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FROM THE WILDERNESS

A Nonpartisan, Non-sectarian, MAP from the Here That Is, Into the Tomorrow of Our Own Making

Vol. VI, No. 3 **June 29, 2003**

- **Bush Advisor Matt Simmons Who Advised Cheney's Energy Task Force Confirms Peak Oil is Major Concern of Bush Administration**
- **Peak Oil Symptoms More Apparent**
- **Recoverable Reserves May Be Less Than Hoped**
- **Natural Gas Shortages May Appear in US This Year**
- **Hydrogen Vastly Overrated and Not Likely to Offer Solution**

Paris Peak Oil Conference Reveals Deepening Crisis

Revised June 9th, 2003. We would like to thank Professor Aleklett of the University of Uppsala in Sweden for correcting our error in his distribution of champagne bottle to represent the remaining oil distribution on the planet.

May 30, 2003, 1800 PDT, (FTW), PARIS – Research presented on May 26th and 27th at the French Institute for Petroleum (IFP) by a wide variety of experts from varying and often competitive perspectives disclosed that, in the year since the first conference of the Association for the Study of Peak Oil (ASPO) supply, constraints have worsened and the realities of energy depletion are becoming more apparent. A year of violent political history centered on oil and ever-more unforgiving production results have begun to force reluctant political and economic acknowledgement of Peak Oil's threat to civilization. Yet ASPO's founder, Professor Colin Campbell, and his colleagues, retired TotalFinaElf Exploration Manager, Jean Laherrère, and Physics Professor, Kjell Aleklett, have good reason to be pleased with the second-ever ASPO conference. Two hundred people from more than twenty countries attended this year, doubling attendance for the inaugural event held last May in Uppsala, Sweden. In an acknowledgement of Peak Oil's penetration of official consciousness, the event was partially subsidized by the French Institute for Petroleum, the oil services firm Schlumberger, and the French oil giant, Total. The fact that it was held at a government institution was, according to Campbell, evidence of the fact that Peak Oil can no longer be completely ignored, even by politicians.
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FTW BREAKS 100K FOR 12 CITY AD RUN!

June 11, 2003, 1200 Noon PDT, (FTW) -- With the receipt of checks for $7,000, $5,000 and $2,000, ***FTW*** on Monday, June 16, passed the $100,000 goal to run its hugely popular, full-page, *Washington Post* ad in the twelve largest papers in the country.

"In the twenty-eight days from May 21st until today, June17th, 1,879 people donated $113,708 to see The Washington Post ad run in twelve major cities," said ***FTW*** Publisher/Editor Mike Ruppert. Donations came from fifteen countries with a full fifteen per cent of the total coming from Canadians who recognize that until the United States changes internally, the rest of the world will continue to experience economic and political repression, erosion of civil liberties, and exploitation of their natural resources. Other countries whose citizens contributed to seeing the ***FTW*** ad run included Japan, Australia, South Africa, France, Britain, Germany, and Switzerland. The average donation was $61 but there were several large donations at key moments.

"We realized that we were going to go over the top when one woman from Chico, California, called us on Thursday, June 12, and asked how close we were to the $100,000 goal. At that point we were just over seven thousand away and she said, 'We're going to the bank tomorrow and get a certified check. Run the ad,' Ruppert said. "And on top of that we got checks for two thousand and five thousand yesterday along with another thirty smaller donations which brought us to $113,000." All funds have been deposited in an escrow account with the L.A.-based ad agency handling the campaign.

The twelve city campaign, handled by the More Than News agency, was to have included the following papers with a readership of more than forty million:

The *Atlanta Journal Constitution*
The *Boston Globe*
The *Chicago Tribune*
The *Dallas Morning News*
The *Los Angeles Times*
The *Miami Herald*
The *New York Times*
The *Philadelphia Inquirer*
The *San Francisco Chronicle*
The *Seattle Times*
The *Minneapolis Tribune*
The *Arizona Republic*

Recent developments indicate, however, that one or more of these major papers may refuse or resist running the ad which should have had little resistance because of its prior acceptance by The *Washington Post*. But this has not deterred the More Than News' director and founder, Ken Levine, who masterfully employed negotiating skills ***(continued on page 17)***

From The Wilderness

Michael C. Ruppert
Publisher/Editor

Contributing Editor---------- Peter Dale Scott, Ph.D.
Contributing Editor – Energy ---------- Dale Allen Pfeiffer
Office of Public Affairs---------- Michael Leon

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From The Wilderness
P.O. Box 6061- 350, Sherman Oaks, CA 91413
www.copvcia.com
editorial: editor@copvcia.com
subscriptions and customer service:
service@copvcia.com

(818) 788-8791 * (818) 981-2847 fax

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Nine Critical Questions to Ask About Alternative Energy

May 27, 2003, 1400 PDT (*FTW*) -- Before we instantly accept alternative energy lifeboats that will let us keep our current lifestyles, don't you think it wise to see if they float?

Here are nine questions that you must ask of yourself, and anyone who claims that they have found a perfect alternative to oil. After answering these questions, you may have a better idea about whether you want to jump (or throw your family) into something that might sink in short order.

Deluding yourself that the energy problem has been solved only guarantees that the crisis will hit you and the planet much harder in the end.

The end of the Age of Oil is a life and death game. Can you afford to be cavalier about it? Do not think of prudent, but ultimately, temporary steps that should be taken to soften the blow as solutions.

These questions have been arranged by order of importance and by the order in which they will enable you to quickly evaluate an alternative energy source. If you can't get the right answer to the first one, you need not go any further.

After answering all nine questions, you will see - from a scientific place, rather than an emotional one - that there is no effective replacement for what hydrocarbon energy provides today.

1. How Much Energy is Returned for the Energy Invested (EROEI)?

Have all energy costs been taken into account? This is where too many alternative energy sources fall flat after the simplest examination.

Commercial hydrogen offers one clear example of how it takes more energy to produce the fuel than can be obtained from burning it. The current feedstock from which hydrogen is produced is natural gas. The natural gas is then treated with steam. Steam is water that is boiled using more natural gas, oil, or coal, either in the form of direct fuel or to generate electricity which is used to boil the water. Common sense dictates that this cannot be a solution because it still relies on fossil fuels.

Converting water to hydrogen is done through electrolysis. Scientist David Pimentel has established that it takes 1.3 billion kWh (Kilowatt hours) of electricity to produce the equivalent of 1 billion kWh of hydrogen. (*BioScience*, Vol. 44, No. 8, September 1994.)

Even a small positive EROEI, if obtainable, is not a solution because fossil fuels on the whole return many times the energy invested, not just a fraction. That's why we use them.

Ethanol is another case in point. Some research has shown a negative EROEI for ethanol. Newer research from Oregon shows a slightly positive return. Ethanol is, at best, a slightly beneficial temporary alternative - not a substitute.

Claims that cars can run on vegetable oil never take into account the amount of energy necessary to generate the vegetable oil (farming, vegetable transport, extraction, etc.).

Devices that recycle plastic into oil don't mention the fact that plastic *is* oil, and that a great deal of energy was used to make it into plastic in the first place.

