuels still are, and wind is only one among many alternatives.

Indeed, for all our worrying about energy—or perhaps because of it—we humans have proved fantastically clever at plucking it from our surroundings. For the two centuries of industrial history now behind us, the technologies we have used to find, extract, or capture energy from our environment have certainly improved much faster than the horizon of supply has receded.

However bad it may be for the planet, the planet itself won't put a stop to this any time soon. Humanity currently consumes roughly 60 billion barrels of oil or its energy equivalent (referred to as BBOE, for billion barrels of oil equivalent) every year, about half of that as oil itself and half from other fuels. But the planet offers us, within quite easy reach, about 30,000 BBOE of coal and 2 million BBOE of oil shale. The winds of Nantucket Sound are powered by a tiny fraction of the 1 million BBOE of solar energy that reach the surface of the Earth every year. And the waters of the sound itself, and the oceans beyond, contain 2 trillion BBOE worth of deuterium, the fuel that lights the sun.

We think up new ways to use energy as fast as we think of new ways to find and seize it. Powered by much smaller blades but much richer fuel, a half-dozen jumbo jets in flight consume high-grade energy about as fast as the 130 turbines off Cape Cod will eventually generate it. We now build remarkably efficient solar cells out of silicon, but we build silicon microprocessors, too, and much faster; overall, the digital silicon currently consumes far more electricity than the solar silicon generates. In 1831, Michael Faraday, the great English physicist, discovered how to transform motion into electricity; he later demonstrated the phenomenon to William Gladstone, then chancellor of the exchequer. \* "But, after all," Gladstone remarked, "what good is it?" To which Faraday could only reply, "Why, sir, one day you will tax it." With energy, that's always the safest bet: Demand materializes, and supplies do, too.

It's foolish to suppose that existing wells won't run dry—they will. But it's equally foolish to suppose that the tools we use to pump, strip, sift, seize, and separate energy from our surroundings can't improve and adapt as fast, or faster, than they have since 1765, when James Watt perfected a coal-fired steam engine ... to facilitate the mining of more coal. For all practical purposes, energy supplies are determined not by the planet but by how ingenious we humans are at finding and seizing the energy we crave. And these days our engineers are so very clever, their handiwork is on display in one of the finest art museums in the country.

**PEAK OIL ANSWERS – FRONTLINE**

**2. Sources! Our Evidence is Superior, Their cards should be dismissed. We present recent, thick cards full of warrants from highly qualified authors with background in the fields of geology, economics, and energy security. Their cards are highlighted down to just the claims and they're from unqualified authors. Their authors are unqualified hacks. We will take the Pepsi challenge on evidence in this round.**

**B. The Implication: Our cards should be accepted; their cards should be summarily dismissed. Your duty as an educator, judge, and coach is to reward our style of quality-evidence style of debate.**

**3. Market Forces Solve. Status Quo is self-correcting. Peak oil predictions are false, they ignore the basic principles of Economics 101. Consumers will adjust their behavior to limited supply**

**Moffat, Economist, University of Western Ontario, '04**

(Mike, Microeconomist @ [The Richard Ivey School of Business @ University of Western Ontario](http://economics.about.com/cs/macroeconomics/a/run_out_of_oil.htm), "We Will Never Run Out of Oil," [http://economics.about.com/cs/macroeconomics/a/run\\_out\\_of\\_oil.htm](http://economics.about.com/cs/macroeconomics/a/run_out_of_oil.htm))

Predictions that we will run out of oil after a certain period of time are based on an ignorance of the economic way of thinking. The typical way to estimate the number of years it will take us to run out of oil is to consider the following factors:

The number of barrels we can extract with existing technology.

The number of barrels used worldwide in a year.

The most naive way to make a prediction is to simply do the following calculation:

Yrs. of oil left = # of barrels available / # of barrels used in a year.

So if there are 150 million barrels of oil in the ground and we use 10 million a year, this type of thinking would suggest that the oil supply will run out in 15 years. If the predictor realizes that with new drilling technology we can gain access to more oil, he will incorporate this into his estimate of #1 making a more optimistic prediction of when the oil will run out. If the predictor incorporates population growth and the fact that demand for oil per person often rises he will incorporate this into his estimate for #2 making a more pessimistic prediction. These predictions, however, are inherently flawed because they violate basic economic principles.

By using economic principles, we will see that:

WE WILL NEVER RUN OUT OF OIL

At least not in a physical sense. There will still be oil in the ground 10 years from now, and 50 years from now and 500 years from now. This will hold true no matter if you take a pessimistic or optimistic view about the amount of oil still available to be extracted. Let's suppose that the supply really is quite limited. What will happen as the supply starts to diminish? First we would expect to see some wells run dry and either be replaced with new wells that have higher associated costs or not be replaced at all. Either of these would cause the price at the pump to rise. When the price of gasoline rises, people naturally buy less of it; the amount of this reduction being determined by the amount of the price increase and the consumer's elasticity of demand for gasoline. This does not necessarily mean that people will drive less (though it is likely), it may mean that consumers trade in their SUVs for smaller cars, hybrid vehicles, or cars that run on alternative fuels. Each consumer will react to the price change differently, so we would expect to see everything from more people bicycling to work to used car lots full of Lincoln Navigators.

If we go back to Economics 101, this effect is clearly visible. The continual reduction of the supply of oil is represented by a series of small shifts of the supply curve to the left and an associated move along the demand curve. Since gasoline is a normal good, Economics 101 tells us that we will have a series of price increases and a series of reductions in the total amount of gasoline consumed. Eventually the price will reach a point where gasoline will become a niche good purchased by very few consumers, while other consumers will have found alternatives to gas. When this happens there will still be plenty of oil in the ground, but consumers will have found alternatives that make more economic sense to them, so there will be little, if any, demand for gasoline.

## PEAK OIL ANSWERS – FRONTLINE

**4. UNIQUE TURN: The Plan disrupts a gradual energy transition towards renewables, causing a worse worldwide economic crash. Renewables and Fossil Fuels will gradually become balanced in the Status Quo. Environmental and Market factors will lead us there. Government policies attempting to accelerate this only cause an earlier and deeper economic shock.**

**Williams, Executive Editor, Oil and Gas Journal, '03**

[Bob, Executive Editor, *Oil and Gas Journal*, Aug. 18, "Peak-oil, global warming concerns opening new window of opportunity for alternative energy sources," L/N]

Even without subsidies, market share mandates, or carbon taxes, heightened concerns over climate change and air quality will prove a chink in oil's competitive armor, according to Sullivan.

"Carbon capture and advanced emissions controls will drive up the effective cost of fossil fuel resources," she said. "Great progress is needed on these fronts, given the ready availability and high reliability of that resource, balanced against the challenge of global climate change , , I do not think we are about to drive traditional fossil fuels out of the picture by any means, but we are headed to a situation where renewables are a significant part of almost every energy supplier's balanced portfolio."

Making the transition

If the depletionists are right about global oil production peaking around the turn of the decade, then renewables won't need much in the way of subsidies or Kyoto mandates; skyrocketing costs of oil will help usher in a renewables era sooner than anyone currently predicts.

But the resulting high energy costs for everyone will prove a massive economic dislocation for the world, a grim scenario often outlined by the peak-oil theorists. Some have even painted alarming pictures of civilization crumbling as a result of this new oil shock.

"No technology breakthrough can come to alter the imminent oil peak; it would take much too long to put new technology in place to hope to dent oil and gas demand," said A.M. Samsam Bakhtiari, National Iranian Oil Co. senior expert. "Even if the two great hopes of solar and cold fusion would materialize, they could not be developed in time, as it takes decades (not years) to put in place the necessary infrastructures."

But there is a prevailing view among most energy economists that an approaching peak and subsequent steep decline in global oil production will send early price signals that will crimp demand, spur development of nonconventional oil resources, and thus stave off the peak day.

Another prominent peak-oil theorist, who declined to be identified, acknowledged that "prices will rise, but they will send a signal that comes too late, given the long lead times to create new energy infrastructures. This will result in a reduction of demand but, unfortunately, the so-created room of maneuver will be short-lived because non-Middle East oil supply will continue to decline with little chance that new investments will be sufficient to compensate for both this decline and the potential [overall] rise of demand.

"To this equation, one should add the negative impact on the GDP, as was the case during the last 30 years each time the price of oil went up. I believe that it won't be the end of the civilization, but it will certainly be a painful transition."

Some of the depletionists contend that the only answer is for governments to take steps now to boost energy prices and thereby conserve what oil reserves remain.

But the unidentified peak-oil theorist is a contrarian on that score.

"The idea that planners, and especially state planners, could be smart enough to rise the prices progressively to avoid a shock is totally unrealistic," he told O.G.J. "My preference is to leave things happen and ensure that governments will not intervene. A competitive industry is by far the best means to ensure a rapid and correct adaptation."

Rowley too sees increasing pressure on oil supplies within the next decade but offers a less apocalyptic vision.

"[Natural] gas will act as a next phase after oil, but what we expect to see over the next decade is a realization that conventional energy costs can only go one way, up," he said. "The global economy has a wonderful way of coping, and transition away from conventional to renewables will occur.

"The real pivotal impact of renewable energy will be within the period of 2010-20, where players will be making significant choices between a maturing renewable sector and conventional [energy sources]."

Noting that recent history is full of instances in which technical progress or volatility of primary energy sources has led to major changes in energy supply or energy consumption, Mogford voices the BP stance that "oil will remain in relatively abundant supply for at least the next 15 years, with gas being plentiful for several decades longer.

"More than economics will drive the growth of alternative energy. Security of supply, minimization of environmental impacts, and technical advances will also be factors."

↓ Williams '03 continues ↓

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↓ Williams '03 continues ↓

But will the transition to renewables be an orderly one? Sullivan expressed her belief in an orderly transition: "We have seen occasional price spikes in traditional energy resources over the last 30 years, and I suspect we will continue to see those from time to time, for various reasons.

"But I also suspect that governments will tailor their policies on emissions, renewable portfolio requirements, and technology funding to ensure that, except for the occasional, unusual price spikes, there is an orderly transition to an era in which renewables and non-conventional fossil fuel technologies are playing a major role in our energy supply picture."

Therefore, she reckons that it will be another 20-25 years before alternative energy sources play a dominant role the world's energy mix.

But orderly and rapid are not necessarily mutually exclusive in this outlook, says Namovicz.

"If 'orderly' transition means 'gradual' transition, I think that history shows that transitions to a new form of energy can happen relatively quickly, over the course of a decade or so, but are not necessarily disorderly," he said. "If, either through subsidy or natural market forces, one or more renewable technology becomes very economically attractive, there may be a boom period where lots of new capacity is built every year for a few years, just like lots of new gas combined-cycle capacity has been built over the past few years. But just because they're building lots of new combined-cycle units doesn't mean the coal units are suddenly disappearing. It shouldn't be too surprising to see a similar pattern if wind or bio-mass suddenly broke through some economic threshold, with lots of new annual capacity additions all of a sudden, but with the impact greatly dampened because the existing capital stock is so large, and they weren't necessarily being built to replace that [capital stock], but potentially to satisfy new demand."

In addition to the existing-capital-stock issue, Namovicz also cautions observers to remember the effect of market feedbacks in citing his expectation that it will be a long time before renewables can become the world's dominant energy source.

"If wind becomes economic because natural gas is too expensive, then they will build lots of wind [projects]. But this will take market share from gas and lower the gas price. At the lower gas price, the new economics for wind may dampen its growth."

Human concerns

If in fact a permanent oil shock is looming on the near horizon, it would seem that an early effort to impose higher energy prices for that reason or to support an early transition to renewables would have its own severe economic consequences, especially for developing countries. In effect, this could accelerate the price shock. The likely deep recession that would ensue could hit not only the developing countries directly but also squelch economic growth in the developed countries, upon which the former depend heavily for export markets and economic aid.



## PEAK OIL ANSWERS – FRONTLINE

**5. CRYING WOLF with the WRONG METHOD: Their doom-saying claims are proven Empirically False. This is complex issue but their research is weak, stemming from the same OLD MODEL by Hubbert. They can fool editors but the historical record and better studies show that their model and their pessimistic claims are repeatedly WRONG.**

**Lynch, Director, Asian Energy and Security, Center for International Studies, M.I.T., '98**

[Michael, download date: 2-15-05, [http://sepwww.stanford.edu/sep/jon/world-oil\\_dir/lynch/worldoil.html](http://sepwww.stanford.edu/sep/jon/world-oil_dir/lynch/worldoil.html) ]

In the past two years, a number of articles have appeared warning not only of a new oil crisis, but of the end of the oil era, as oil production inevitably peaks and declines due to inexorable geological forces. These include "Mideast Oil Forever?" by Joseph J. Romm and Charles B. Curtis and "Heading Off the Permanent Oil Crisis," by James J. MacKenzie, among others.

The profusion of articles on the subject is unfortunate, since the casual reader (and policy-maker) might conclude that the large number of articles have an equally large amount of research behind them. In truth, most of these are not actually about oil, but take the assumption that oil scarcity is imminent, especially outside the Middle East, and nearly all rely on a few pessimistic quotes from oil men, or recent work by one or two geologists using what is known as a "Hubbert approach." Most notable are the recent publication of the book *The Coming Oil Crisis* by Colin Campbell and the March 1998 Scientific American article "The End of Cheap Oil" by Colin J. Campbell and Jean H. Laherrere.

The gist of their argument is that most of the world's oil has already been found, as evidenced by the alleged lack of recent giant discoveries; Middle East reserves have been overstated for political reasons; actual total recoverable resources are only about 1.8 trillion barrels, not the 2.4 trillion barrels that others have estimated; existing fields will not continue to expand in size and production as others suggest; and most oil producing countries outside the Middle East are said to be near, if not past, their point of peak production, which occurs when 50% of total oil resources have been produced. Production is predicted to drop off steeply afterwards. Thus, they forecast that "The End of Cheap Oil" is at hand and prices will be rising shortly.

Understanding Forecasts (Good and Bad)

These issues are hugely complex. A wide variety of political, economic and geological factors affect oil production, and analysis requires an enormous amount of data, much of which is either not readily available or is unreliable. Few observers have the capacity to analyze the forecasts of others, let alone make their own forecasts. Thus, as Vannevar Bush realized, when an expert, particularly with a scientific background, comes forward with detailed work and large quantities of (albeit hidden) data, it gains almost instant respectability, particularly among editors who are not familiar with the subject.

But there are several methods of judging research that don't involve time-consuming or labor-intensive analysis. For one thing, analysts who don't acknowledge either data or research which contradicts their theories are implying they can't explain inconsistencies or weakness in their work. Because in a complex system like world oil production, there is always some data which can support alternative viewpoints. Dry holes are always being drilled and new fields are always being found, and citing one or the other to support pessimism or optimism proves nothing.

A better way to test forecast validity is to look at the historical record, and particularly, examine work done by the person making the forecast in question. In 1992, I did precisely this to improve long-term oil price forecasting. The realization that the previous errors were due to forecasters assuming a 3% per year increase in real oil prices over the long-term made it possible to produce much more accurate forecasts.

In 1996, I published a piece discussing the various methods which were used to forecast oil supply, and argued that they, too, were flawed by certain repetitive errors, namely: 1) bias, and especially pessimism, since nearly every forecast has been too low since 1978, despite relying on price assumptions that were much too high; 2) similar forecasts for every region, despite different fiscal systems, drilling levels and/or the maturity of the industry, suggesting omitted variables; 3) misinterpretation of recoverable resources as total resources by using a point estimate instead of a dynamic variable, growing with technology change, infrastructure improvements, etc.; so that 4) there is a tendency for all national, regional or non-OPEC production forecasts to show a near-term peak and decline, which was always moved outward and higher in later forecasts (the opposite of price forecasts).

As an example, note the behavior of the U.S. Department of Energy's production forecasts for the non-OPEC Third World, a region which, in aggregate, has experienced very little drilling and shows no sign of peaking, causing the forecasts to be repeatedly revised upwards. I have numerous other such examples, for various countries and regions, as well as the globe. Few, if any, have been too optimistic.

↓ ... Lynch Continues... ↓

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↓ ... Lynch Continues...↓

The Case in Question: Campbell

Thus, an examination of the history of forecasts performed by these gentlemen is in order. First, the company Petroconsultants, which both men have been associated with in the past and which published Campbell's 1997 book, published a nearly identical forecast in 1986, which showed regional production to 1995, at \$25/barrel (equal to about \$35/bbl in 1997\$). The forecast incorrectly put non-OPEC, non-Communist production at 20 mb/d in 1995 and dropping, when in reality it was 28 mb/d and rising. (Figure 2) Figure 3 shows the regional forecasts, normalized to 1986=100 to show the rates of change. Note that all regions peak within the time horizon of the forecast. It is not clear if either Campbell or Laherrere was involved in producing this forecast, however, they are employing the same database of oil fields, and their results are suspiciously similar. Subsequently, Campbell published an article in the December 1989 *Noroil* which stated that "Most economic forecasts see relatively stable prices over the near future followed by a ramp of modest increase to the end of the century. But Figure 3 suggests that the slope of declining supply will become a precipice if production is held at present levels, never mind increasing. When that happens, a major leap in prices seems inevitable unless the major exporting governments exercise deliberate restraint....Shortages seem to be inevitable by the late 1990s, but knowledge of an impending supply shortfall may trigger an earlier price response, as foreseen in the Figure." His figure shows world oil production (including the Middle East) peaking in the late 1980s, and dropping sharply, from about 58 mb/d to 45 mb/d, with the comment that "Any short-term increase steepens subsequent decline." He also shows prices rising to the low \$20s (about \$27 in 1997\$) as "increasing probability" with an "anticipated price leap from increased perception of declining reserves, falling non-Middle East production, and falling exports, esp. from USSR." He predicted this might cause oil prices to reach \$50/bbl (about \$65 in 1997\$) by 1994, then fluctuate around that level to the end of the century.

That same year, my *Oil Prices to 2000* was published, taking the contrary view. I argued that most forecasts were too pessimistic about non-OPEC production and predicted that inflation-adjusted prices would fall to 2000, which the September 1989 *Petroleum Economist* correctly noted was "heretical". Yet this proved quite accurate, as a comparison of forecasts from that period shows (Figure 4). (Later figures will compare production forecasts.) Since Campbell (1989) includes only a graph of his price forecast, it is not shown here, but by the mid-1990s, he showed prices fluctuating around \$50/bbl, about 200% too high.

The 1991 Forecast: Deja vu all over again?

Campbell's 1991 book is more illuminating, and damning, since he provides detailed production tables for most countries, including 32 non-Middle East, non-FSU producing countries which account for 36.8 mb/d in 1996. The aggregate error by 1996 is 7.9 mb/d, or 21.5% of production in those countries, as Table 1 shows. Twenty-four of the forecasts are too low, and eight are too high. An examination of the particular countries' errors is instructive about their nature.

For example, except for Italy, Tunisia and Oman, in all of the countries where Campbell's forecast is too high, the upstream sector is controlled by national oil companies. This shows the importance of policy and economics, refuting the argument that geology alone determines long-term production profiles. If Campbell is said to be projecting possible, not actual production, so that his error on these countries should be disregarded, then it leaves a total "optimistic" error of only 106 tb/d, a trivial amount. This demonstrates clearly that his method is biased in a scientific sense, always producing forecasts which will tend to be too low.

Additionally, the enormous error in countries like Canada and the United States indicates the inability of this measure to produce accurate results. He argues that these are mature producing areas, where no more giants are to be found and cause surprise increases in oil production, and the oil field database he employs corrects for the conservative bias due to SEC reserve reporting requirements. Since the oil resources are thus so well-known, the production curve should be extremely accurate. Yet even without any giant field discoveries, both countries have outperformed his forecast far beyond levels conceivable to him. If this method doesn't work in mature regions with high-quality data, it is hardly likely to be reliable elsewhere.

Similarly, the enormous predictive failure in the North Sea shows that extrapolation of discovery size does not produce accurate predictions of either future field size or resource estimates, since the error should be due more to underestimating new discoveries than pessimism about the role of older fields, as is the case for the U.S.

Finally, considering individual countries in the Third World, his method seems to always generate a bell curve with imminent peaks for everyone outside the Middle East. Examples include Argentina, Egypt and Malaysia. As Table 1 showed, he was repeatedly too low for Third World producers, especially those with relatively open upstream investment.

In fact, what is remarkable is the similarity between Campbell's 1989, 1991 and 1997/98 forecasts (if one ignores the dates). Always, the peak is imminent. But this precisely conforms to the argument in Lynch (1996), namely that this method almost always produces a near-term peak, no matter when or where it is applied, and thus constantly needs to be revised upwards.

↓ ... Lynch Continues...↓

↓ ... Lynch Continues... ↓

#### Broader Comparison

It might be thought that Campbell has simply reproduced the poor forecasts so often seen in the oil industry, but his errors are larger than most. As a test of the validity of my own 1989 forecast, I had earlier assembled other forecasts from that period for comparison, and to these I add Campbell's projections. The fact that his work was done two years later than the others (although EMF11 was also 1991), should provide him with an advantage, since he has two more years of data to observe and any inherent errors in his work will have less of an impact because of the shorter test period. Again, the forecasts are all normalized to common starting points, and some points are interpolated.

In [Figure 12](#), the forecasts for non-OPEC, non-FSU are shown, and Campbell's is clearly the worst of the lot. The same is true for OECD oil production, although for non-OPEC Third World, his inability to predict the impact of state-owned companies' lower exploration levels leaves him in the middle of the forecast group, at least to 1996. Clearly, this method does not produce accurate results.

#### 1997/98: Deja Vu All Over Again Again

In 1997 and 1998, C. J. Campbell published a book and two Oil and Gas Journal articles which argued that the price of oil is about to increase, since most major oil producing nations outside the Middle East are reaching their depletion midpoints, after which production will decline, and decline sharply. Essentially this is the same argument from his 1989 and 1991 work, namely that oil production will imminently peak in all major countries outside the Middle East and global production cannot go much higher than the present amount. Since he is clearly using precisely the same methodology, and does not explain the failure of his earlier predictions, it appears that all he has done is update his data, increase his resource estimates and production forecasts, and move his production peaks higher and further out, exactly as Lynch (1996) contended would be necessary with this method.

Specifically, he increased his estimate of global oil resources from 1650 billion barrels to 1800 billion barrels, close to the amount of oil produced during that period. The 1997 book contains only a few regional tables, so his predictions for individual nations cannot be analyzed. However, the world total is published, and as [Figure 15](#) shows, it has increased dramatically from the 1991 publication. Also, W. Europe and the U.S. were published in his 1997 book, and they too show the same pattern of increasing.

In his 12/29/97 OJ article, he did present a number of small graphs showing bell curves for a variety of countries, some which he described as being past their depletion midpoint, some of which had not yet reached it. These are shown in [Table 2](#), along with the depletion midpoint which he gave in his 1991 book, and they reaffirm my earlier arguments. The fact that all of these countries are predicted to peak by 2001 implies that there is a pessimistic bias (#1 and 2 from Lynch 1996 above). And his having to move the depletion midpoint out an average of 4 years for the countries which haven't peaked supports the argument (#4 from Lynch 1996 above) that this method always requires correction, and that the peak constantly needs to be revised to a higher, later level.

#### Conclusion

If Campbell's estimation methods produce accurate, rather than conservative, resource estimates, overcoming the objections about field and resource growth made by Adelman and Lynch, and if the Petroconsultants field size estimates are accurate because they don't have to conform to SEC rules requiring conservative field size reporting, why have his production forecasts been much too low and why have his resource estimates increased?

Lynch (1996) argued that the Hubbert method fails because it takes recoverable (not total) resources as fixed, and assumes that to be the area under the curve of total production. When the estimate of the area under the curve (resources) is increased, the entire increase must be applied to future production. This is exactly what is happening with Campbell, as [Figure 15](#) shows. The errors in his 1991 forecast and the adjustments he has made in his latest work are thus predicted by Lynch (1996). Campbell has not provided an alternative explanation, merely ignored them. And as [Figure 18](#) shows, his forecast is well outside the mainstream.

Short-term prices will certainly fluctuate, and we will surely have more oil crises, since they are short-term events. Unfortunately, there is little doubt that the certain failure of the current Cassandras will be forgotten within a few years and a new round of alarms will be sounded. Hopefully, it will not receive the attention that the current (and previous) ones did, and even more hopefully, most governments and companies have already learned their lesson from the tens of billions of dollars wasted when others cried wolf during the 1970s.

**PEAK OIL ANSWERS – FRONTLINE****6. We've got Plenty – Decades of Oil Remain****Bailey '04**

(Ronald, Science Correspondent for Reason Magazine, Feb. 18, "Are We Out of Gas Yet?" Reason Online, <http://www.reason.com/rb/rb021804.shtml>)

Annual global oil production these days is 24.5 billion barrels. At the current rate of production, oil supplies would last at least 90 years. Taking into consideration various scenarios for future energy use and based on those USGS estimates, the Energy Information Administration sees oil production peaking anywhere from 2030 to 2075. Hardly an imminent crisis.

**7. Timeframe Double-Bind: Either the peak will happen too soon and the case cannot solve. No solvency evidence proves that the current technologies can immediately replace such a huge cut in oil consumption. Or the world has decades to solve and our Disad impacts will occur first. Either way, the Negative wins.**

**PEAK OIL ANSWERS – FRONTLINE****8. Transition from the Peak will be smooth – No depression, No wars, No crash****Schafersman, Professor of Geology, Miami – Ohio, '02**

(Steven, prof. of geology @ Miami University, Oxford, OH, "Be Scared; Be Very Scared,"  
<http://www.freeinquiry.com/skeptic/badgeology/energy/commentary.htm>)

Furthermore, when the peak and decline are reached--as must inevitably occur sometime in the future--why shouldn't the decline be gradual and steady, thus allowing economies to slowly but steadily transition to alternative and renewable energy resources? The doomsayers predict, again with no or little evidence, that when the decline begins the price surge will be enormous and chaotic, thus leading to political upsets and territorial wars. The alarmists apparently believe that there are no buffering effects in national and global economies, such as, for example, when the supply of oil decreases with a constant demand, the price will rise proportionately, causing demand to decrease until supply and demand are once again in equilibrium. Of course, some will experience a decrease in their standard of living, but major depression and war? I don't think so.

**9. No Solvency: Peak is global but the plan is only domestic. China, India, Europe, Russia, and the rest of the world will continue to increase their consumption. The plan only affects the United States. That's not enough to solve a worldwide problem.**

**PEAK OIL ANSWERS – FRONTLINE**

**10. No Internal Link: High Prices do NOT crush the Economy. Status Quo trends deny your claim. Both Oil Prices and global economic growth are high and will remain high in the Status. This continues a five-year trend of high prices and high growth.**

**McKillop, International Association of Energy Economists, 2-16-05**

[Andrew, Founder and Member of the Asian Chapter of the IAEE, "Why Oil prices are barreling up," February 16, *Asia Times*, <http://www.energybulletin.net/4370.html> download date: 2-12-05]

LONDON - In the past week, oil prices have regained about US\$3 a barrel after hitting a low of \$45. Apart from the perennial US weather factor, positive sentiment was reinforced by IEA (International Energy Agency) data revising previous forecasts for world oil demand growth in 2005 by 80,000 barrels per day, or 0.08 million barrels/day (mbd), to the suspiciously modest figure of 1.52 mbd.

This is hard to fathom because the IEA also raised its final estimate of world demand growth in 2004 to 2.68 mbd. In percentage terms, growth in 2004 was very close to 4%, the highest for over 25 years. This number conflicts with forward planning ideas and beliefs of the IEA and other energy players - especially the world's 10 biggest oil corporations. None of these players plan for demand growth beyond 1.75% per year. Some, such as BP and ENI, still claim that the "normal" long-term growth is about 1.3% per year.

On the consumer side, to back the notion of slow growth being a fixed paradigm, oil users are everywhere thought to show "price elastic" response to higher prices. That is, they cut their consumption as prices rise. On the supply side, the same high prices are expected to bring new and big suppliers into the market. If this does not happen, we have an oil crisis. This pre-crisis context is directly reflected in the market by rising volatility on a longer-term upward price profile. The IEA forecast of growth in 2005 dropping about 42% against 2004 is, we can surmise, purely wishful thinking.

The Organization of Petroleum Exporting Countries (OPEC) is usually wheeled into the pricing melee by saying it will now "defend" \$40/barrel, after waiting until December 2004 to say it was no longer "defending" a price range of \$22-28/barrel. But the question is: what spare capacity does OPEC really have? This raises the key question as to what exactly OPEC's current 11 members (OPEC-11) produce and export. Using data from the Oil & Gas Journal on world daily average production in 2004 and 2003, only Iran, Qatar, Kuwait and Saudi Arabia are credited with production hikes of over 3% in 2004, excluding the very special case of Iraq. For Oil & Gas Journal, there was a 55% increase in Iraq's daily average production to about 2.05 mbd in 2004, while EIA (Energy Information Administration) and the DoE (Department of Energy) figures give about 1.55 mbd, almost identical to the 2003 average output. BP places Iraq's 2003 production at a daily average of 1.33 mbd. This is exactly half the growth in world daily average oil demand in January-December 2004.