Similarly, the new technology of thermal depolymerization is not a legitimate alternative energy source. This process transforms carbon-based wastes back into hydrocarbon fuel. This technology is useful, and may help us on the downside of the Hubbert curve, but it will never replace fossil fuels. Why? Because the wastes were produced by the use of fossil fuels.

Even using turkey offal, one must account for 1) the feed, 2) what fertilized the feed (natural gas), 3) how the feed was planted, 4) harvested, 5) irrigated (oil and gas), and 5) how the turkey got to market (oil). Thermal depolymerization should be more properly viewed as a form of recycling. But this process will never have the net energy of the original fossil fuels. As fossil fuels dwindle, so will the source material.

Any alternative energy source claiming to be a solution to the coming oil and gas shortages must have documented "open book" EROEI policies. If it doesn't, then it has something to hide.

2. Have the claims been verified by an independent third party?

In real life, it is called "the proof is in the pudding." In scientific circles, it is called peer review, and it usually involves having your research published in a peer-reviewed journal. It is an often-frustrating process, but peer-reviewed articles ensure the validity of science.

When assessing the validity of an alternative energy source, look for articles published in peer- reviewed scientific journals, or critiques authored by scientists or engineers trained in the field of study. Ultimately, this is the only way to validate claims.

An inventor may insist that he/she has been shunned by the scientific community, or state that there is a conspiracy within the scientific community against his/her ideas. That is just too bad. Don't succumb out of sympathy or wishful thinking.

FTW's research has been suppressed but all we have ever asked for is a fair and open review of the evidence. This is the first test of credibility.

The ultimate proof is in a working demonstration, outside of the control of the person selling the idea, so that the results can be verified by a person or body with no financial interest in the outcome.

3. Can I see the alternative energy being used?

Be very careful here. Seeing is not always believing. There are many cases of con men with engines that only appear to run on alternative energy. There are also more than a few legitimate inventors who think they are running a legitimate experiment.

Even if the inventor does produce an engine that runs on alternative energy, don't sign on until the next question is answered very clearly.

4. Can you trace it back to the original energy source?

There are only four original sources of energy on this planet: the sun, gravitational forces, earth's interior, or nuclear power. All energy derived from organic sources can be traced back to sunlight. It is the same for renewable energy sources like solar and wind. Gravitational forces generate hydroelectric power and tidal power. Geothermal power is generated from the earth's interior. The earth's interior is hot due to the residual heat generated from the accretion of the planet and the heat of trace radioactive minerals. This internal heat powers all of the earth's tectonic processes. Nuclear energy is generated from either the breakdown of unstable elements (in the case of fission) or the fusing of two elements into one (in the case of fusion).

If an inventor claims an original source of energy other than these four, or if no original source of energy is apparent, treat the invention with skepticism. He or she may be the next Galileo giving us scalar energy, and upsetting the known laws of the universe, but the invention must still be proven, demonstrated, checked, and most importantly, made available.

One cannot eat a picture of a hamburger. One can only eat the hamburger itself.

5. Does the invention defy the Laws of Thermodynamics?

Most of the other questions in this list can be tied up into this one question: does the invention defy the Laws of Thermodynamics? If the answer is yes, then something is wrong.

What are the Laws of Thermodynamics?

- *1st Law*—Energy can be changed from one form to another, but it cannot be created or destroyed. The total amount of energy in the universe remains constant, merely changing from one form to another.
- *2nd Law*—In all energy exchanges, if no energy enters or leaves the system, the potential energy of the state will always be less than that of the initial state. This is also known as the law of entropy.
- *3rd Law*—It is impossible to cool a body to absolute zero by any finite process. This is actually more of a postulate than a law. In any case, it has little application to our discussion and is presented here merely for thoroughness.

Scientist and author C.P. Snow developed a very simple and memorable way to remember the three laws:

- You cannot win (that is, you cannot get something for nothing, because matter and energy are conserved).
- You cannot break even (you cannot return to the same energy state, because there is always an increase in disorder; entropy always increases).
- You cannot get out of the game (because absolute zero is unattainable).

6. Does the inventor make extravagant claims?

Does the inventor claim that his/her invention will generate, for instance, more energy in one liter than a barrel of oil? Will this invention run on anything? Did "extra-terrestrials" give the promoter the plan for this invention? Will this invention "replace all other energy sources currently utilized by human civilization"?

Claims like these are signals that the invention should be treated with great skepticism.

7. Does the inventor claim zero pollution?

There is no method of generating energy from a source that does not produce some form of waste (pollution). Even wind and solar create waste as a result of the construction of wind turbines and solar cells (albeit comparatively little waste generated in the initial construction phase). Hydrogen fuel cells create waste when the hydrogen is generated, though it is commonly claimed that they produce nothing but water. The waste is simply moved out of sight to a hydrogen generating plant. Hydrogen fuel cells depend on fossil fuels to generate the free hydrogen, so they create all the pollutants of burning hydrocarbons; they simply move them away from the vehicles to a centralized generating plant. Likewise, horses also produce waste; just ask anyone who has ever mucked a stable.

8. Can I see blueprints, schematics or a chemical analysis of how it works?

It will likely take some technical training to read blueprints or review a chemical analysis. However, the fact that an inventor would even present such material for review might be a sign that his/her motives are pure.

Or it might simply be a prop in a very elaborate ruse.

9. Infrastructure Requirements -- Does the energy source require a corporation to produce it? How will it be transported and used? Will it require new engines, pipelines, and filling stations? What will these cost? Who will pay for them and with what? How long will it take to build them?

While these questions do not tell you if the alternative energy source is legitimate, they will tell you how practical it can be for you. If the process is complicated, requiring specially trained technicians, sophisticated machinery, and elaborate processing, then major corporations and/or governments will likely control it. This will leave you with very little say in the matter. You will simply remain a consumer paying your bill, or a stockholder collecting your premiums.

Nuclear fast breeders have excellent net energy profiles, even better than fossil fuels. But if they are ever perfected, you can bet that you won't be able to build one in your garage. They will be owned and managed by corporations. The waste is dangerous and there isn't enough uranium to supply the world's energy needs anyway - not with an exploding population.

A 1999 University of California study revealed that more than 3,000 gallons of gaseous hydrogen is necessary to produce the same energy as a gallon of gasoline. (http://darwin.bio.uci.edu/~sustain/global/sensem/Forrest98.htm). Compressed hydrogen is highly explosive. Liquid hydrogen comes close to equaling gasoline's energy but it is so cold, it fractures the metals used in fuel systems. Where will people get hydrogen? And if one relies on a zero-point technology to make it, how much energy will be returned and where will the new engines come from?

There are a few technologies that do offer useful net energy profiles (while not approaching fossil fuels), and are available for home use. Windmills, passive solar (solar heating) and paddle wheels are examples of such technology. Methane processing of farm wastes has received some attention (particularly in traditional Asian cultures), but it generally involves some advanced machinery and is potentially dangerous because methane is so highly combustible.

An answer to the problem of energy depletion lies not in developing new energy sources so that we may continue our destructive, consumer lifestyles. Rather, the answer lies in developing new lifestyles that strive toward self-sufficiency and sustainability.

Sources for this sort of information abound on the Internet and elsewhere. Back copies of *Mother Earth News* are packed with designs for energy efficient homes and organic gardening tips. Likewise, the *Whole Earth Catalogue* carries a wealth of sources, depending on which ones are still open for business. On the Internet, a Google search for sustainable communities or permaculture is a good place to start. I recommend Ted Trainer's The Simpler Way website http://www.arts.unsw.edu.au/tsw/. I won't claim that Ted has the entire answer, but it makes a good place to start.

Finally, we must all learn that there is no hope for any of us outside of a community. We must learn to work with our neighbors in developing sustainable alternatives. This is very difficult for Americans brought up on rugged individualism and competition. However, this is how our ancestors, the first settlers of this country, were able to survive and thrive. It is also how the Native Americans before them survived.

Just maybe, along the way, we can discover a quality of life that we have been missing, and fill the void that we have been attempting to fill with exploitive consumerism.

FTW Exclusive! The World Since 9/11

Revealing Statements from a Bush Insider about Peak Oil and Natural Gas Depletion

Published June 12, 2003

> *The uh, I think basically that now, that peaking of oil will never be accurately predicted until after the fact. But the event will occur, and my analysis is leaning me more by the month, the worry that peaking is at hand, not years away. If it turns out I'm wrong, then I'm wrong. But if I'm right, the unforeseen consequences are devastating.*
>
> *But unfortunately the world has no Plan B if I'm right. The facts are too serious to ignore. Sadly the pessimist-optimist debate started too late. The Club of Rome humanists were right to raise the 'Limits to Growth' issues in the late 1960's. When they raised these issues they were actually talking about a time frame of 2050 to 2070. Then time was on the side of preparing Plan B. They, like Dr. Hubbert, got to be seen as Chicken Little or the Boy Who Cried Wolf...* – Investment Banker Matthew Simmons

[Matthew Simmons has been a key advisor to the Bush Administration, Vice President Cheney's 2001 Energy Task Force and the Council on Foreign Relations. An energy investment banker, Simmons is the CEO of Simmons and Co. International, handling an investment portfolio of approximately $56 billion. He has served previously on the faculty of Harvard Business School. Among Peak Oil researchers he is known for two seemingly contradictory things: being a staunch supporter of George W. Bush and his policies, and, probably the only outspoken insider to talk openly about Peak Oil.

On May 27th, 2003, Simmons addressed the second international conference of the Association for the Study of Peak Oil (ASPO) which was meeting at the French Petroleum Institute (IFP) via a satellite teleconference video link from his Houston offices. His remarks were so revealing that I had them transcribed from my tape recording of the event. It is becoming clearer by the day that the Bush administration was aware of Peak Oil before taking office (pun intended) and Simmons' remarks indicate an awareness of Peak Oil's implications. They also predict extremely severe consequences arising from natural gas depletion in North America. – MCR]

Matthew Simmons Transcript

[Regarding peak energy] It might turn out actually to be one of the most important topics for the well being of the globe over the next fifty years, which basically (is), "Is the energy glass half full or half empty?" So let me, in the course of the next thirty or forty minutes, just share some of the issues that I think are important.

First of all, the topic of whether the energy glass is half full or half empty is right. It basically elicits some of these talks from so many people that start out with positions saying, "The glass is half empty, we will never run dry."

But the real issue is, basically speaking, does not basically mean running dry. The debate on how long the dwindling of supplies might take has been extremely controversial. In fact, I'd say that most of the debate has been one-sided.

Optimists argue that the issue is still years away, and to their support is that it has never happened before and it's too often been predicted. And each time the future looks bleak, the optimists argue, it's always darkest before dawn. It is also interesting how many people basically look at undiscovered reserves and basically say that we really don't know how much we still have left to find, and that's true, but we also, with the evidence of the reserves, there's no guarantee that the reserves are actually there.

I come back to the basics and say I think that one thing that we do all know is that oil and gas resources are genuinely non-renewable and so someday they will basically run out. And also, we are using 28 billion barrels a year, that's a lot of energy to be consuming. And peaking, as you all know, is different than running out. Is "peaking" an important question or issue?

First of all, if you start out by saying usable energy is the world's most critical resource then obviously it is an important issue. Without volume energy we have no sustainable water, we have no sustainable food, we now have no sustainable healthcare. And since five-sixths of the world still barely uses any energy it really is an important issue. And since five-sixths of the world is still growing fast or too fast it's even a more important issue.

What peaking does mean, in energy terms, is that once you've peaked, further growth in supply, is over. Peaking is generally, also, a relatively quick transition to a relatively serious decline at least on a basin by basin basis. And the issue then, is the world's biggest serious question.

Peaking of oil is also probably then assuming peaking of gas too. So is this issue important, I think the answer is an emphatic yes. Why does this issue evoke such controversy? Well, I think for several reasons, first of all the term "peaking," unfortunately, does suggest a bleak future. It also suggests high future energy prices and neither are pleasant thoughts.

I think it is human nature, basically, to say that we really like to have pleasant thoughts. And crying wolf is bad business unless the wolf turns out to be already at the front door, and by then, the cry is generally too late. And crises are basically problems, by definition, that got ignored. And all great crises were ignored until it became too late to do anything about it. And so if the issue is serious, why are the answers so dissenting. I think the reasons are several-fold. First of all, the data and the methodology to estimate total energy resources is still remarkably hazy and takes a lot of fuzzy logic to get to the bottom line.

Judging the data, for instance, on current decline rates on even fields per basin is very hard to define and it turns out that peaking is one of these fuzzy events that you only know clearly when you see it through a rear view mirror, and by then an alternate resolution is generally too late.

Over the course of the last few years, conventional wisdom in the energy business became "do not trust conventional wisdom." The voice of energy, for better or worse turns out to be the International Association of Energy Economists and I will be attending this group's 26th annual meeting next week in Prague.

This group basically had a mantra throughout the decade of the nineties that growth in energy demand is suspect, that energy supplies are surging, that Moore's Law has brought down semiconductors at a cost so dramatically it will bring energy prices considerably lower, that OPEC is obsolete, and a non-sustainable concept.

Last year, the IAEE had their 25th annual meeting in Aberdeen, and I attended the program. It was really interesting. On Saturday morning, they had 13 of the past 25 presidents talking for the better part of two hours, and individually reflecting on the lessons that they had learned over the past 25 years. And I heard 13 consecutive people basically state...what I heard most, was the word, "conventional wisdom." This was the big mistake I personally made 25 years ago. Twenty-five years ago, I thought demand was going to go up fast and that was wrong, I thought that oil prices were going to 100, and that was wrong,

and I thought the OPEC was omnipotent, and that was wrong, and I thought that supplies basically were going to be a pot of gold and that was wrong, and what I learned personally is to never trust "conventional wisdom." And by the time all thirteen speakers had spoken, it was clear that their belief had become conventional wisdom. It turned out that basically the generals, as happens so often in the military, were fighting the last war. The big energy mistake that was made, circa 1980-1981, was that oil was going to go to 100, was that the demand growth was insatiable, and that OPEC was omnipotent. And what all these people missed at the time was that the oil prices had already grown tenfold, that nuclear energy was at the front door, that the fear of a hundred dollar oil had finally created a conservational efficiency move, and that a ten-year E.P. [environmental protection] movement created a surplus glut. And preventing making this mistake again became public enemy number one and literally led a generation of energy experts to mistrust demand, to assume supply growth, and just to know that price collapse was just around the door, the corner.