Any production numbers for OPEC are subject to the key question: net or gross? Iraq, for example, has soon recovered pre-war domestic oil demand of about 0.65 mbd despite shattered economic infrastructure and 60% unemployment. US occupation forces in Iraq are credited with about 0.35 mbd demand. During the economic reconstruction phase that may now be about to start, Iraq's domestic demand will certainly increase rapidly. Normal economic development in oil producer countries is of course oriented to energy-intensive activities. Saudi Arabia's domestic oil demand in 2004, according to BP, increased by 5.5%, much more than its 3.2% hike in daily average oil production. Kuwait's domestic oil demand, again according to BP, has been growing at over 10%/year of late (19.8% in 2003), dwarfing all increases of its national oil production.

This pattern of domestic demand increasing much faster than production is common to more than nine out of 10 oil producers, both OPEC and non-OPEC. Net exports, therefore, will always tend to grow slower than national production. Conversely, world oil import demand is significantly higher than consumption demand. In 2004, for example, world oil demand rose 2.68 mbd, but import demand growth was about 3.1 mbd.

This is related to the question of actual declines in production. For the majority of non-OPEC producers - in fact nearly all, except Russia and some Central Asian producers - rates of decline are stubbornly high despite much-vaunted technology improvements. Where the producers are also net importers (as in most cases), declining home production raises their import demand. Take the Organization for Economic Cooperation and Development's three largest producers: the US, Norway and the United Kingdom. These are losing oil output capacity at about 4% to 5.5% per year. In the case of Norway and the UK, these rates are certain to increase sharply, despite any conceivable technology upgrade through simple geological limits. In the case of China and India, annual declines in national oil production are also tending to rise while domestic consumption grows at 5%-9% a year.

One of the biggest problems facing the IEA, the EIA and a host of analysts and "experts" who claim that "high prices cut demand" either directly or by dampening economic growth is that this does not happen in the real world. Since early 1999, oil prices have risen about 350%. Oil demand growth in 2004 at nearly 4% was the highest in 25 years. These are simple facts that clearly conflict with received notions about "price elasticity". World oil demand, for a host of easily-described reasons, tends to be bolstered by "high" oil and gas prices until and unless "extreme" prices are attained. This is the real fundamental, on the demand side.

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**PEAK OIL ANSWERS – FRONTLINE****12. Ultra-Deep sources provide at least a Century more of oil****Vialls '04**

[Joe, former deep oil well worker, August 25, <http://www.vialls.com/wecontrolamerica/peakoil.html> ]

This is the point at which the second massive advantage derived from ultra-deep oil comes into play. Do you remember how puzzled the reservoir engineers were when they discovered that their existing reserves were being "topped up" from below? They later discovered that what they were really observing were naturally occurring ultra-deep oil wells, leaking vast quantities of oil from the mantle of the earth upwards through fractures into what we nowadays refer to as "sedimentary oilfields", located relatively close to the surface. As the production companies draw oil out of these known reservoirs through oil wells, field pressure is slightly reduced, thereby allowing more ultra-deep oil to migrate up from the mantle and restock the reservoir from below.

Russian studies of their own ultra-deep wells and those in the White Tiger field in Vietnam, indicate in very rough terms that migration from the mantle is probably 20-30% less than production at Middle East wellheads, meaning in turn that if the flow rates of existing Iraqi and Saudi wells are reduced by about 30%, oil supply and production can and will continue forever, constantly replenished by ultra-deep oil from the mantle itself. It goes almost without saying that even with production reduced by 30%, there is more than enough oil in the Middle East to provide for America's increasing usage for at least the next century.

**PEAK OIL ANSWERS – FRONTLINE****13. Unconventional petroleum sources remain abundant****Schafersman, Professor of Geology, Miami – Ohio, '02**

(Steven, prof. of geology @ Miami University, Oxford, OH, "Be Scared; Be Very Scared,"  
<http://www.freeinquiry.com/skeptic/badgeology/energy/commentary.htm>)

Next, the doomsayers universally ignore petroleum resources other than oil. Coal and natural gas remain abundant in the world, and the former can be converted to oil (synthetic fuels) and the latter is now replacing it on ever greater scales. No one is predicting that these will run out soon. But in addition, oil can be profitably produced today using modern technologies from oil sands and heavy oil deposits (tar sands), and proven reserves of these in Canada, Venezuela, and Russia equal or exceed all the crude oil produced until the present. In addition, liquified natural gas (gas liquids) resources are believed to be enormous and their exploitation only just begun. That leaves gas hydrates (clathrates) in oceanic sediments and oil shale (actually, kerogen in shale that can be converted to oil). These petroleum resources are simply colossal, although they cannot be exploited with today's prices or technology, but that could change. All of the doomsayer arguments rest on the decline in crude oil alone, and their arguments fail to the extent that other petroleum resources are able to replace oil as an energy source. Since the amount of these additional petroleum resources is many times greater than the proven crude oil reserves, the doomsayers' arguments fail quite readily, indeed.



**General Extension: Main Overview**

- 1. Our Peak Oil answers present a coherent story: The Status Quo has plenty of Oil and it is slowly, smoothly moving towards a positive mix of fossil fuels AND renewable energies. Oil prices will remain high and economic growth will remain high during this transition period. Market incentives and technological progress provide a self re-enforcing combination of forces that will avoid economic collapse in the Status Quo. All of our evidence support this story.**
- 2. The Affirmative plan disrupts this smooth transition with command-and-control regulations on oil consumption. Such policies will distort the energy economy and ACTUALLY DISRUPT the smooth transition to more renewable energy sources and CAUSE an economic crash in the United States and around the world. That's our TURN evidence from Williams '03 from 1NC number 4.**
- 3. Their claims are just plain WRONG. Similar claims about oil have been made before and they are ALWAYS wrong. Their claims all flow back to the same flawed Hubbert Model. Our Lynch '98 evidence is devastating – it proves that the Hubbert model is bankrupt. The world has plenty of oil. Market forces and technological progress mean that we can always find new sources of energy.**

### EXTENTION: Overview for Peak Oil Answers

**4. Predictions about oil shortages have been happening since the 1850's and we still have plenty of supplies. High prices encourage new exploration for reserves. Discoveries made in Canada and elsewhere leave us with at least 500 years of oil, even taking into account increased consumption. This evidence cites studies, is from a credible source, and answers both Goldstein and Roberts.**

**Fumento, Senior fellow at Hudson Institute, '04**

[Michael, a senior fellow at Hudson Institute in Washington and a nationally syndicated columnist with Scripps Howard News Service, Scripps Howard News Service, May 7, "Is oil spigot running dry?", l/n]

In 1914, the U.S. Bureau of Mines predicted American oil reserves would last merely a decade. In both 1939 and 1951, the Interior Department estimated oil supply at only 13 years.

"We could use up all of the proven reserves of oil in the entire world by the end of the next decade," declared Pres. Jimmy Carter gloomily in 1977.

In fact, the earliest claim that we were running out of oil dates back to 1855 - four years before the first well was drilled.

Still, with gasoline oil prices seemingly rocketing past the moon and towards Mars, and newly-published books like "Out of Gas: The End of the Age of Oil" and "The End of Oil," it seems fair to ask if the world's fuel tank needle isn't finally tilting towards "E."

Yet historically prices aren't particularly high. Adjusted for inflation, they're slightly below what they were back in 1950 when we falsely recall gasoline flowing like water. Then the national average was \$1.89 in today's dollars, compared to \$1.84 at this writing. In 1981, gas was almost a dollar more per gallon than it is now when adjusted for inflation.

Further, this is not your father's gasoline. Now it's unleaded and reformulated in other ways to burn cleaner. Or, alas, to pander to the gasohol lobby. Oil prices have also almost reached an all-time high when not adjusting for inflation, approaching \$40 a barrel. But again, when adjusted the cost is far less than it was from 1973 to the mid-1980s.

But there's no denying the sharp increase over several years. Are we really just experiencing a short-term spike because of voluntary production cutbacks, political unrest in places like Iraq and Venezuela, and a huge decline in the value of the dollar?

Or are current prices indicating that reality is finally beginning to catch up to the Cassandras' predictions? Certainly supply isn't declining yet. "Proved" oil reserves increased from 677 billion barrels in 1982 to 1,048 billion in 2002, a 55 percent increase. "Proved" means quantities that with reasonable certainty can be recovered from known reservoirs under existing economic and operation conditions. Meanwhile worldwide consumption increased only 13 percent. That's not a particularly spooky trend.

Much oil goes to electricity production and home heating, in competition with natural gas and coal. So it's also important to know that proved natural gas reserves have increased by more than 60-fold since 1982 while coal reserves are also increasing. If necessary, almost all oil not used for vehicle fuel could be replaced by these other resources as well as nuclear energy.

What about the future? According to a just-released Energy Information Administration report oil production will continue to steadily increase until the last year of the projection, which is 2025.

But oil consumption will continue to increase. This will be partly from population growth, albeit growth that's leveling, and partly from worldwide improvements in living standards that allow people to trade in shoe leather and bicycles for cars. Even so, if consumption continues to increase at an average rate of 1.4 percent a year and not a single new drop is found, we still won't exhaust proved reserves until 2056 according to a 2003 National Center for Policy Analysis (NCPA) report.

Further, the "nice aspect" of high oil prices, if those driving around in gas-slurping SUVs will forgive the term, is that they are the greatest motivator for discovering and exploiting new reserves.

This includes Canada's oil sands, containing a tar-like substance convertible to oil. These hold an estimated 1.7 trillion barrels of petroleum, of which 255 billion barrels (equal to the entire proved oil reserves of Saudi Arabia) is currently considered recoverable. Because of reductions in production costs, some of this goop is already being extracted and sold. But if oil prices remain anywhere near current levels, oil sand development will replace hockey as Canada's national obsession.

Oil sands worldwide could provide more than 500 years of oil at current usage rates, calculates the writer of the NCPA report, David Deming. He's a professor of geology and geophysics at the University of Oklahoma in Norman.

Five hundred years? Civilization should be so lucky as to consider this a worry.

**Extension Off #1: Twilight of Fuel**

\_\_. Extend 1NC #1 on the Twilight of Fuel by Huber and Mills from February 2k5. This is recent evidence making multiple warranted claims on why a crash from Peak Oil is NOT coming in the Status Quo. A combination of factors – from market forces to technological progress – are changing both energy supply and energy demand in the United States. Our recent evidence is just superior on the trends in the Status Quo.

\_\_. The authors are highly qualified. Huber is a senior scholar at the Manhattan Institute and Mills is a former consultant of the White House Science office.

**OFF #1-B:**  
**Demand is Soft, Renewables & Alternatives Solve in SQ**

**\_\_\_ . Renewable and other energy technologies are gaining in the Status Quo. Decline in available Oil would have no affect**

**Schafersman, Professor of Geology, Miami – Ohio, ‘02**

(Steven, prof. of geology @ Miami University, Oxford, OH, “Be Scared; Be Very Scared,”  
<http://www.freeinquiry.com/skeptic/badgeology/energy/commentary.htm>)

Now we come to alternative and renewable energy sources--wind, solar, biomass fuels, etc.--and modern energy technologies--hybrid gasoline/electrical engines, hydrogen fuel cells, etc.--that are slowly but steadily increasing their importance in the energy mix of our country. Yes, these are proportionately small now, but they are increasing faster than most people are aware. In fact, they are increasing so rapidly that many energy experts believe that they will significantly supplant fossil fuels in specific circumstances in the coming decade. The unit energy per cost factor of these alternative and renewable energy sources already equals coal and will soon equal petroleum in many cases. Once again, a decline in oil availability would not significantly affect total energy availability, as other energy sources replace the use of oil. This will happen naturally now, even before there is a decline in oil availability, since the alternative energy sources are cleaner and potentially less expensive.

**\_\_\_ . Renewable energy is growing in Status Quo due to price pressures**

**Scherer 10-22-04** (Ron, Oct. 22, Christian Science Monitor, “As oil rises, cleaner energy surges,” L/N)

With the price of oil hovering above \$ 55 per barrel, demand is rising for a wide array of alternative energies - from wind turbines to cars fueled by corn oil.

While such devices and fuels always capture attention during spikes in oil prices, the alternative-energy movement is moving well beyond the novelty phase. It is becoming more ingrained in the nation's power grid and in middle-class homes as technologies improve. Consumer demand has Toyota predicting the sale of 100,000 of its Prius hybrid cars in the United States next year.

Even solar panels and windmills, often associated with the Jimmy Carter cardigan sweater days, are showing up in more suburban neighborhoods and other unexpected places. For example:

- \* A Louisiana entrepreneur wants to put windmills atop old oil and gas rigs in the Gulf of Mexico and send the power ashore.
- \* For the first time nationally, Home Depot will be selling solar devices alongside its plumb bobs and Behr paint.
- \* Gasoline marketers in Denver, Seattle, and other cities are blending ethanol into their gasoline - not for environmental reasons, but because it's now cheaper than some oil-based additives.

Although alternative fuels still make up a small fraction of US energy supplies, they are growing at a 30 percent rate compared with 4 percent for oil and 6 percent for natural gas. The projects are especially popular among states with governors opening up new wind farms and farm-belt ethanol refineries. But it's not just a political fad. The cost of many of the alternative fuels is approaching that of oil and natural gas. That competitiveness, combined with congressional renewal of a key tax credit, has business signing contracts to build everything from new wind farms in Iowa to solar farms on top of FedEx terminals.

"This is a period of high fossil-fuel costs and low-interest rates, which gives renewable energy an advantage unlike it's had over the last 20 to 25 years," says George Sterzinger, executive director of the Renewable Energy Policy Project in Washington.

**OFF #1-C:**  
**TECH SOLVES SUPPLY in SQ**

**\_\_\_ . New technology will increase supplies and gather more oil from existing wells**

**Deming, Associate Professor of Geophysics, Oklahoma, '03**

[David, Oct. 1, adjunct scholar with the National Center for Policy Analysis & Assoc. prof. of geology & geophysics @ OU,  
 "Abundant Reserves Show Petroleum Age Is Just Beginning," Environment News,  
<http://www.heartland.org/Article.cfm?artId=12898>

And the age of petroleum has only just begun. For more than 80 years, geologists' estimates of the world's endowment of oil have risen faster than developers can pump it out of the ground. In 1920, the U.S. Geological Survey estimated just 20 billion barrels of oil remained in the world. By the year 2000, the estimate had grown to 3,000 billion barrels. Every year, technological advances make it possible to draw upon petroleum resources whose extraction was once unthinkable. We can now drill wells up to 30,000 feet deep. The amount of oil that can be recovered from a single well has been enhanced by a technology that allows multiple horizontal shafts to be branched off from one vertical borehole. The ability to drill offshore in water depths of up to 9,000 feet has opened up the vast petroleum resources of the world's submerged continental margins.

**\_\_\_ . New off-shore drilling tech, new management tech and new synthetic oils will decrease costs and will solve Peak in Status Quo**

**Schoen '04**

(John, MSNBC, "Can Technology Help Find Oil Fast Enough," 09/23, <http://msnbc.msn.com/id/6072980/>)

Advances in drilling techniques do hold the promise of further lowering the cost of producing new oil and extending the industry's reach. That's especially true in deepwater offshore fields where many promising discoveries are turning up. Aside from the huge cost of conventional steel drilling platforms, operations on gigantic rigs are subject costly interruptions from hurricanes in the Gulf of Mexico and typhoons in the Pacific rim.