But it is interesting now with the benefits of being in a new millennium, to look back and see what really happened to oil demand over the last 30 years. First of all, global oil demand did fall in 1974 and half way through 1975. But over the course of the first eight years of the 1970's, global oil demand grew significantly. Global oil demand then fell in 1979 through 1983. And so you had five of thirteen years down but the two events that caused this down demand: were a tenfold increase in product, and, the introduction of the only new energy source native to the 20th century, nuclear. Global oil demand began to grow again in 1983. The collapse of the F.S.U. from 1988 to 1995 created the illusion of global stagnation while the rest of the world's oil demand and energy just grew and grew and grew.

And it's interesting to step back and look at the difference between 1986 when non-FSU oil demand was just under 54 million barrels a day, to 2002, when we crossed 73 million barrels a day... a 21 million barrel a day change during an era that people thought basically that demand growth was over.

And then let's turn briefly to what happened to the world's supply. Well, first the former Soviet Union supply collapsed. Secondly, the North Sea had its second boom. Third, deep water became the new frontier and probably the last frontier, and fourth, OPEC remained the swing producer. If you basically look at the non-OPEC numbers excluding the former Soviet Union, you basically have a growth between '86 and 2002 of 8.3 million barrels a day. Now it's interesting to see that global oil growth and demand was 20 and non OPEC non-FSU growth was 8.3. But if you look carefully at the 8.3, in the first ten years, '86 thru '96, during an era of low oil prices, we grew by 6.7 million barrels a day, and in the last six years, during the era of high oil prices, we grew by 1.5 million barrels a day. So 81% of the last fifteen years growth, came in the, sixteen years growth, came during the era of low prices, and 19% came during the era of high prices. It turns out with just hindsight that we can now clearly see that the growth engine of non-OPEC oil, excluding the former Soviet Union, petered out. The North Sea peaked, Latin America excluding Brazil peaked, North America, excluding heavy oil peaked, Africa excluding deep water peaked, the middle east excluding OPEC peaked, and the F.S.U. turned out the be the only lasting pleasant surprise.

Which then raises the following question: Was the F.S.U. recovery real and sustainable? In 1998-1999 not a single oil expert assumed that the F.S.U. would suddenly turn around and start creating supplies again. But then low oil prices created through the saga of the missing barrels caused the ruble to collapse. And subsequently high oil prices created an F.S.U. bonanza, low global prices and unbelievably high revenues. 67% of the 2000-2003 non OPEC supply came with the F.S.U.'s oil recovery. Some of this increase was unlikely due to bad data and some of the increase was a one time gain.

There has been no significant FSU exploration yet. It's simply too expensive. And logistical bottlenecks create some significant limits to further export growth. So I think it's dangerous to assume that the FSU growth will continue. In the meantime the cost to create new oil supply soared.

While conventional wisdom believes where there's a will there's a supply, real costs to maintaining flattening supplies soared. Between 1996 and 1999, the 145 Public E&P companies which were worldwide, spent 410 Billion Dollars to merely keep their full production flat at about 30 Million barrels of oil per day. The Big Five, Exxon, Shell, BP, ChevronTexaco, and Total spent 150 Billion dollars between 1999 and 2002 to barely grow production from 16 billion barrels of oil a day to about 16.6.

The Big Four, excluding Total, because their numbers weren't out yet, between the first quarter of 2002 and the first quarter of 2003, went from 14 million, 611 thousand barrels of oil equivalent per day, to 14 billion 544. These four companies spent collectively over 40 billion dollars over a 12 month period of time actually lost 67 thousand barrels a day of total production. So while people were assuming costs would fall, the cost to stay in the game went through the roof.

One of the other interesting mantras of the last decade was that technology had eliminated dry holes. Well we never came close to obsoleting the dry hole. The reason dry holes dropped so much is we drill far less wells. We also stopped doing most genuine exploration. Even projects that are called wildcats today probably 20 years ago were called modest step-outs. It turns out that now that we look back with good data it takes four straight dry holes, it is still a risky business. The U.S. statistics are appalling. Here basically is the table going back from 1973 to 2002 of U.S. exploratory success rates and their dry holes as a percentage, and this yellow one going through there is 67% meaning that two out of three of those failed. We modestly drop the line from about 75% down to 67% but two third failure rate, we've just killed building dry holes. The North Sea exploration, in appraisal statistics is still basically about 25% chance of success. Angola, of the major Block 17's has had a string of dry holes. Eastern Canada's recent statistics have been troublesome.

The Caspian Sea, other than one great discovery, potentially has been bad. And even the Middle East is starting to dig a remarkable string of dry holes. The single biggest reason that this supply surge that so many people assumed was happening for so long was that depletion became the missing link. The reason supply flattened out or peaked was not the lack of effort

and no new technology. The industry in fact had many great successes over the last decade. But they were not about to offset depletion. Oil field technology created not an easy way to grow supply but a depletion rat race. Smaller new fields were found, technology allowed them to be commercial but we raised the climb rate to an amazing level and therefore it began to flatten out.

Why is oil depletion so hard to grasp? Well the definition by itself is hard. Many would hear the term depletion and assume it meant that we ran out, and we obviously never ran out of oil. Depletion data was sketchy at best. Its amazing how hard it is to actually dig out statistics for, even on a field by field basis, what the net decline is. And the elusive data that you can find is not real depletion but it's actually the net decline after lots of additional drilling and money is spent to take a natural decline rate that would have been far more drastic if you flattened out. And finally no one really likes to discuss it much because it should generally mean bad news.

Forecasting next year's decline still remains an art form. I don't think anyone has ever been very good at predicting bad news. There are many ways also to slow natural decline, but it takes money and effort, and it's only when you look back, after these remediation efforts have been done that it creates real depletion answers. But let me tell you that as you all know, wells, fields and basins really do deplete. Our firm a year ago conducted a very intensive analysis of what was happening to the natural gas supply in Texas by examining the detailed records of the Texas Drill Commission from 50% of the state's production in 53 counties. What we found was amazing. What we found was that in this 53 county area (this is 16% of the U.S. gas supply) the wells drilled in 2001, 2400 wells out of 37,000 wells that are in production, created 30% of the total supply, and it turns out that 7% of these 2400 wells, 167 wells, created 49% of the supply and the other 93% of the wells created the remaining 51%. These giant 167 gas wells - a year later, we went back and tested their January 03 production—they had suffered a decline across the board of an average of 82% in a year, so wells do decline rapidly these days. The Cruz Beana field in Columbia, the biggest find in the Western Hemisphere since Prudhoe Bay, in 1991-92 it was still estimated that it could possibly exceed Prudhoe Bay or Hatchet. But it turns out that this field basically just barely gets 500,000 barrels a day. And in 2002 it's struggling to stay above 200,000 barrels a day. The Forty Field, which BP just recently sold to Apache peaked at approximately 500,000 barrels a day in the middle eighties and the oil production is now under 50,000 barrels a day. It still produces about 500,000 barrels a day of fluid, but the balance is processed water.

And then you finally have the interesting graph, that's in the papers that I think you should have, of the last two Super Giant fields ever found. Ironically these two fields, Prudhoe Bay and Samotlor, were both found in about the same crust underneath of the Arctic Ocean. They were just found on two sides of the earth. Both were basically found within twelve months of one another, '68 and 1967, both were presumed to have 15 to 20 billion barrels of oil. It's interesting to see that Prudhoe Bay, says Platt's Oil reservoir management, they basically choked off the field at 1.5 million barrels a day and for over 11 and almost 12 years, like clockwork, it produced 1.5 million barrels a day without missing a beat. But in late 1989 the field rolled over and is now producing about 350,000 barrels a day. Samotlor [Russia] had just the opposite experience. They basically started aggressively water-flooding a very wide field and it produced peak production at about 3 and a half million barrels a day and then came off like a water fall and is again down to 325,000 to 350,000 barrels a day. And so when giant fields do peak they basically also do decline. There's no question that when you take 50% of a remaining resource you tend to alter peak. What is difficult though is to obtain the right data to know whether you've reached fifty percent. And it's basically that you're looking back through events with hindsight. It turns out that total energy resources, uh, is still a mystery. And recoverable percentage of resources is also largely a function of cost. The higher the cost the more you can extend, recovering more and more of the harder and harder to get resources.

And it's also interesting when I think back on this that the technology to gauge resources, absent of seismic, is still effectively 100 years old. We have no better technology today to know how much resources are there before seismic is done than we had 100 years ago. And even after a few of them test their research you still leave many questions and so it's based on opinions. Let me give you some interesting examples of the uncertainness of this data. I attended a Natural Gas Workshop in Washington, D.C. about three weeks ago and the head of the U.S.G.S. made an interesting presentation about how hard it is to basically get experts all on the same page even when you have a complete set of data. One of his examples was the [unintelligible] basin in Argentina.

Two hundred and nineteen mature fields. They had a data set that allowed all of the experts to basically use any one of the 7 conventional methodologies to say how much remaining resources are there. And after a weekend of study the estimates came back with a low of 600 million barrels to recover to a high of 17 billion barrels. This is on a mature field area with 219 individual fields. Canada's recent experience in Sable Island is a classic example of how little you sometimes know even after the fields have been in mature stages of production. It turns out that Sable Island looked like a fabulous project through wells one through five, and then well six was drilled and they found basically it was little, they miscalculated the amount of reserves and so thirty seven percent of the proven reserves of Sable Island in the last few months were written off. The Leaden Field, which is the largest project in U.K. sector of the North Sea last year; six months into its production the company had new data that basically highlighted the reserves, the reservoirs complexity so that half the reserves were transferred from proven into probable.

And then another interesting presentation in the natural gas workshop in Washington was on center basin gas which basically pipes gas in the Green River basin where some new evidence would indicate that we've overstated potential recoverable reserves by three to five times.

All of which highlights how difficult it is to basically get your hands around how much is left until you're looking back at events with hindsight. Hindsight turns out to be a wonderful, unreliable tool. Some events are unpredictable until after the fact. Some of the classic unpredictable events turn out to be weather, death, one's peak net worth and maybe the future of anything important. It turns out that peaking even for an individual well is only proven after the fact. And predicting peaking of energy has been an elusive art form for a long period of time. So back to the United States of America and our experiences in oil as a classic example of how hard it is to predict peaks. In 1956 Dr. Hubbert predicted in the early seventies... in the early seventies the United States would peak. In 1970 it was obvious he was wrong when the U.S. set a new record, the new U.S. peak. In 1981, what had been 9.6 million barrels by, at its peak was already down to 6.9 million barrels a day after a record drilling boom. And by 2003 this 9.6 billion barrel basin in 1970 is now close to 3 million barrels a day. The U.S. was Saudi Arabia in 1956. We had great statistics, we had total transparency and yet only one person predicted the peaking in 1970. Did the United States get a lot smarter? Well the U.S. Natural Gas experience is a great new case study.

In 1999 the Natural Petroleum Council projected that supply growth in natural gas would be adequate to increase gas use by 36% by 2010. In 2001 we had a record drilling boom for natural gas. This failed to budge supply. In 2003 natural gas clearly faces a crisis. The United States and Canada is in decline.

What we all missed in 1999 was that no one could come to subtract unconventional supply growth, coal bed methanes, tar sands, deep water associated gas, and these giant gas wells down to 18 to 20 thousand feet vertical, from the conventional base, and discovered conventional base at about fifty feet... (unintelligible) [p]eaked through Europe in the nineties and is now approximately 35 BCF (Billions of Cubic Feet) a day. So it turns out the United States gas experience, uh, has experienced about the same phenomena that oil did 30 years ago.

The North Sea experience is interesting. The North Sea had all the worlds' best operators, state of the art technology. Its peak was assumed to be years away in 1996 and 97. In 1999 the U.K. Sector peaked. In 2002 the New Eastern sector peaked. The North Sea has the world's best field by field production data. Seeing peaking is easier in the North Sea than anywhere else but few people seem to study the data. Peaking, it turns out, even in the North Sea is easy to ignore. And then there's the experience of the Caspian Sea.

In the early nineties the Caspian seemed to be the next Middle East. In 2001 we had 20 out of 25 dry holes that dampened the enthusiasm for the Caspian significantly. In 2001 Kashagan was finally discovered, deemed to be the greatest field in the decade. In 2002 BP and Stat Oil quietly sold their 14% of Kashagan for 800 million dollars. In 2003 British Gas put their 17% on the block for 1.2 billion dollars. Which raises, in my opinion, the question, "What do these original parties know about the world's greatest field or do they merely want to spread the wealth? I think what this all means is that non-OPEC oil, particularly outside the Soviet Union, is either peaking as we speak, or has already peaked.

Any serious analysis now shows solid evidence that the non-F.S.U. non-OPEC oil has certainly petered out and has probably peaked. F.S.U.'s supply is suspect or should be. A new frontier is always a possibility but it is becoming increasingly unlikely now that deep water is basically here and come and gone.

And serious energy planners need to assume non-OPEC supply is at a plateau. But thank heavens for the Middle East. The big non-Middle East OPEC producers are also past the peak. Algeria and Libya could probably still grow but they're too small to offset everyone else. And only the Middle East can logically be explained to replace declines elsewhere.

The Middle East's transparency is an oxymoron but there are some data that shed some light. And so let's basically spend a few minutes looking at the Middle East, the Promised Land.

Middle East energy is the Promised Land. All roads the roads lead to Rome and to the future of oil and gas Rome is the Middle East.