"Ten years from now they're going to become obsolete," said Barton Smith, an economics professor at Rice University in Houston. "What they're moving toward is robotics -- in which you literally have submarine operations. The drilling activity all occurs at the bottom of the ocean. And these robotics will have all the capabilities of being able to fix anything down there."

Long-range communications technology is also helping to cut the cost of managing oilfields -- in some cases halfway around the world, Smith said.

"With a lot of these oilfields the trick is not just finding the oil and pulling the oil out of the ground," he said. "But the trick is then -- through vast pipelines and so forth -- getting it to some deliverable point. And those pipelines require all sorts of types of monitoring. They're going to monitor that from Houston."

Technology is even expanding the definition of oil. Vast deposits of oil shale and tar sands -- formations of oil-saturated rock and sand -- have until recently been uneconomic to produce. But as recovery methods improve, and oil prices rise, production of this so-called "synthetic" oil has increased. New technologies are also being developed to extract natural gas from coal -- which remains plentiful in the U.S.

## Extentions Off #2: EVIDENSE/SOUCES

    . **EXTEND INC #2 on sources and qualifications. Our evidence is clearly superior. It is from highly qualified authors with expertise in relevant fields. Their authors are the Jose Conesco's of the energy world – they are idiots without any credibility presenting the most outrageous claims possible just to sell some books.**

    . **Extend the original 'B' sub-point. The Implication is: Dismiss their evidence and accept our cards from qualified sources.**

    . **Consensus of Experts supports our side – from Government officials and Geologists to Economists and Industry Insiders. Here's a Huge List of Super Qualified sources that endorse us**

### **Kuykendall, Research Associate, Texas Legislative Council, '04**

[Chris, May 7, The Texas Legislative Council provides bill drafting, computing, research, publishing, and document distribution services to the Texas Legislature and legislative agencies. The council also serves as an information resource for state agencies, the citizens of Texas, and others as time and resources allow. Card is from an Email to a bulletin board regarding a Paul Krugman editorial in the New York Times, <http://legalminds.lp.findlaw.com/list/ecol-econ/msg04576.html> download date: 2-21-05]

<<Oil is a resource in finite supply.... Some analysts argue that world production is already at or near its peak, although most say that technological progress, which allows the further exploitation of known sources like the Canadian tar sands, will allow output to rise for another decade or two.>>  
Some background here...

"Most" (optimist who's who)

1) U.S. Geological Survey officially, and almost everybody there--Thomas Ahlbrandt (Colorado), Ronald Charpentier (Colorado), Peter McCabe (Colorado)

2) Energy Information Administration of the U.S. Department of Energy

3) International Energy Agency, albeit with some occasional waffling

4) economists and like types, who generally think demand creates extractable supply and ample extractable supply is still there--Michael J. Lynch (Massachusetts), Morris Adelman (Massachusetts), Peter Odell (Netherlands)

5) the great preponderance of academic geologists and/or academic engineering types--William Fisher (U. of Texas), David Deming (U. of Oklahoma), Henry Linden (Illinois Institute of Technology)

6) influential establishment strategic-interest oil analysts--Daniel Yergin (Massachusetts, author of oil history THE PRIZE), Amy Myers Jaffe (James Baker Institute at Rice U.)

7) Saudi Aramco and its spokespersons--Mahmoud Abdul-Baqi (Saudi Arabia), Nansen Saleri (Saudi Arabia)

8) the preponderance of the petroleum press, apparently--Bob Williams (Oklahoma, editor of Oil & Gas Journal, is more of a moderate or sidelines referee, who gives editorial space to both sides, but he seems to lean technologically optimist)

9) selected retiree oil executives who have long been annoyed by oil supply pessimists--John M. Ryan (North Carolina, formerly with Exxon)

**OFF #2: EVIDENSE**  
**Oil Companies = Honest Disclosure**

**\_\_\_ . OIL COMPANIES report reserves Truthfully. U.S. Securities and Exchange Commission compels them to file reports and be accurate. Chances are they UNDER-ESTIMATE their reserves**

**Cooke 2-20-05**

[Ronald R., Economist and Author, <http://www.energybulletin.net/4414.html> download date: 2-21-05]

Oil companies listed on any stock exchange in the United States are required, by SEC and various accounting rules, to make a reasonable assessment of their reserve positions each year. Oil reserves, after all, are an important item on the balance sheet of any oil company. Accuracy counts. As a practice, however, oil companies understate their reserves. They do not want to be in the position of inflating the value of their assets. That would be fraud. So they try to fudge a bit on the low side in order to protect themselves. Most investors are pleased with this arrangement.

**OFF #2: EVIDENSE**  
**Paul Roberts = Clown**

**1. Roberts is a Clown. He lacks Qualifications:** He's just a journalist and contributor to Harper's Magazine. He has no background in economics, geology, or anything else related to oil production or the oil market. He has no professional credibility at stake, no tenure-track position to lose if he's wrong.

**2. Terrible Research:** Shortcomings pervade his book. It lacks source, documentation, and sometimes his claims are just plain wrong.

**Hertsgaard, Reviewing Roberts' Book for the Washington Post, '04**

[Mark, environmental writer and regular contributor to The Nation, review was originally published in the Washington Post, June 13, p.BW06, download date: 2-16-05, <http://www.markhertsgaard.com/Articles/2004/EndOfOil/> ]

Roberts thus dismisses as "patently absurd" the Bush administration's denials that the invasion of Iraq was about oil. He even argues that the undeclared aim of the war was not simply to capture Iraq's oil but to permanently break OPEC's power over global supply. It's a plausible, provocative thesis. The problem is, the only sources he cites for it are two unnamed former government officials and two outside analysts, none of whom offers anything approaching documentary proof.

It's a shortcoming that unfortunately pervades this book. Too often, Roberts provides no sourcing for statements that are either debatable (e.g., implementing the Kyoto protocol on climate change would cost the United States 2 percent of its gross national product per year) or arresting (urban air pollution kills 4 million people a year in China). Especially odd is how many sources go unnamed even when they offer the blandest of quotes. Finally, some "facts" cited here are simply wrong. Climate change did not raise sea levels 10 inches in the 20th century (though it may well do so in the 21st). And the World Bank has, alas, by no means grown reluctant to finance large energy projects in the Third World.

**3. Publishing House lacks credibility:** Houghton Mifflin is the publisher and they are clowns. They publish cookbooks, short stories for children, and other cute crap just to make some cash. This is not anything close to a University Press or a major academic journal where the incentives are to protect the institutional reputation and the editorial filter are much stronger than the profit motive. Most of you know the difference in the different quality levels in publication; I'd bet that the publishers with higher standards rejected his manuscript.

**4. Same flawed methodology: Cross-apply the Lynch '98 card** from the INC. Their models are wrong so their claims will be too pessimistic. They are also empirically denied.



**OFF #2: EVIDENCE**  
**Matt Sanivar = Clown**

\_\_\_\_. **Not Qualified**: Sanivar is a Clown! He just got a Law Degree from Hastings in '03. That's It! This guy has ZERO background in Geology, Economics, or any other relevant field. All of our authors are more qualified.

\_\_\_\_. **This is Internet drivel – it has no credibility**. He put up a website and writes trash. It is not peer reviewed, it was not filtered by any reputable editor, it is not supported by any academic institution or a publishing house.

\_\_\_\_. **Old Wine in New Bottles**. His information comes from the same old hacks like Campbell using the same old Hubbert curve Methodology. We are answering the foundation for these arguments with our Lynch '98 card.

\_\_\_\_. **It's all an Advertisement for his book**. Everywhere on his website has links to book dealers so that readers can buy his book. He's written exaggerated claims to make money. He is **the ultimate Jose Conseco** of the Peak Oil debate.

**OFF #2: EVIDENSE**  
**David Goodstein = Clown**

\_\_\_\_. **He's NOT QUALIFIED. Goodstein himself concedes it, despite his physics background.**

**Goodstein '04**

[David, Interviewed by Brian Braiker of Newsweek, 2-27-04, <http://www.msnbc.msn.com/id/4287300/> download date: 2-17-05]

You're a physicist by training.

This is not my research field. I do research in a completely different field. I just thought that this was such an important problem that somebody ought to write a book about it. I am not an expert—there is no subject covered in that book about which I know more than anybody else. If you want to know about superfluid helium or certain kinds of phase transitions I may know more than anybody else in the world. I just thought I should lend my pen to this cause.

\_\_\_\_. **Goodstein himself concedes that the predictions by his side vary widely**

**Goodstein '04**

[David, Interviewed by Brian Braiker of Newsweek, 2-27-04, <http://www.msnbc.msn.com/id/4287300/> download date: 2-17-05]

But the quantitative question of when the peak will occur depends on extremely undependable numbers. The so-called proven oil reserves as reported by various countries and companies around the world are often just guesses and they're often not even honest guesses. Among those who would analyze those figures, some have predicted that it will come as early as this year; others, within this decade. It could possibly be in the next decade.

\_\_\_\_. **No Solvency: The world is addicted. Your author concedes the growing wealth of non-U.S. populations means demand for oil will continue to rise**

**Goodstein '04**

[David, Interviewed by Brian Braiker of Newsweek, 2-27-04, <http://www.msnbc.msn.com/id/4287300/> download date: 2-17-05]

Well, the need for those hydrocarbon materials has been increasing for 150 years and will go on increasing especially because the world's population is increasing. The poorer parts of the world want to increase their standard of living, which inevitably means using more energy. Fossil fuels are our principal source of energy.

You used an interesting word: "need." Do we need the oil or is it something that we have just become dependent on?

We have certainly become dependent on it. This is a habit that will be very, very difficult to break.

Knowing human behavior and how hard the habit is to break, we probably won't, in all likelihood, break it.

I think we will not. One of the reasons I wrote the book was in the hope that enough people will become aware of the problem and we will be a little better prepared.

**OFF #2: David Howell = Clown**

\_\_\_. **Howell is NOT QUALIFIED.** He's the Right Honorable Lord Howell of Guilford, a freakin' member of the British House of Lords. He's only a English aristocrat and politician. Our sources are clearly more qualified.

\_\_\_. **Howell concedes No Solvency:** We're addicted, Chinese growth overwhelms, and no suitable alternatives are big enough.

**Their Howells article continues...**

[David, <http://www.davidhowell-themes.com/article123-Energy%20crunch.htm> ]

The prospect might be manageable if governments were all set firmly on the path to a cleaner and greener energy future.

Europe has tried, with high taxes and the new system of carbon emissions "trading" - though even in Britain, carbon emissions rose last year, when they should have been falling, and the government now reluctantly concedes that its goals for emissions reductions are being missed.

But these noble efforts are dwarfed by opposite pressures elsewhere. China is building 60 new coal-fired stations a year. America is still relying on coal for over half its electric power while drinking more oil than ever, helped by gas-guzzling SUV's. Energy issues received hardly a mention in the recent elections.

Acres of giant wind pylons, the current Great Green Hope, cannot conceivably fill the gap. The one obvious alternative, nuclear power, remains largely stymied by politics. China may have bold longer-term plans for new plants. But elsewhere, nuclear programs have been in limbo for years. In Britain, a pioneer in civil nuclear power, the policy is to phase out nuclear capacity altogether, though the nuclear option is still claimed to be "open."

**OFF #2: Lynch = Qualified**

**Lynch is incredibly qualified. He's a Director of a research program at the Massachusettes Institute of Technology on energy and security for God's sake! Plus, he's a professional in the field with a reputation to uphold. He can't make outrageously false claims because he must maintain his credibility to retain his job. He's also published extensively in reputable, peer-reviewed sources.**

**FYI:**

<http://www.energyseer.com/MikeLynch.html> download date: 2-18-05

Mr. Lynch has over twenty years of experience analyzing international energy, particularly oil and gas markets. He has numerous publications in four languages and speaks regularly at international conferences. He is the primary author of Global Petroleum SEER and Global Petroleum Outlook, which provide short- and long-term oil market analyses.

Mr. Lynch's previous work has included computer modeling of the world oil market and estimation of the economics of supply for both world oil and natural gas, including LNG supply, and market behavior under normal and disrupted conditions. He has also given testimony and advice to committees of the U.S. Congress and the United Nations, the World Bank and the International Energy Agency.

Before coming to Strategic Energy & Economic Consulting, Inc., Mr. Lynch was Vice President of Oil Services at WEFA, Inc. Prior to coming to WEFA he was Director, Asian Energy and Security, at the Center for International Studies, M.I.T., as well as a Lecturer in the Diplomatic Training Program at the Fletcher School of Law and Diplomacy, Tufts University.

Prior to that, he held a number of research positions at M.I.T., as well as serving as a senior associate for the Washington International Energy Group. His work consisted primarily of advising corporations, governments and industry associations on world oil and gas markets and energy security policy.

**PAST PROJECTS**

- Analysis of the nature of oil crises and effective policy responses
- Developed the long-term oil market forecast for the Gas Research Institute
- Provided assistance in scenario planning for several large oil corporations
- Explained the nature of errors in long-term oil market forecasting (Lynch 1994)
- Analyzed the economics of N. American natural gas supply for a multi-client study
- Correctly predicted the development of the oil market in the 1990s (Lynch 1989)
- Predicted the most likely behavior in the 1990 Gulf War oil crisis (Lynch 1986b, 1987)
- Explained the nature of the 1986 oil price collapse and correctly predicted the persistence of price volatility (Lynch (1986a)
- Advised the Secretary-General of OPEC on long-term oil prices
- Analyzed world natural gas supply for a 3-volume multi-sponsor study
- Produced the best long-term oil market forecast at Energy Modeling Forum 6 (1980)

**SELECTED PUBLICATIONS**

Mr. Lynch is particularly known for his record of producing the best long-term oil and gas market forecasts, including the IPE model at EMF6 (1980) and his 1989 Economist Intelligence Unit report, both of which were criticized at the time for being optimistic about non-OPEC oil supply and relatively pessimistic about oil prices. His 1992/94 paper explaining the errors in oil market forecasting convinced many major oil companies to change their forecasts. His analysis of world gas supply in the mid-1980s correctly foresaw that depletion would not be pushing prices up in the U.S. or W. Europe, and his work in 1986 on oil market structure anticipated the shift to price volatility and his 1986/87 analyses of oil crises correctly predicted that the next of future crises.