The Middle East is where we still have abundant reserves. It's still cheap to produce; it's still extremely unexplored. So if the rest the world is long in the tooth thank Allah for Mecca. But are we so sure this is the truth? It turns out that the Middle East oil and gas so far is not all over the Middle East. The Middle East covers an enormous land mass, but all of the oil and gas as we know it today is compressed into an interesting golden triangle. And all the great finds happened years ago. In the past three decades exploration success has been modest in the Middle East abyss. Is this because no one looked very hard or because there's not much else to find? Here is the interesting golden triangle of the Middle East; If you start at Kirkuk in the north and you draw a line down through the great oil fields of Iran, going down south and come over six or seven hundred miles picking up the great fields of the UAE and come back up 800 miles to Kirkuk virtually every field of any size between 1909 and the late sixties is probably in that basin.

It turns out that Saudi Arabia has what they thought was a fabulous discovery outside that in 1989. By 2003 one field and five satellites needed gas injected to create flows to get about 200,000 barrels a day. So it's also interesting to take the United States and superimpose this same golden triangle on part of the United States on the part of the United States I grew up in. It basically covers most of Arizona and part of Utah, so it's not a very big area. So if all roads lead to Rome then one area, Saudi Arabia, is clearly home port. Saudi Arabia became the most important oil exporter once the U.S. peaked. Though also not trusted, Saudi Arabia has constantly tried to become the world's most trusted supplier of oil and they generally have done that. Saudi Arabia has assumed a virtually limitless amount of cheap oil. But let me tell you about some of Saudi Arabia's oil and gas challenges. In Saudi Arabia there have been no major exploration successes since the late sixties. Almost all of Saudi's production comes from a handful of very old fields. Almost every field has high and rising water pressure. Ghawar, the world's largest field injects seven million barrels a day of seawater to prop up reservoir pressure. And outside North Core hundred

barrel [unintelligible] have been very hard to find. Some key fields have never worked out. Others have now watered out. And it takes utter logic to plan for Saudi Arabia's future.

What Saudi Arabia's real energy costs might be is that Saudi Arabia is probably no longer a low cost producer. Lifting costs, plus, may now rise exponentially. Natural gas parting costs are extremely high and have been elusive. But what is Saudi Arabia's right price for oil? I would argue that no one really knows because we lack the data.

But it turns out with a little bit of hindsight that the optimists turned out to be wrong. While the optimists estimate, the economist rectifies, the debate still rages on; the jury basically has now rendered the verdict. The optimists have lost. Too much field data now proves their total thesis was wrong. Supply never surged, demand did grow. But as it grows it still falls. This doesn't prove though that the pessimists were right. The pessimists unfortunately and ironically might also be wrong. Most serious scientists worry that the world will peak in oil supply. But most assume that this day of reckoning is still years away. Many also assume that non-conventional oil will carry us through several additional decades. They were right to ring the alarm bell. But they too might also be too optimistic. Non-conventional oil unfortunately is too non-conventional. Light oil is easy to produce and convert into usable energy. Heavy oil is hard to produce and extremely energy intensive and very hard to grow rapidly. It turns out the United States of America has nine fields left that still produce over 100,000 barrels a day. And three of the nine have turned out to be located in California and on average are 103 years old. The reason these fields are still there is that they're very heavy oil. And heavy oil can last forever but it's very hard to get out of the ground. And it takes a remarkable amount of energy to convert heavy oil into usable energy.

Five years ago I barely had thought about the question of, "What does peaking mean and when might it occur?" I was intending at the time though to study the concept of depletion and the phenomenon that field after field was tending to peak fast and decline at rates that were unheard of before. The uh, uh, I think basically that now, that peaking of oil will never be accurately predicted until after the fact. But the event will occur, and my analysis is leaning me more by the month, the worry that peaking is at hand; not years away. If it turns out I'm wrong, then I'm wrong. But if I'm right, the unforeseen consequences are devastating

But unfortunately the world has no Plan B if I'm right. The facts are too serious to ignore. Sadly the pessimist-optimist debate started too late. The Club of Rome humanists were right to raise the 'Limits to Growth' issues in the late 1960's. When they raised these issues they were actually talking about a time frame of 2050 to 2070. Then time was on the side of preparing Plan B. They like Dr. Hubbert got to be seen as Chicken Little or the Boy Who Cried Wolf...

In 1957 the Sputnik woke up to the rest of the world. By 1969 we had a man on the moon. That was not easy, but the job got done. Could an energy Sputnik create a similar wake up call? If we had such a wake up call is it too late? Is there a Manhattan Project or an Apollo program that would work? It turns out that reliable energy is the world's number one issue. Creating reliable and affordable energy opens the door to solving the problem of the world's water, food, and healthcare. Without reliable energy all these other needs dull.

The world is still growing. There five billion people on the earth today that are still either maturing in age or yet to be that old. And five billion people still use little or no energy. If the world's oil supply does peak, the world's issues start to look very different. Thank heaven the debate began even if it might have been too late. Thank you. I'd be happy to answer any questions.

Questions and Answers (not verbatim)

Hi. I'm Steve Andrews. Given your message now and given that you've had a half hour in the Oval Office with president Bush, why is there such a disconnect between the apparent policy of the administration and the harsh reality of the message you just gave this audience?

A. I think that there are people within the Bush Administration including the President and Vice President... I think it was unbelievably discouraging to see what occurred after the Bush Energy Plan was introduced .... And then after 9/11, the administration got totally distracted in dealing with all the events that they've been dealing with since then. I will tell you that there is a growing genuine concern in Washington about what is happening with natural gas today.

Q. I've been reading your papers for the last two years, and I want to congratulate you on really good work, and in many cases it's work that I would have expected from a gas company, not from an investment banker. Last year, you defended the administration's concept of depletion...and you show a real genuine concern for the future of the world,... and the hydrogen proposal is really a fantasy, don't you think it is time for a more enlightened energy policy.

A. That would be wonderful but I think that it is going to take a while. There really aren't any good energy solutions for bridges, to buy some time, from oil and gas to the alternatives. The only alternative right now is to shrink our economies. This is a tough question and I have no answers.

Q. I know that you are on the books to bring back nuclear power back into the industry.

A. Positive news. The Yucca Mountain is not complete. We have to figure out how to remove the nuclear waste. The bad news is that we have had one bad accident in Ohio and one in South Texas in which they found some borax acid that had become powder...is this a defect in the Westinghouse design. These are things which could set nuclear back 5 to 10 years.

Q. Mike Ruppert, *From The Wilderness* -- In the Baker Institute-CFR Report from April, 2001, you were kind of dissenting and you called for a Manhattan Project-type investment, what would that entail?

Q. Second question – In the war on terrorism since 9/11, we have gone to Afghanistan, and we've seen some pipeline

development across Afghanistan, we've seen Iraq, now Saudi Arabia, developments in West Africa, also in Colombia where the terrorism coincidentally seems to appear exactly where the oil is or in the swing producing nations, do you believe that is all coincidental? (Laughter)

A. (More laughter) Those are pretty intelligent questions. What I encourage people to think about in terms of energy blueprints is to think about them in terms of the Marshall Plan. I still believe that there is an urgent need for an energy Marshall plan. And couple that with a water energy program. I don't know if you can draw any parallels that every place we have energy we also have terrorism other than just musing about the fact that all I the last twenty years while we have apparently benefited from these unbelievably low bargain basement prices, the prices were so low that none of the host nations were able to basically create any semblance of a modern society, and over a 20-year period of time, all of their populations exploded, they all have high birthrate, very young people, and terrible economies. Unfortunately, we ended up with the door prize that was so low that it was hard for them to maintain a company infrastructure and doing nothing to start rebuilding their societies. I suspect that had they been lucky enough to have had energy...two or three times higher and then worked carefully with these producing countries to be enlightened about how...instead of putting in some young and powerful leaders to start creating a middle class... and people would have started focusing more on how to become more prosperous. I guess in hindsight that is easy to say.