- "Oil scarcity, Oil crises, and alternative energies--don't be fooled again," *Applied Energy*, Vol. 64, no. 1-4, September-December 1999.
- "The Debate Over Oil Supply: Science or Religion?" *Geopolitics of Energy*, August 1999.
- "Doing Well by Doing Good? Oil Industry Responses to the Kyoto Accord," Occasional Paper 31, The International Research Center for Energy and Economic Development, Boulder, Colorado, 1999.
- "Facing the Elephant: Oil Market Evolution and Future Oil Crises," Occasional Paper 30, The International Research Center for Energy and Economic Development, Boulder, Colorado, 1998.
- "Asian Natural Gas: Boom and Bust?" in *Energy Watchers VIII*, The International Research Center for Energy and Economic Development, Boulder, Colorado, 1997.
- International Petroleum Price, Supply and Demand: Projections Through 2020*, Gas Research Institute, January 1996.
- "The Analysis and Forecasting of Petroleum Supply: Sources of Error and Bias," in *Energy Watchers VII*, ed. by Dorothea H. El Mallakh, International Research Center for Energy and Economic Development, 1996.
- "Shoulder Against Shoulder: The Evolution of Oil Industry Strategy," *Journal of Energy and Development*, Volume XIX, number 1, 1995.
- "Bias and Theoretical Error in Long-Term Oil Market Forecasting," in *Advances in the Economics of Energy and Natural Resources*, John R. Moroney, ed., JAI Press, 1994.
- "A Post-OPEC World? The Long-Term Impact of the 1990 Oil Crisis," *Journal of Economic Democracy*, July-September 1991.
- "An Omitted Variable in OECD Supply Forecasting," 12th Annual North American Conference, International Association of Energy Economics, Ottawa Canada, October 1990.
- "The Price of Crude Oil to 2000: The Economics of the Oil Market," *Economist Intelligence Unit*, May 1989
- "The Next Oil Crisis," *Technology Review*, November-December 1987.
- "Asian Gas Markets in Coming Years," in *Crisis in Resource Production: Can America Compete?*, Proceedings of the Sixth Annual International Conference on Alaska's Resources, Anchorage, Alaska, February 12-13, 1986.
- "Structural Changes in World Oil Markets and Their Impact on Market Behavior," MIT Energy Laboratory Working Paper MIT-EL 86-009WP, March 1986.

**PROFESSIONAL ACTIVITIES**

- President, United States Association for Energy Economics (1999)
- Appointed Council Member, International Association for Energy Economics (1998-1999)
- President, New England Chapter, International Association for Energy Economics (1987-1992)

### Extensions Off #3: MARKET FORCES SOLVE in SQ

\_\_\_\_. Extend 1NC number 3, Market Forces Solve, the Status Quo energy industry is self-correcting from Moffat '04. He's a university Economist. Peak Oil predictions are false. Market forces gradually affect both consumers and suppliers and alter their behavior. Consumers will adjust and suppliers will find more oil. This is Economics 101.

\_\_\_\_. Market Forces smooth any supply decline, we will not run out and we will avoid any '70s style price spikes

#### **Moffat, again, '04**

(Mike, Microeconomist @ [The Richard Ivey School of Business @ University of Western Ontario in London](http://economics.about.com/cs/macroeconomics/a/run_out_of_oil.htm), "We Will Never Run Out of Oil," [http://economics.about.com/cs/macroeconomics/a/run\\_out\\_of\\_oil.htm](http://economics.about.com/cs/macroeconomics/a/run_out_of_oil.htm))

When a useful commodity, such as gasoline, becomes scarce, there is always a cost to the economy, just as there would be a benefit to the economy if we discovered a limitless form of energy. This is because the value of the economy is roughly measured by the value of the goods and services it produces. Remember that barring any unforeseen tragedy or deliberate measure to limit the supply of oil, the supply will not drop suddenly, meaning that the price will not rise suddenly.

The 1970's were much different because we saw a sudden and significant drop in the amount of oil on the world market due to a cartel of oil producing nations deliberately cutting back on production in order to raise the world price. This is quite a bit different than a slow natural decline in the supply of oil due to depletion. So unlike the 1970's, we should not expect to see large lines at the pump and large overnight price increases. This is assuming that the government does not try to "fix" the problem of a declining oil supply by rationing. Given what the 1970's taught us, this would be very unlikely.

In conclusion, if markets are allowed to function freely the supply of oil will never run out, in a physical sense, though it's quite likely that in the future gasoline will become a niche commodity. Changes in consumer patterns and the emergence of new technology driven by increases in the price of oil will prevent the oil supply from ever physically running out. While predicting doomsday scenarios may be a good way to get people to know your name, they are a very poor predictor of what is likely to happen in the future.

**Extensions Off #3: MARKET FORCES SOLVE in SQ**

**\_\_\_ . Roberts himself concedes Market Forces in the Status Quo are Solving. High prices are spurring moves toward greater efficiency.**

**Roberts, June '04**

[Paul, Interview by Nonna Gorilovskaya, June 8, 2004, Mother Jones Magazine, download date: 2-16-05,  
[http://www.motherjones.com/news/qa/2004/05/paul\\_rob\\_qa.html](http://www.motherjones.com/news/qa/2004/05/paul_rob_qa.html) ]

I have two scenarios. The first is that we have what's happening right now -- which is that a moderate increase in oil prices gooses the economy towards more efficiency. If prices were to stay this high for a while, then everyone starts making changes. Look at airlines and long-haul trucking companies. Energy is a big part of their costs so they are forced to make changes when energy prices come up. It's not like you'll go to a different airline, you just won't take the trip. So that's why Boeing is building its new jet -- the 777 -- it's very fuel efficient. We find ourselves twenty years from now in an economy that is more fuel efficient, has more alternatives to oil and is therefore cleaner, and less reliant on places like the Middle East. That's the good-news scenario.

**OFF #3: Market Forces Solve in SQ**

**\_\_\_ . Inflation-Adjusted Price for Oil is LOW. This proves MARKET FORCES bring in new reserves and new production over time. Alaska and Russia will supply much more.**

**Moore, Senior Fellow, Cato Institute, '04**

[Stephen, July 1, "Inflation Tainting the True Cost of Gasoline," Environment News, The Heartland Institute, <http://www.heartland.org/Article.cfm?artId=15265> ]

On May 5, a USA Today headline read: "Oil Prices Hit Highest Since Sept. 1990." The story glumly reported, "oil traded for more than \$39 a barrel last week ... the highest closing price since 1990 and the 6th highest price ever."

Good news: It isn't true.

Yes, gas prices have spiked upwards by at least 30 percent in most local markets this year, and yes, it's infuriating to pay \$2.00 a gallon to fill up the tank. And yes, higher oil prices are a significant tax on the U.S. economy--given that we're the world's largest importer of crude.

**But gasoline prices, properly measured, are nowhere near their historical peak. In fact, the long-term trend in oil, gas, and electricity prices is downward, not upward.**

Inflation-Adjusted Prices Reasonable

What the reporter at USA Today and so many others forgot to do was adjust for inflation. In the world of economics, this is an unpardonable sin. After all, if you don't adjust for inflation, just about everything is more expensive today than it was 30 years ago.

In inflation-adjusted dollars, gasoline prices paid at the pump have been on a steady rate of decline since the 1920s, with the exception of the 1970s, when we faced an OPEC embargo and gasoline lines. In 1920 the real price of gas (excluding taxes) was twice as high as today. Electricity prices were about three times higher 75 years ago.

If gas prices were as high today as they were in the late 1970s, we would now be paying about \$6 a gallon for gas. Today's price at the pump is lower than it was as recently as 1985.

Oil Reserves Remain Untapped

The same is true, by the way, for the cost of oil. Adjusted for wage growth, oil is slightly cheaper today than it was 20, 30, and 50 years ago, and five times cheaper than 100 years ago.

How can gas and oil be cheaper since we've used so much of it over time? Thanks to human innovation, we are always finding new sources of oil, while at the same time technology makes it cheaper to drill for.

For example, the oil fields of Prudhoe Bay in Alaska have two to three times more reserves than originally believed. Russia, now on the way to becoming a capitalist economy, may soon become one of the world's top two oil producers, as the new Russian capitalist entrepreneurs continue to discover untapped fields.

### Extension: CRYING WOLF and WRONG METHOD

\_\_\_\_. **Extend the Lynch '98 evidence. This guy has great qualifications – he's the Director of an energy and security studies at M.I.T. for God's sake. And the card is AMAZING, full of detailed support for our claims.**

\_\_\_\_. **Empirically Denied! The record supports our claims and disproves theirs. Their arguments have been made and are repeatedly shown to be false. The Lynch evidence gives examples in predictions about the United States, Canada, and the Third World.**

\_\_\_\_. **Their entire METHODOLOGY is wrong so the QUANTITY of evidence is IRRELEVANT. This GUTS ALL THEIR ARGUMENTS! All their evidence depends upon the same Hubbert model so all of their evidence is worthless. They can read short card after short card, but each stands on the same flawed methodology. Damn, we sound like Kritik debaters.**

\_\_\_\_. **Their 'new' cards by 'new' authors are still old wine in new bottles. Hubbert's model is the basis for their claims and it's just wrong. All their evidence is worthless. Their claims are just doom-saying and products of a herd mentality. These predictions are Empirically False. More evidence...**

#### **Bailey '04**

(Ronald, Science Correspondent for Reason Magazine, Feb. 18, "Are We Out of Gas Yet?" Reason Online, <http://www.reason.com/rb/rb021804.shtml>)

Once again, the gauge on our national economy is dropping dangerously to the red. So swears a spate of books and articles in the past few years, reviving '70s-era fears of impending oil catastrophe. The once-invaluable, now highly political, *Scientific American* ran an [article](#) in March 1998 declaring "The End of Cheap Oil." Fred Pearce similarly declared in a July 1999 *New Scientist* article, "Dry Future," that "the world is probably only two years off peak oil production, after which decline is inevitable." In his 2001 book *Hubbert's Peak: The Impending World Oil Shortage*, Princeton University Professor Kenneth Deffeyes [found](#) "that world oil production will peak in this decade—and there isn't anything we can do to stop it. While long-term solutions exist in the form of conservation and alternative energy sources, they probably cannot—and almost certainly will not—be enacted in time to evade a short-term catastrophe."

More recently, in January Caltech physics Professor David Goodstein upped the ante in his [book](#), *Out of Gas: The End of the Age of Oil*, [warning](#) that the peak of world production is imminent and that "we can, all too easily, envision a dying civilization, the landscape littered with the rusting hulks of SUVs."

There is a choirmaster to this chorus of oily doom: the late geophysicist M. King Hubbert. In 1956 Hubbert (correctly) predicted that U.S. oil production would peak in the early 1970s. Like Hubbert, current doomsayers reach their grim conclusions of impending octane depletion by using estimates of the world's recoverable reserves of oil and comparing them with estimates of rates of future use. From this they derive predictions of when the demand for oil will outstrip the supply, and most suggest that dry pumps will greet us before the end of this decade.

Once the peak is reached, oil doomsters foresee skyrocketing prices leading to economic ruin and social and environmental collapse. One reviewer of Goodstein's book [despaired](#), "If he's right, I'm sorry for my kids. And I'm especially sorry for theirs."

But we've heard it all before. "These kinds of doom and gloom energy predictions become popular every 10 years or so," says Michael Lynch, president of Strategic Energy and Economic Research, a Massachusetts consulting firm. "In this case there's very little original research and everybody is citing the same handful of articles. It's an example of how the herd instinct drives the psychology of scientific consensus." Lynch's new [study](#) "The New Pessimism about Petroleum Resources," pokes holes in forecasts of imminent oil doom. Lynch points out that the supply of oil is determined not only by geologic factors, but also by political, economic, and technological ones.

It's true that oil discoveries peaked in 1982, but Lynch argues that's because of politics, not geology. "The big factor in the decline in oil discoveries is that Saudi Arabia, Kuwait, Iraq, and Iran all nationalized their oil industries in the 1970s. Plus Iraq and Iran went to war and essentially stopped exploring for more oil," explains Lynch. "They have so much oil, why would they bother looking for more?" He adds dryly that *Scientific American* [doomster Colin Campbell](#) has been predicting that the peak of oil production is three to four years away for the past 15 years.



**Extension: CRYING WOLF & WRONG METHOD**

\_\_\_\_. **Hubbert's Model is misinterpreted, misapplied, and it been proven wrong.**

**Schafersman, Professor of Geology, Miami – Ohio, '02**

(Steven, prof. of geology @ Miami University, Oxford, OH, "Be Scared; Be Very Scared,"  
<http://www.freeinquiry.com/skeptic/badgeology/energy/commentary.htm>)

M. King Hubbert's analysis and curve has been consistently misinterpreted and misapplied by the doomsayers (for their interpretation, go to <http://www.energycrisis.com/hubbert/>). Hubbert's curve is not a normal curve, but a plot of oil production plotted over time; therefore, predictions from statistical tests applied to this curve are invalid. While Hubbert correctly predicted the peak and decline of U.S. oil production with his curve, his attempts to do the same with both U.S. natural gas production and world oil production failed. Fisher points out that a major flaw in using a symmetrical life cycle curve to predict future production is its static nature: it assumes a known amount of an ultimate resource, and does not allow for resource expansion due to technological advances or economic demand pressures. Ahlbrandt advocates a production-plateau model of oil resources rather than the traditional Hubbert curve, because the former better represents the real-world conditions as we understand them now.

### Extensions OFF #6: Plenty of Oil

**\_\_\_ . Extend 1NC #6, We have Plenty of oil, from Bailey '04. There's no risk of an oil peak. Their claims are just plain wrong.**

**\_\_\_ . Decades of oil and gas in current reserves; and more is being discovered constantly**

#### **Wingrove '04**

[Martyn, Lloyd's List, Issue #58687, Insight & Opinion, June 25, 1/n]

WITH oil and natural gas demand continuing to climb, higher this year than anyone predicted, the question of the volumes of reserves is gaining importance.

BP's leading analysts estimate that the world now holds 1.15trn barrels of oil in proven reserves, which is enough to carry on producing at current levels for 41 years.

The picture for natural gas is even rosier with 176trn cu m of proven reserves, which would provide 67 years of production.

While there is enough oil to cover more than 40 years of production, in both cases the Middle East and former Soviet Union hold the majority of these resources. This may be good news for these nations, but is less than pleasant for countries heavily dependant on oil imports.

And security of supply will continue to be a major geopolitical issue for perhaps the next four decades, so political stability in the Middle East will remain important.

"Reserves have grown over time and it is clear that the issue of energy security is driven not by a physical shortage of supply, but by the challenges of ensuring that there will be sufficient traded oil and gas to meet rising demand," says BP's group chief executive Lord Browne of Madingley.

"On recent trends there appears to be considerable scope for proved reserves to keep rising in Russia and elsewhere."

There is also clear evidence that the international oil companies, who have only limited access to resources in the Middle East and FSU, need to raise their exploration levels to find new reserves not held in these regions.

"Despite those who say we are about to run out of oil and gas, the figures in our review confirm there is no shortage of reserves," says Peter Davies, BP's chief economist.