DEBUNKING MAINSTREAM MEDIA'S LIES ABOUT OIL

FTW's Dale Allen Pfeiffer Goes Head to Head With Pulitzer Prize Winner Daniel Yergin

By Dale Allen Pfeiffer, ***FTW*** Contributing Editor for Energy

The word about peak oil has barely reached the surface of the major media, and already there are many experts shouting loudly that this is not true. As the crisis worsens, we will no doubt see more and more experts claiming ever more loudly that there is no problem at all. And we will likely hear more claims about the benefits of a transition to hydrogen fuel cells, fusion, nuclear fast breeders, and other more exotic technologies (such as zero-point energy). All of this hype may pacify people and prevent them from realizing what is actually happening, but it won't reverse decreasing oil production nor lead to meaningful alternative technologies. If there is a magic bullet solution for Peak Oil, it has not yet been demonstrated in a way that permits independent verification or establishes a significantly positive Energy Return for Energy Invested (EROEI).

One example of the disinformation being fed to the public by the mass media is an article written by Daniel Yergin published in The *San Francisco Chronicle* (Sunday, April 13, 2003).[1] Evidently, the *Chronicle* was so swayed by Yergin's name that they forgot to check the facts behind his story.

Though Daniel Yergin is considered to be an authority on international politics, economics and energy, he is neither a scientist nor an engineer. Despite this lack of credentials, Daniel Yergin was awarded a Pulitzer for his book, *The Prize: The Epic Quest for Oil, Money and Power*, and he is currently a member of the Board of the United States Energy Association, the National Petroleum Council, the US Secretary of Energy's Advisory Board, and the US Department of Energy's Task Force on Strategic Energy Research and Development. He is also a member of the Committee on Studies of the Council on Foreign Relations and a Foreign Associate of the Royal Institute of International Affairs.

With all of these credentials, one might wonder how he could author an article which is so misleading. However, I have seen him in action, arguing with several of my colleagues, and I can state that the man is a true cornucopian. He will not recognize any data that might shake his faith in Neoliberalism or free market economic theory. No doubt, he will consider this article to be rubbish, if he even bothers to read it.

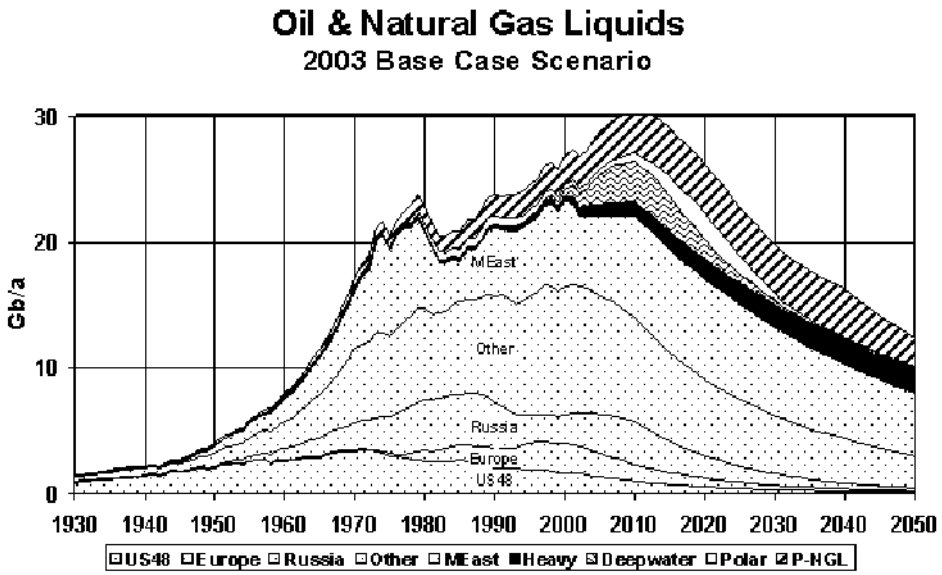
In his article for The *SF Chronicle*, Mr. Yergin claims that Iraqi oil counts for such a small percentage of the global oil picture that its influence on oil markets is negligible. In fact, he downplays the significance of all Middle Eastern oil. Let us take a look at Mr. Yergin's claims and compare them with documented studies and factual reports.

To inflate his data on oil reserves, Mr. Yergin accepts industry and EIA (Energy Information Association) figures without question (rather like the embedded journalists reporting on the invasion of Iraq). He refuses to backdate discoveries (account for the fact that oil companies routinely under-report new finds to reduce taxes) and he accepts inflated numbers for Caspian reserves even as the oil majors pull out of the area for lack of interest. But one of the most interesting techniques he uses to inflate his data is to include all hydrocarbon deposits regardless of source or extraction techniques. Whether tar sands, deep

sea deposits or conventional oil, it is all one to Mr. Yergin.

Never mind that harvesting tar sands is energy and water intensive. Tar sands are extracted and processed utilizing stranded natural gas.(Small pockets of gas that are not profitable to pump at current prices). But as the price of natural gas has increased, so has the price of using NG to harvest and process tar sands. As natural gas prices rise, the stranded gas is sold in the marketplace leaving little for tar sands. Industry analysts have all but admitted that North America is falling off the natural gas cliff (i.e. natural gas reserves are almost empty). Allowing for seasonal changes, the price of NG will only increase from now on.[2] [3] Tar sand processing also utilizes a vast quantity of water. Production has heavily taxed local aquifers and left large retention ponds of tainted water needing to be purified at an energy and economic expense. Due to these factors, various companies are beginning to cancel tar sands projects or place them on hold.[4] Beyond this, tar sands are harvested by strip mining, not by pumping. Production from tar sands comes at the additional cost of destroyed landscape, and the additional expense of remediation and waste disposal. And in any mining operation, there is always a notable portion of the resource that is deemed unrecoverable, either because the seam is too small, or because of fault or other physical factors that limit the viability of production.

For all these many reasons and more, tar sands and other unconventional forms of hydrocarbons should be considered separately from conventional oil. Once conventional oil production begins to decline worldwide, non-conventional production will be constrained by the rising price of energy input. Furthermore, even if unconstrained, non-conventional sources will not replace conventional oil, they will only help to ease the decline. The following graph, based upon the most current of data, incorporates non-conventional sources into the energy picture.