The British oil major has released its annual Statistical Review of World Energy, providing a timely reminder that the only issue when it comes to reserves is access.

BP's review has incorporated data from national statistics and other secondary sources to compile the reserves figures.

BP's review also provides production, consumption, pricing, trade movement and refining margin data back for the past 10 years. There are also sections for nuclear power, hydroelectricity and renewables.

On oil reserves, the review shows globally that they have increased by 10% since 2002, although part of this is through new data gathering work.

The figures also include 11bn barrels of resources in Canadian oil sands that are under active development and a better informed data series for Russia.

"1.15trn barrels represents 41 years of world oil production at current rates," says Mr Davies. "This does not mean that oil will run out in 41 years time; more oil will inevitably be proved before then while production is unlikely to be flat or constant."

This is in contrast to 1980, when BP's review showed there were only 29 years of production with 700bn barrels of oil resources.

"The world has since produced 80% of the proved reserves of 1980 and we are still left with 70% more reserves than when we started, as a result of exploration success and new technologies," says Mr Davies.

**Extensions OFF #6: Plenty of Oil**

**\_\_\_\_. Post-Saddam Iraq has lots more oil reserves to be discovered**

**AL-ULUM, Iraqi Oil Minister, '03**

[Bahr, BBC Monitoring Int'l Reports, Oct 2, interviewed by Ibrahim Khayyat]

(Khayyat) There are in Iraq around 450 geological deposits, of which only 250 have been discovered. Two thirds of Iraq's oil capacities have not been discovered yet. How do you expect Iraq's reserves to be in the future? Could they exceed 300 or 400bn barrels of oil and could Iraq become the oil power with the world's greatest oil reserve?

(Bahr-al-Ulum) I do not want to go into details and speak about figures, but I assure you that there is a kind of conviction on the part of scientific oil sectors in the world that Iraq has a huge reserve and that Iraq is the country with the least activities from the scientific exploratory aspect. Therefore, there is room in the future for discovering more oil reserves in this country.

**Extensions OFF #6: Plenty of Oil****\_\_\_\_. Iraq has huge reserves; its oil can easily and cheaply be supplied****Taylor '03**

[James, managing editor of Environment & Climate News @ Heartland Inst., July 1, "Oil Becoming More Abundant," <http://www.heartland.org/Article.cfm?artId=12403>]

The May 19 issue of Time magazine noted Iraq boasts the world's most prolific oil wells and has the potential to become the world's largest producer. Although abundant oil reserves were identified in Iraq in the 1920s, for a variety of political reasons, Time noted, "Iraq has never come close to achieving its potential."

In the post-Saddam era, Time reported, an influential group of former Iraqi exiles "has concluded that the country needs to double its output by the end of the decade to 'invigorate Iraq's economy and lift the Iraqi people out of a future of impoverishment.'"

With almost limitless oil reserves, the technology to tap those reserves at least as inexpensively as does Saudi Arabia, and the political will to crank up production, the new Iraq is poised to become a key player in the world oil marketplace.

### Extensions OFF #6: Plenty of Oil

**AT: “Discovery of new Oil reserves is declining in Status Quo – Companies are now finding less and less”**

**\_\_\_ . Recent decline in Exploration and New Discoveries is merely temporary and it’s still above replacement levels. It’s due to other factors. Exploration will roar back up**

#### **Wingrove '04**

[Martyn, Lloyd’s List, Issue #58687, Insight & Opinion, June 25, 1/n]

Last year, the major oil firms discovered only three-quarters of their total annual production because of cuts in spending and not the lack of prospects.

The issue of finding new reserves has a greater public profile following Shell's recent confession of being too aggressive on booking reserves. This resulted in the dumping of chairman Sir Philip Watts and his exploration chief Walter van de Vijver in March.

Analysts at Deutsche Bank have tracked exploration performance across the industry and are also not particularly impressed: "The majors' 2001-2003 organic reserves replacement was 75%, with some 20% less reserves found than in the 1990s."

"Industry wide hub-class finding rates remain resilient and the world is hardly running out of reserves. However, the majors' share is falling, which looks bearish for organic growth."

This is not surprising though, with the oil majors cutting their exploration budgets by 27% this decade. Expenditure was \$ 8.9bn in 2003, some 4% lower than the year before.

Part of this problem has been the industry reorganising their corporate structures after a raft of mega-mergers, that brought together ExxonMobil, ChevronTexaco and ConocoPhillips in the US, plus BP, Amoco and Arco.

Another reason is companies are using their earnings to develop previous hub-class discoveries or are planning share buy-back programmes to keep shareholders happy.

Because of good exploration success in 1999 and 2000, where oil firms found large oil fields in the Caspian Sea and deepwaters off West Africa, many oil firms have redirected their budgets to develop them instead of exploring for more.

"The majors have been emphasising commercialisation of stranded reserves over the last three years. Who wants to find more stranded reserves in the Caspian, Latin America and Asia while the industry has been sitting on some 50bn boe of uncommercialised oil and gas found in those regions since 1995," say analysts.

Others have taken-up development-led opportunities in countries that previously refused access to reserves such as Iran.

Oil majors are also drilling fewer wells to focus on finding elephant-sized fields with some recent successes. But this does not necessarily mean reserves will be replaced especially if they are unlucky with the drillbit.

"The slow-down of exploration spending and discovery rates is a disturbing trend, but the reality is that at least part of this comes as a consequence of the large backlog of undeveloped exploration discoveries and development-led opportunities," says Deutsche Bank.

The oil companies may argue that booked reserves are on the rise at an average rate of 116%, but Deutsche Bank analysts say the majors "are booking on past glories, which is a key sector risk".

US firms Amerada Hess, Marathon, ChevronTexaco, plus Italy's Eni, UK-based BP and BG have been the exploration leaders in 2001-03 and have found enough reserves organically to replace production.

Analysts see French firm Total, plus Norsk Hydro and Statoil had relatively weak exploration performance during that period, while Shell and ExxonMobil did not impress either.

Some of the largest offshore oil discoveries in the past three years have been in deep water off West Africa, Gulf of Mexico and Brazil or in the Caspian Sea. These plays remain prospective and will provide new discoveries in the future.

Deutsche Bank are expecting some oil majors to raise their exploration levels because of a number of factors: "The majors' access rates to development-led deals seem to be slowing due to a mixture of political and environmental pressures.

"Exploration provides a powerful counterbalance to those risks and should be a key component of reserves replacement strategies."

Perhaps some majors are now ready to turn back to the drillbit. "We expect to see a general upturn in industry interest in exploration after several years of lean spending.

"Most of the European-based majors have increased their planning assumptions, justifying a more aggressive exploration stance. BG, Shell, Repsol, Total and ChevronTexaco have signed up for new exploration" say Deutsche Bank analysts.

Although conventional basins still hold plenty of exploration opportunities, oil companies could mostly be looking at either drilling for deeper reserves or in deeper water depths.

Key areas of new exploration include Sao Tome, Morocco, Canaries, Black Sea, Pakistan, Cuba and northern Caspian. Other areas to watch are so far mostly dominated by independent oil firms such as Mauritania round to Ivory Coast, India and eastern Africa.

**OFF #7: Timeframe Double Bind**

**\_\_\_ . Extend 1NC #7 argument, the Timeframe Double Bind. Either the peak is coming quickly and their plan cannot solve in time Or the world has decades before the peak and our disads will occur first. Either way, the Negative wins.**

**\_\_\_ . Aff cannot solve in time. Transition to an entirely new energy infrastructure will take decades. Status Quo is the best option.**

**Williams '03**

[Bob, Executive Editor, *Oil and Gas Journal*, Aug. 18, "Peak-oil, global warming concerns opening new window of opportunity for alternative energy sources," L/N ]

But the resulting high energy costs for everyone will prove a massive economic dislocation for the world, a grim scenario often outlined by the peak-oil theorists. Some have even painted alarming pictures of civilization crumbling as a result of this new oil shock.

"No technology breakthrough can come to alter the imminent oil peak; it would take much too long to put new technology in place to hope to dent oil and gas demand," said A.M. Samsam Bakhtiari, National Iranian Oil Co. senior expert. "Even if the two great hopes of solar and cold fusion would materialize, they could not be developed in time, as it takes decades (not years) to put in place the necessary infrastructures."

**OFF #8: Transition will be Smooth**

\_\_\_\_. **Extend the number 8, the transition will be smooth, from Schafersman '02. Our Disads are NOT inevitable in the Status Quo. The status quo will undergo a smooth, non-violent transition. A slow and smooth transition will occur in the status quo. This takes out their impact to the Peak.**

\_\_\_\_. **Schafersman is a qualified source. He's a professor of Geology at Miami – Ohio. He's clearly an expert in this field and superior to their sources.**

\_\_\_\_. **No economic crash. Central Banks have learned, they act to keep growth positive**

**Kerevan '04**

[George, The Scotsman, August 26, "They think It's Oil Over, But They are Wrong," 1/n]

HERE'S what happens next. The oil companies are now going to go on the rampage to find new oil sources. A decade from now, gallons of the black stuff will be coming out of our ears, and the price will plummet. Meantime, things may get a little rocky and economic belts will be tightened, but hopefully not quite so tightly as in the 1970s.

During the last oil crisis, central banks reacted the wrong way - they cut interest rates. A combination of cheap credit and soaring energy prices touched off massive inflation and consequent wage demands, killing profits and investment. The result was stagflation and unemployment.

Today, we've learned (I hope) to increase interest rates moderately, in line with fossil-fuel price rises, to kill inflation and maintain business confidence. That way, the length of the crisis is shortened and growth will be slower but not negative. You'll get to keep your job and your car.

**OFF #8: Transition will be Smooth**

\_\_\_\_. **Transition away from Oil will be smooth, not a crash. Previous transitions prove this.**

**Bailey '04**

(Ronald, Science Correspondent for Reason Magazine, Feb. 18, "Are We Out of Gas Yet?" Reason Online, <http://www.reason.com/rb/rb021804.shtml>)

If demand for oil begins to outstrip the supply, prices will rise, signaling companies and consumers to use less, develop new technologies, switch to other fuels, increase their insulation, and so forth. "Demand for energy is going to move away from heavy hydrocarbons," Lynch predicts. "Coal is first, oil is next." He expects that our old hydrocarbon friends will be replaced in our affection by natural gas, nuclear, and other forms of energy as those technologies improve. "It will be much like the transition in the 20th century from coal to oil in the residential heating and transportation sectors or like the transition from horses to cars," he says. The Oil Age will end, not with a horrific screech leading to a destructive crash, but with a barely perceptible, well-lubricated, smoothly braked halt, one that is merely a prelude to moving smoothly and rapidly forward again.



**Extension OFF #9: No Solvency: Plan only Domestic, Problem is Global****\_\_\_\_. China and India are growing consumers of imported Oil – Domestic Plan cannot solve****New York Times '05**

[by Keith Bradsher, "2 Big Appetites Take Seats at the Oil Table," February 18, <http://www.energybulletin.net/4427.html> download date: 2-21-05]

India, sharing a ravenous thirst for oil, has joined China in an increasingly naked grab at oil and natural gas fields that has the world's two most populous nations bidding up energy prices and racing against each other and global energy companies.

Energy economists in the West cannot help admiring the success of both China and India in kindling their industrialization furnaces. But they also cannot help worrying about what the effect will be on energy supplies as the 37 percent of the world's population that lives in these two countries rushes to catch up with Europe, the United States and Japan. And environmentalists worry about the effects on global warming from the two nations' plans to burn more fossil fuels.

With engineering expertise and equipment more available around the world, one result is that oil executives and drillers in remote spots increasingly speak Mandarin or Hindi, not English. Their newfound commercial confidants live in pariah states like Sudan and Myanmar, one sign that the political dynamics of the world oil market pose a difficult challenge for the Bush administration.

The prospect of China's consuming ever growing lakes of oil has been noted over the years, although it is gaining new urgency as Chinese consumption continues to soar. China's oil imports climbed by a third last year as its oil demand exceeded Japan's for the first time.

Now India is joining China in a stepped-up contest for energy, with both economies booming recently just as their oil production at home has sagged. China trails only the United States in energy consumption; India has moved into fourth place, behind Russia.

**Extensions Off #10: High Prices and High Economic Growth in SQ**

\_\_\_\_. **Extend number 10 from McKillop '05. There's NO INTERNAL LINK to their peak arguments. High Prices and High Global Economic Growth is occurring in the Status Quo and this trend will continue during the year. These two can occur at the same time.**

\_\_\_\_. **Cross-Apply this to the uniqueness to our Oil and Economy Disadvantages. This is an excellent card from a qualified source. He's the Director of the Asian Division of the International Association of Energy Economists.**

Extension OFF #12: Ultra-Deep Sources

    . **Extend Number 14 from the 1NC, Ultra-Deep Sources of oil can last another century, from Vialls '04. There's plenty of oil ready to be found if we just drill deeper wells. The Russian are already doing this. The affirmative has no counter-evidence on this issue.**

    . **Ultra-Deep Sources can meet our oil demand. Peak Oil claims are political decoys, designed to justify high prices for Wall Street and divert us from protesting against the government**

**Vialls '04**

[Joe, former deep oil well worker, August 25, <http://www.vialls.com/wecontrolamerica/peakoil.html> ]

If the opening paragraph of this report started by claiming that completely unlimited crude oil reserves exist inside planet earth, readers might be tempted to regard the entire text as preposterous ghostwriting for a novelist like Frederick Forsyth. If the report then went on to claim that the Russians have exploited this stunning reality for nearly thirty years, right under the largely unwitting noses of western intelligence, readers could be excused for mistaking the author for a lunatic, or perhaps as a front for spy novelist John le Carré. The problem here is that unlimited oil reserves do exist inside planet earth, and the Russians long ago developed the advanced technology necessary to recover these unlimited oil reserves in an efficient and timely manner.

Profoundly disturbing hard intelligence like this does not sit well with the frantic cries of western academic skills and lobbyists, determined to convince you all that the end of the oil world is nigh, or, more accurately, that America faces an imminent catastrophe when global production capacity "Peaks", i.e. when world demand for crude oil finally exceeds the rate at which we can physically pump the required product out of the ground. The gist of these false claims are outlined in a speech given at the at the University of Clausthal, by lobbyist Doctor Colin Campbell during December 2000:

"In summary, these are the main points that we have to grasp: Conventional [Free flowing] oil provides most of the oil produced today, and is responsible for about 95% of all oil that has been produced so far. It will continue to dominate supply for a long time to come. It is what matters most. Its discovery peaked in the 1960s. We now find one barrel for every four we consume. Middle East share of production is set to rise. The rest of the world peaked in 1997, and is therefore in terminal decline. World peak comes within about five years" [circa 12/2005]

Campbell is just the tip of a giant iceberg of academic Peak Oil 'experts' who suddenly appeared en-masse to give you this frightening news, right after President Saddam Hussein suddenly started trading his oil in Euros rather than in US Dollars, a devastating switch with the easy capacity to destroy the US Dollar in less than five years if it was left unchallenged and unchecked.

So these skills [decoys] were carefully positioned to deflect your attention away from the obvious greed and incompetence of the United States Government and its Wall Street masters, and focus it elsewhere instead. Then, hopefully, a few years later down the track when prices start to bounce through the roof, and America has no Euros to buy crude oil, you will blame gasoline prices of \$5.00+ per gallon at the pumps on an 'inevitable decline' in world oil production, rather than march furiously on Washington DC with locked and loaded firearms.

**Extension OFF #12: Ultra-Deep Sources**

**\_\_\_ . Ultra-Deep Sources have been proven true by the Russians over 300 times**

**Vialls '04**

[Joe, former deep oil well worker, August 25, <http://www.vialls.com/wecontrolamerica/peakoil.html> ]

The theory underlying how oil is formed at such enormous depths in the mantle of the earth is not central to this report, because the Russians have already proved its point of origin in absolute drilling terms more than 300 times. Those interested in the exact process should research the archives, where there are more than two hundred Russian papers on the subject. Probably a good place to start would be "The Role of Methane in the Formation of Mineral Fuels", written by by A.D. Bondar in 1967. What *is* central to this report is the massive advantage that Russia's ultra-deep drilling discoveries and technical achievements give it over the western nations.

## Extension OFF #12: Ultra-Deep Sources

\_\_\_\_. Vietnam's success with Ultra-Deep Wells proves that they work

Vialls '04

[Joe, former deep oil well worker, August 25, <http://www.vialls.com/wecontrolamerica/peakoil.html> ]

As we have already discovered, oil can be produced virtually anywhere on earth, provided the host country can afford the expensive [and sometimes classified] technology, and the massive cost of drilling a well to extreme depth through extremely hard rock formations. But just think what even 20 or 30 deep producing oil wells can mean for the people of a country that has no natural resources of its own, or worse still, for people who have been told by glib western lobbyists that they have no natural resources of their own. Anyone who can prove that the western nations were lying or simply wrong, will become a trusted friend forever. Vietnam is a classic example.

After more than 60 years of being enslaved, pillaged, and raped by the French and then by the Americans, the poor Vietnamese were told officially by American oil multinationals that their country was barren; that western 'cutting edge' technology had failed to find anything to help them recover financially from the mess left behind by American bombs, Agent Orange, and a host of other delightful gifts from Uncle Sam. This of course was exactly where America wanted the Vietnamese to be: desperately poor and unable to take action against their former invaders.

The Russians had other ideas and a very different approach. After telling the Vietnamese that the Americans had lied to them, oil experts were flown in from Moscow to prove this startling claim in a no-risk joint venture, meaning the Russians would provide all of the equipment and expertise free of charge, and only then take a percentage of the profits if oil was actually found and put into production. Vietnam had absolutely nothing to lose, and swiftly gave Russia the green light.

The Vietnamese White Tiger oil field was and is a raging success, currently producing high quality crude oil from basalt rock more than 17,000 feet below the surface of the earth, at 6,000 barrels per day per well. Through White Tiger, the Russians have assisted the Vietnamese to regain part of their self respect, while at the same time making them far less dependent on brutal western nations for food-aid handouts.

All of a sudden in a very small way, Vietnam has joined the exclusive club of oil producing nations, and a stream of cynical U.S. Senators and Congressmen have started making the long pilgrimage to Ho Chi Minh City in order to 'mend fences'. Predictably perhaps, the Vietnamese are very cool, and try hard to ignore their new American admirers.

**Extension OFF #13: Unconventional Sources = Abundant**

\_\_\_\_. **Extend number 13, unconventional oil is abundant in the Status Quo. The source is Schafersman, a professor of geology at Miami of Ohio. It's a great card from a highly qualified author.**

\_\_\_\_. **This is NOT a technology argument. No new technologies are needed. Status Quo techniques are sufficient to access these petroleum sources. That's in the Schafersman card.**

\_\_\_\_. **The tech is here and current prices justify extraction of Petroleum form non-conventional sources like Tar Sands in the Status Quo**

**Bloomberg '05**

[by Alejandro Barbajosa & Ian McKinnon, February 19, <http://www.energybulletin.net/4379.html> download date: 2-21-05]

Shell Canada Ltd. Chief Executive Officer Clive Mather says oil from his Athabasca project, where tar sands are boiled to produce crude, can cost twice as much as drilling in the North Sea. And it's worth every cent, he says.

"If we had access to unlimited conventional oil, I guess the interest in Athabasca would diminish quite quickly, but that isn't the case," Mather said in a Feb. 3 interview in London. "This is high-cost oil, there's no question about that. At current prices, it's still very good business."

A 15-year decline in oil reserves is spurring companies such as Royal Dutch/Shell Group, Exxon Mobil Corp. and ChevronTexaco Corp. to spend \$76 billion in the next decade to boost supplies of oil from tar sands and diesel fuel from Qatari natural gas. Oil executives say they have no choice but to try alternatives to drilling because there is not much more crude to be found in their current fields.

"We're damn close" to the peak in conventional oil production, Boone Pickens, who oversees more than \$1 billion in energy-related investments at his Dallas hedge fund firm, said in an interview in New York Feb. 16. "I think we're there." Suncor Energy Inc., the world's second-biggest oil-sands miner, is his largest holding.

New Production

Companies will produce 10.1 million barrels of oil a day by 2030 from projects in Canada and Qatar, more than Saudi Arabia does today, according to forecasts by the International Energy Agency in Paris. That's 8 percent of the world's total.

Shell is spending \$13.70 per barrel at its Athabasca project in Canada, higher than drilling projects, said Mather. Oil executives say that crude prices near \$45 a barrel more than offset the extra cost. Crude for March delivery today was little changed, trading at \$47.68 a barrel on the New York Mercantile Exchange at 9:30 a.m. London time.

The oil industry needs to spend \$3 trillion by 2030, or \$105 billion a year, to meet an expected surge in demand, the IEA estimates.

"Pressure on supply will become sufficient for more money to be put into non-conventional oil," said Peter Odell, an oil politics and economics professor emeritus at the Erasmus University in Rotterdam. "This is a natural development of a resource base from the lowest cost to the highest cost."

\_\_\_\_. **This also supports our 'Market Forces Solve' argument. Cross-Apply the 1NC #4 from Moffat '04**

**OFF #13: Unconventional Sources = Abundant**

**\_\_\_ . Unconventional Oil can supply the world for 500 years**

**Deming Associate Professor of Geophysics, Oklahoma, '03**

[David, Oct. 1, adjunct scholar with the National Center for Policy Analysis & Assoc. prof. of geology & geophysics @ OU,  
"Abundant Reserves Show Petroleum Age Is Just Beginning," Environment News, <http://www.heartland.org/Article.cfm?artId=12898>]

The world also contains immense amounts of unconventional oil resources that we have not yet begun to tap. Tar sands found in Canada and South America contain 600 billion barrels of oil, enough to supply the U.S. with 84 years of oil at the current consumption rate. Worldwide, the amount of oil that can be extracted from oil shales could be as much as 14,000 billion barrels--enough to supply the world for 500 years.

**OFF #13: Unconventional Sources = Abundant**

**\_\_\_ . Unconventional sources can supply lots of oil at with current technology at current price levels from places like Alberta**

**Shah '04**

[Sonia, author, "The end of oil? Guess Again," September 15,  
[http://www.salon.com/tech/feature/2004/09/15/no\\_end\\_to\\_oil/index.html](http://www.salon.com/tech/feature/2004/09/15/no_end_to_oil/index.html), download date: 2-21-05]

Transforming unreachable "unconventional" fossil fuel resources into exploitable "conventional" reserves using technology and government subsidies is another likely tactic, one that will place a heavy burden on fragile and underprotected ecosystems. Across the bleak landscape of Alberta, Canada, for example, is a huge stretch of sludge called "tar sands." Back in the 1960s, the technology to mine oil from tar sands, like the technology to extract oil from the Alaska tundra, or the churning North Sea, didn't exist. These resources were, therefore, untouchable. Slowly, the technology improved, the price of oil went up, and the Canadian government offered generous subsidies. Today, the price of extracting a barrel of oil from tar sands has fallen from around \$30 in the 1980s to around \$5, and in 2003, the Department of Energy redefined no fewer than 180 billion barrels of tar sands as "conventional oil," increasing their assessment of the global supply of oil by a whopping 15 percent. Overnight, Canada leapfrogged over Iraq to become the country with the second-biggest oil reserves in the world.

And yet, mining oil from tar sands burns up to a fifth of Canada's natural gas supply, emits no less than six times more carbon dioxide than producing a barrel of conventional oil, requires six times more fresh water than the oil it renders, and leaves behind vast, festering lakes of wastewater while Canadian farmers shiver and their livestock parch. The acid rain from today's tar-sands operations alone could destroy Alberta's forests. And this dirty, wasteful development could go on for decades. Experts say there are 2.5 trillion barrels of oil locked in tar sands, that is, more oil than in all of the world's conventional reserves. By 2030, Canadian officials expect tar-sands oil to sate no less than 15 percent of the United States' ravenous appetite for oil.



### Apocalyptic Rhetoric K Link

**Peak Oil Claims are just the current fad of Apocalyptic claims of Western intellectuals, and they are empirically false**

**Kerevan '04**

[George, The Scotsman, August 26, "They think It's Oil Over, But They are Wrong," 1/n]

THERE are few compensations from getting older, but one is how smug you feel when fashions come around again the second or third time. For instance, in Monday's Guardian, the current leader of the Apocalypse Cult, George Monbiot, was explaining that the world is about to run out of oil and so we'd be better off living in wattle huts without electricity, in order to escape the coming energy famine. Mr Monbiot is a fashionable "environmentalist" who frequently crops up in lists of Britain's brainiest people.

But we have been here before, or at least I have. Several times in fact. I'm old enough to remember the last big oil crisis in the 1970s, when the price of petroleum was nearly twice what it is now in real terms.

At that time, previous leaders of the Apocalypse Cult were sagely informing us that fossil fuels would run out before the end of the 20th century and civilisation would revert to the Stone Age. These folk also figured on lists of the top intellectuals.

I even survived the seriously scary Cuban missile crisis of 1962, when the world really did look as if it might end in a puff of smoke.

The conclusion I have drawn from all this is that many dysfunctional western intellectuals get off on the notion of The End of the World. It certainly grabs the attention, sells books and when the sun goes on rising (as it does) you can always claim that it was your dire warnings that saved the day. It's only balding oldies like me who snigger and say we've heard all this before, so can we please get down to the mundane task of solving real problems?

**AT: INTENTIONAL OPEC PRICE SHOCK**

\_\_\_\_. **OPEC cannot and will not cause a Price Shock. They want moderate and stable prices.**

**Applebaum 2K**

[Anne, member of the editorial board of the *Washington Post*. Her book *Gulag: A History* won the 2004 Pulitzer Prize for General Nonfiction, "Who's Enjoying the Energy Crisis? Hint: It's not OPEC," September 13, <http://slate.msn.com/id/89540> ]

In short, the "coming oil crisis," as the American media refer to it, has already arrived over here in Europe, bringing with it a wave of 1970s nostalgia: the gasoline lines, the specter of inflation, the fond memories of the Carter administration (remember those peanut cartoons?), the return to currency of old-fashioned words like "recession." But before everyone gets all weepy and starts humming Bee Gees tunes, it might be worth looking at how different, this time around, the international impact of the apparently unstoppable rise in oil prices is going to be. None of the villains is going to be quite the same—and none of the victims either.

Look, for example, at the relatively understanding attitude toward the Old Villains: If the Gulf Arabs were the prime focus of angst and anger last time around, this time they won't be, or anyway not to the same extent. It's a different OPEC we're dealing with these days, post-Desert Storm: less dominant of the oil market, more open (it even has [Web site](#)) anxious not to hurt its biggest buyers too much. As far back as last February, Saudi Arabia issued a joint statement with U.S. Energy Secretary Bill Richardson, agreeing that "price volatility in world oil markets is detrimental to both producing and consuming nations" and promising to "avoid harming the world economy." Nor is it so clear that high prices are its fault, given that on Monday OPEC agreed to raise its output by 800,000 barrels a day—and in response, unimpressed markets pushed the price of crude up further.

**\_\_\_\_. OPEC will act to maintain current prices. Oil Prices are high.****A.F.P. 2-22-05**

["New York oil prices leap above 51 dollars as cold weather bites US, Europe," down load date: 2-24-05,  
[http://news.yahoo.com/news?tmpl=story&u=/afp/20050222/bs\\_afp/oilprice\\_050222210104](http://news.yahoo.com/news?tmpl=story&u=/afp/20050222/bs_afp/oilprice_050222210104)]

World oil prices rocketed to three-month highs as a cold snap gripped the northeast United States and parts of Europe and as OPEC's president said there was no need for the oil cartel to cut production, traders said.

New York's main contract, light sweet crude for delivery in March, surged 2.80 dollars to close at 51.15 dollars a barrel, the first time it has breached the 50-dollar mark since November.

The April contract -- which replaces the expired March contract Wednesday -- spiked 2.14 dollars to also close at 51.15 dollars a barrel.

Oil had not traded in New York since Friday because of the Presidents' Day holiday.

In London, the price of Brent North Sea crude oil for delivery in April closed up 1.89 dollars at 48.62 dollars a barrel, also reaching a three-month high point.

"The market realizes that demand will remain strong in the second quarter and will not weaken as it usually does," said

Jamal Qureshi, an oil market analyst at PFC Energy.

He said that a late winter chill had also spurred prices higher.

"It's snowing in New York. The traders are very excited," said Deutsche Bank analyst Adam Sieminski.

"The weather is not permanent and we are actually through the worst aspect of winter (in the US) already so I suspect that we will see things easing down a little bit," Sieminski said.

European temperatures are expected to be colder than normal for the coming week, although temperatures in the northeast United States -- a big consumer of heating oil -- were set to recover following a chilly weekend snap, according to weather forecasters.

"What we need is to see further build in inventories and maybe (we) will find that out this Thursday" when the Department of Energy ([news](#) - [web sites](#)) publishes its weekly snapshot of US crude inventories, Sieminski added.

The market focus could shift towards heating fuel stocks, analysts noted.

"Seeing snowflakes outside has caused a knee-jerk reaction and traders are again buying winter heating fuels," Williams de Broe analyst Richard Griffin said.

Separately, Organization of Petroleum Exporting Countries president and Kuwait's energy minister, Sheikh Ahmad Fahd al-Sabah, said Tuesday there was no need for the oil cartel to cut output at present, but that the market must be monitored carefully.

"Until now, we don't have to cut. Until now, the price is very high and we have to respect this price and cooperate with others for the stability of the market," the minister told reporters in parliament.

Asked if he supported the idea of a production cut at an upcoming meeting in Isfahan, Iran, on March 16, Sheikh Ahmad said that if prices remain at the current level, the same OPEC ceiling will be maintained.

"All signals show that there will be a good demand in the second quarter... With the prices now, I don't think there is a reason we will cut.

"If the demand will continue in the second quarter, especially from China and other Asian countries, then we don't have to cut because the oversupply will go for new demand," he said.

The OPEC president's remarks also helped underwrite the price gains.

**AT: Oil Price Shocks**

**\_\_\_ . China and India have strategic petroleum reserves. They will release to bring prices back to normal**

**Pfieffer '04**

[Dale Allen, From the Wilderness Publications, December 29, <http://www.energybulletin.net/3792.html>, download date: 2-21-05]

Increasing demand in China and India might also keep prices strong. Both countries are building strategic petroleum reserves. The additional demand of filling these reserves could account for all new production this year, driving prices higher. However, if prices climb high enough, these countries will likely suspend purchases for their strategic reserves, and might even open their reserves to help bring the price back down.

**↓ Imports ≠ ↓ Price Shocks****Cutting Demand DOES NOT prevent Price Shocks****Chapman '04**

[Steve, columnist, Chicago Tribune, "Tilting at Windmills: What's All Wrong with 'energy independence.'" February 6, <http://slate.msn.com/id/2095053> download date: 2-19-05]

But the value of cutting fossil-fuel use shouldn't be oversold. Even a substantial reduction might have little effect on our imports. Since foreigners would still be the lower-cost producers, the drop in demand might come mostly at the expense of domestic suppliers. In any case, cutting demand by a given amount won't mean an identical drop in imports. Nor would it necessarily bring relief from high prices. As Brookings Institution energy specialist Pietro Nivola notes, the United States uses only about a quarter of the world's oil, and even heroic measures that cut the figure to 20 percent could easily be overwhelmed by rising demand in the developing world, particularly China. Would OPEC suffer? "Very, very marginally," says Nivola. Reduced demand might slightly lower the cost of a barrel of oil, but for price volatility it offers no protection at all. Because oil trades in a global market, we'll see prices gyrate in response to uncontrollable events abroad whether we import 100 percent of our supplies or 0 percent. When a freeze damages the citrus crop, people pay more for orange juice in Miami as well as Milwaukee.

**↓ Domestic Demand ≠ ↓ Oil Imports**

**No Solvency: Cutting domestic consumption WILL NOT decrease Imports**

**Chapman '04**

[Steve, columnist, Chicago Tribune, "Tilting at Windmills: What's All Wrong with 'energy independence.'" February 6, <http://slate.msn.com/id/2095053> download date: 2-19-05]

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↓ Domestic Demand ≠ ↓ PRICES

**No internal link: Rising Global demand keeps prices high. Cutting domestic consumption WILL NOT lower oil prices**

**Chapman '04**

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## AT:Peak Oil crushes 'Big Oil' Companies

### \_\_\_ . Big Oil Companies will survive, become even more aggressive as the Peak nears

#### Shah '04

[Sonia, author, "The end of oil? Guess Again," September 15,  
[http://www.salon.com/tech/feature/2004/09/15/no\\_end\\_to\\_oil/index.html](http://www.salon.com/tech/feature/2004/09/15/no_end_to_oil/index.html), download date: 2-21-05]

Are we "out of gas"? Is it the "end of oil," as the titles of two recent books suggest? Environmentalists and human rights advocates everywhere might breathe a sigh of relief, if so! Now, finally, we can move on from rapacious, climate-clogging, Nigerian-and-Colombian-slaughtering hydrocarbons to something better. Big Oil is going down! Right?

If only.

Keep in mind that the \$2 trillion oil industry is well-practiced at rising miraculously from the dead. In 1879, the light bulb was invented, in a stroke destroying the entire market for oil, which was premised on supplying kerosene lamps. In 1909, the world's first Big Oil company, Standard Oil, was beheaded. In 1960, OPEC was formed and oil companies were effectively shut out of more than half the world's known oil reserves. In 1997, the Kyoto Protocol threatened to permanently curb global oil consumption. Now, in 2004, so many people want so much oil that it seems there just isn't going to be enough. Demand is overtaking supply.

But is it?

True, from the perspective of the Big Oil companies, all the good stuff -- the kind of oil that makes itself known by conveniently appearing in puddles at the surface, generously spurting out of the ground under its own pressure, and politely declining multibillion-dollar state interventions for security -- is gone. But this, arguably, has been true since the early 1970s, when the flow of oil from stable, homey places like Texas and Oklahoma sputtered out.

Since then, Western oil companies have been successfully drilling for oil in progressively more hostile, unforgiving places, from the deeply frozen tundra of the north slope of Alaska and the densely populated swamps of the Niger delta, to the stormy North Sea and thousands of feet under the shifting waters of the Gulf of Mexico. And each foray has left broken communities and ecosystems in its wake.

Big Oil's quest to survive in the age of diminishing oil reserves will likely intensify the trend.

Although the big oil companies could easily ramp up their solar and wind power divisions in preparation for the end of oil -- for the cost of a single leg of a drilling rig, for instance, oil companies could build a solar-cell manufacturing plant that would make the price of solar power competitive with coal -- the evidence suggests they have quite different plans in mind.



**↓ Oil Consumption ≠ ↓ Terrorism**

**No Solvency: Al-Qaeda and other groups will still hate the United States, will still wish to launch attacks.**

**No Solvency: Oil is not only reason for attacks. Israel, India, Spain, and many other countries experience attacks but they have no oil.**

**No Solvency: Terrorists will just SHIFT to other economic targets like tourism – Bali proves**

**Garden, Center for Defense Studies, King's College, '03**

[Sir Timothy,, Former Assistant Chief of UK Defense Staff, Oct 24, Lecture to the International Energy Advisory Council (IEAC), <http://www.tgarden.demon.co.uk/writings/articles/2003/031024ieac.html>]

**Of course energy is only one of the possible targets for terrorists. The killing in Bali shows that other economic targets (in this case tourism) are options for the terrorist.** This makes the problem of prevention and intelligence both more important and more difficult.

**OIL PRICES HIGH/INCREASING in SQ**

(note: this card is already in the 'Peak Oil Answers' INC frontline)

**Oil Prices and global economic growth are high and will remain high in the Status Quo. This continues a five-year trend of high prices and high growth.**

**McKillop, International Association of Energy Economists, '05**

[Andrew, Founder and Member of the Asian Chapter of the IAEE, "Why Oil prices are barreling up," February 16, *Asia Times*, <http://www.energybulletin.net/4370.html> download date: 2-12-05]

In the past week, oil prices have regained about US\$3 a barrel after hitting a low of \$45. Apart from the perennial US weather factor, positive sentiment was reinforced by IEA (International Energy Agency) data revising previous forecasts for world oil demand growth in 2005 by 80,000 barrels per day, or 0.08 million barrels/day (mbd), to the suspiciously modest figure of 1.52 mbd.

This is hard to fathom because the IEA also raised its final estimate of world demand growth in 2004 to 2.68 mbd. In percentage terms, growth in 2004 was very close to 4%, the highest for over 25 years. This number conflicts with forward planning ideas and beliefs of the IEA and other energy players - especially the world's 10 biggest oil corporations. None of these players plan for demand growth beyond 1.75% per year. Some, such as BP and ENI, still claim that the "normal" long-term growth is about 1.3% per year.

On the consumer side, to back the notion of slow growth being a fixed paradigm, oil users are everywhere thought to show "price elastic" response to higher prices. That is, they cut their consumption as prices rise. On the supply side, the same high prices are expected to bring new and big suppliers into the market. If this does not happen, we have an oil crisis. This pre-crisis context is directly reflected in the market by rising volatility on a longer-term upward price profile. The IEA forecast of growth in 2005 dropping about 42% against 2004 is, we can surmise, purely wishful thinking.

The Organization of Petroleum Exporting Countries (OPEC) is usually wheeled into the pricing melee by saying it will now "defend" \$40/barrel, after waiting until December 2004 to say it was no longer "defending" a price range of \$22-28/barrel. But the question is: what spare capacity does OPEC really have? This raises the key question as to what exactly OPEC's current 11 members (OPEC-11) produce and export. Using data from the Oil & Gas Journal on world daily average production in 2004 and 2003, only Iran, Qatar, Kuwait and Saudi Arabia are credited with production hikes of over 3% in 2004, excluding the very special case of Iraq. For Oil & Gas Journal, there was a 55% increase in Iraq's daily average production to about 2.05 mbd in 2004, while EIA (Energy Information Administration) and the DoE (Department of Energy) figures give about 1.55 mbd, almost identical to the 2003 average output. BP places Iraq's 2003 production at a daily average of 1.33 mbd. This is exactly half the growth in world daily average oil demand in January-December 2004.

Any production numbers for OPEC are subject to the key question: net or gross? Iraq, for example, has soon recovered pre-war domestic oil demand of about 0.65 mbd despite shattered economic infrastructure and 60% unemployment. US occupation forces in Iraq are credited with about 0.35 mbd demand. During the economic reconstruction phase that may now be about to start, Iraq's domestic demand will certainly increase rapidly. Normal economic development in oil producer countries is of course oriented to energy-intensive activities. Saudi Arabia's domestic oil demand in 2004, according to BP, increased by 5.5%, much more than its 3.2% hike in daily average oil production. Kuwait's domestic oil demand, again according to BP, has been growing at over 10%/year of late (19.8% in 2003), dwarfing all increases of its national oil production.

This pattern of domestic demand increasing much faster than production is common to more than nine out of 10 oil producers, both OPEC and non-OPEC. Net exports, therefore, will always tend to grow slower than national production. Conversely, world oil import demand is significantly higher than consumption demand. In 2004, for example, world oil demand rose 2.68 mbd, but import demand growth was about 3.1 mbd.

This is related to the question of actual declines in production. For the majority of non-OPEC producers - in fact nearly all, except Russia and some Central Asian producers - rates of decline are stubbornly high despite much-vaunted technology improvements. Where the producers are also net importers (as in most cases), declining home production raises their import demand. Take the Organization for Economic Cooperation and Development's three largest producers: the US, Norway and the United Kingdom. These are losing oil output capacity at about 4% to 5.5% per year. In the case of Norway and the UK, these rates are certain to increase sharply, despite any conceivable technology upgrade through simple geological limits. In the case of China and India, annual declines in national oil production are also tending to rise while domestic consumption grows at 5%-9% a year.

One of the biggest problems facing the IEA, the EIA and a host of analysts and "experts" who claim that "high prices cut demand" either directly or by dampening economic growth is that this does not happen in the real world. Since early 1999, oil prices have risen about 350%. Oil demand growth in 2004 at nearly 4% was the highest in 25 years. These are simple facts that clearly conflict with received notions about "price elasticity". World oil demand, for a host of easily-described reasons, tends to be bolstered by "high" oil and gas prices until and unless "extreme" prices are attained. This is the real fundamental, on the demand side.

## Oil Prices High in SQ

**\_\_\_ . Oil Prices are high and steady. OPEC will act to maintain current price levels, Demand will continue to be high**

**A.F.P. '05**

[Agence France Presse, February 22, "New York oil prices leap above 51 dollars as cold weather bites US, Europe,"  
down load date: 2-24-05, [http://news.yahoo.com/news?tmpl=story&u=afp/20050222/bs\\_afp/oilprice\\_050222210104](http://news.yahoo.com/news?tmpl=story&u=afp/20050222/bs_afp/oilprice_050222210104) ]

World oil prices rocketed to three-month highs as a cold snap gripped the northeast United States and parts of Europe and as OPEC's president said there was no need for the oil cartel to cut production, traders said.

New York's main contract, light sweet crude for delivery in March, surged 2.80 dollars to close at 51.15 dollars a barrel, the first time it has breached the 50-dollar mark since November.

The April contract -- which replaces the expired March contract Wednesday -- spiked 2.14 dollars to also close at 51.15 dollars a barrel.

Oil had not traded in New York since Friday because of the Presidents' Day holiday.

In London, the price of Brent North Sea crude oil for delivery in April closed up 1.89 dollars at 48.62 dollars a barrel, also reaching a three-month high point.

"The market realizes that demand will remain strong in the second quarter and will not weaken as it usually does," said

Jamal Qureshi, an oil market analyst at PFC Energy.

He said that a late winter chill had also spurred prices higher.

"It's snowing in New York. The traders are very excited," said Deutsche Bank analyst Adam Sieminski.

"The weather is not permanent and we are actually through the worst aspect of winter (in the US) already so I suspect that we will see things easing down a little bit," Sieminski said.

European temperatures are expected to be colder than normal for the coming week, although temperatures in the northeast United States -- a big consumer of heating oil -- were set to recover following a chilly weekend snap, according to weather forecasters.

"What we need is to see further build in inventories and maybe (we) will find that out this Thursday" when the Department of Energy ([news](#) - [web sites](#)) publishes its weekly snapshot of US crude inventories, Sieminski added.

The market focus could shift towards heating fuel stocks, analysts noted.

"Seeing snowflakes outside has caused a knee-jerk reaction and traders are again buying winter heating fuels," Williams de Broe analyst Richard Griffin said.

Separately, Organization of Petroleum Exporting Countries president and Kuwait's energy minister, Sheikh Ahmad Fahd al-Sabah, said Tuesday there was no need for the oil cartel to cut output at present, but that the market must be monitored carefully.

"Until now, we don't have to cut. Until now, the price is very high and we have to respect this price and cooperate with others for the stability of the market," the minister told reporters in parliament.

Asked if he supported the idea of a production cut at an upcoming meeting in Isfahan, Iran, on March 16, Sheikh Ahmad said that if prices remain at the current level, the same OPEC ceiling will be maintained.

"All signals show that there will be a good demand in the second quarter... With the prices now, I don't think there is a reason we will cut.

"If the demand will continue in the second quarter, especially from China and other Asian countries, then we don't have to cut because the oversupply will go for new demand," he said.

The OPEC president's remarks also helped underwrite the price gains.

**No Internal Link: Weather Fluctuations Irrelevant**

**\_\_\_ . Weather fluctuations don't impress the Bulls on Wall Street**

**CBS Marketwatch '05**

[by Peter Brimelow, "Oil bulls shrug off winter discontent," February 14, <http://www.energybulletin.net/4326.html> ]

The oil bulls aren't impressed by most current market chatter -- perhaps unsurprisingly, since the mild winter has been a problem for them.

Gray Cardiff wrote in the most recent issue of Sound Advice: "Energy stocks continue to prosper as short-term traders try to outsmart each other by pushing energy prices higher and then lower depending on what the weatherman might say next ... It is nothing but noise unless you expect Antarctica to turn tropical or Hawaii to freeze over permanently ... Buy on fundamentals, not transient circumstances dictated by Mother Nature."