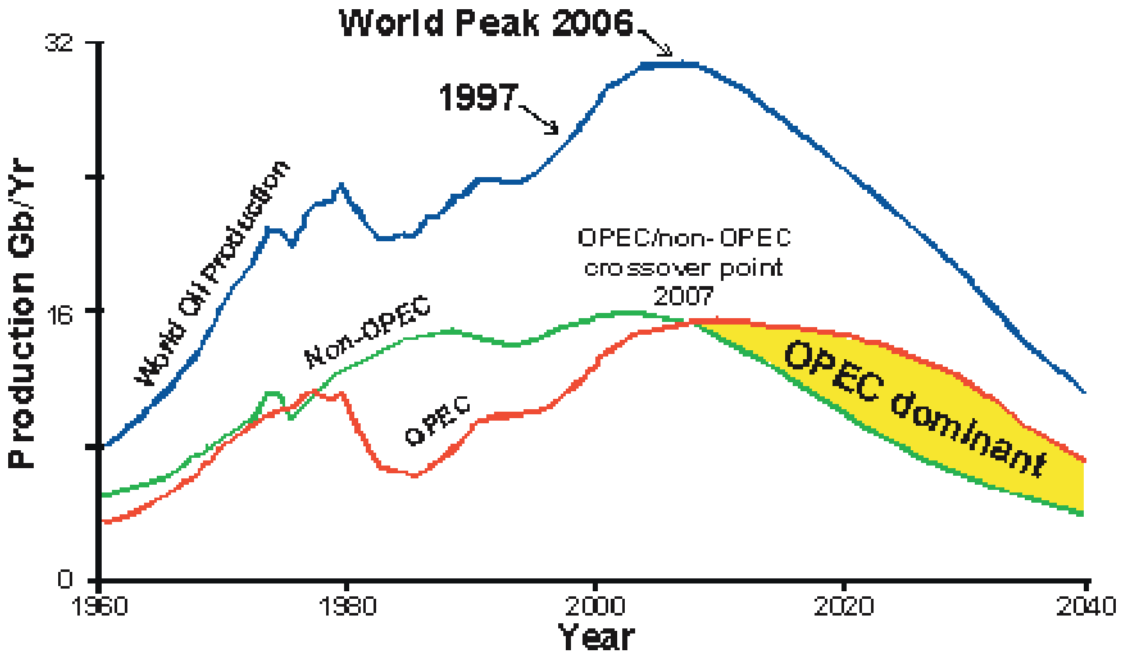
From the ASPO Newsletter; graph developed by Colin Campbell.http://www.asponews.org/

If we exclude non-conventional sources and look only at conventional oil the figures change---giving us a much clearer picture of the importance of Middle Eastern oil, and of Iraqi oil. Instead of the 3% figure given by Mr. Yergin, the accepted figure for Iraqi deposits hovers around 7% of worldwide conventional oil reserves.[5] In their 1998 paper, The World Petroleum Lifecycle, Richard Duncan and Walter Youngquist state that Iraq controls 7.3% of the oil reserves in the top 42 oil producing nations.[6] World Oil reported that Iraq contained 115 billion barrels of known reserves in 2002; the Oil & Gas Journal reported 112.5 billion barrels for the same year. Colin Campbell estimates 118 billion barrels of known reserves. Given known world reserves of 1767 billion barrels, this comes out to about 6.7% of world reserves.[7]

Mr. Yergin states that Iraq and the entire Middle East are not very important to US oil consumption, noting that the US gets 70% of its crude supplies from its own production or from neighboring countries in North and South America. According to the latest data from the EIA, the US consumes 19.6 million barrels of oil per day (million bbl/d). US production at 8.1 million barrels per day (and falling) only accounts for 41% of demand. Mexico (1.46 million bbl/d) supplies 7.4% of our demand, and Canada (1.37 million bbl/d) another 7%. This brings us up to 55.4% of US demand.[8] It should be noted that Mexican production peaked in the last couple years[9] while Canada appears to be peaking right now.[10] The entire North American region peaked in 1985.[11] Venezuela (1.14 million bbl/d) adds another 6% to our picture, bringing regional imports up to 61.4% of US demand.[12] Adding in Colombian and other American sources might bring us up to 65% of US demand, not quite the 70% of Mr. Yergin's boast. And we must bear in mind that Latin America is at peak production right now, so their capability of meeting our demand is going into decline.[13] [14]

Compared to this, Iraq's contribution to US demand (449,000 bbl/d) seems to be but a paltry 4.2% of total US demand.[15] However, Iraq is one of the few countries in the world with the capacity to increase its output. When we add this current import data to Iraq's neighbor Saudi Arabia (the top source of US imports at 1.49 million bbl/d) we find that the US is dependent upon

these two countries for 11.8% of its oil demand, or 20.1% of its imports).[16] Moreover, these two countries will be among the last to reach peak production (Saudi Arabia in 2013 and Iraq in 2019).[17] Regionally, the Middle East will be the last area in the world to peak in oil production, probably around the year 2014.[18] Every other region in the world has already peaked in production. Soon declining production in all other regions will result in what has been termed "the crossover event." Beyond this point, Middle Eastern production will make up for the difference between demand and declining production until this region also peaks.



The OPEC crossover point in world oil production. Duncan & Youngquist. http://www.dieoff.com/page133.htm

It is in this light that the Middle East, and Iraq in particular, demonstrates its true importance. Control of Iraqi oil would be most useful in thwarting OPEC, and in an attempt to prevent the oil market from converting to the Euro.

Yet, Mr. Yergin tells us that oil has nothing to do with the invasion of Iraq. Mr. Yergin insists on the party line that this is about weapons of mass destruction.

Isn't it interesting that we have yet to find a weapon of mass destruction in Iraq? Oh yes, I forgot, the weapons of mass destruction were not in Iraq: Saddam Hussein hid them in neighboring Syria. In any case, we have control of the country now, and we can begin to build a safe democracy for the people of Iraq. Let's begin the process by encouraging the Iraqi people to loot the various ministries and museums full of antiquities. Ah, but we will protect the valuable records of the petroleum ministry.

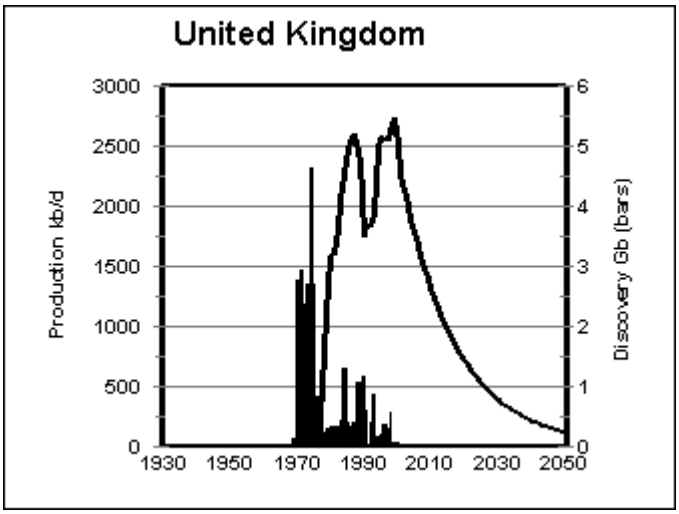
Come on Mr. Yergin, do you really expect us to believe that this invasion was not about oil?

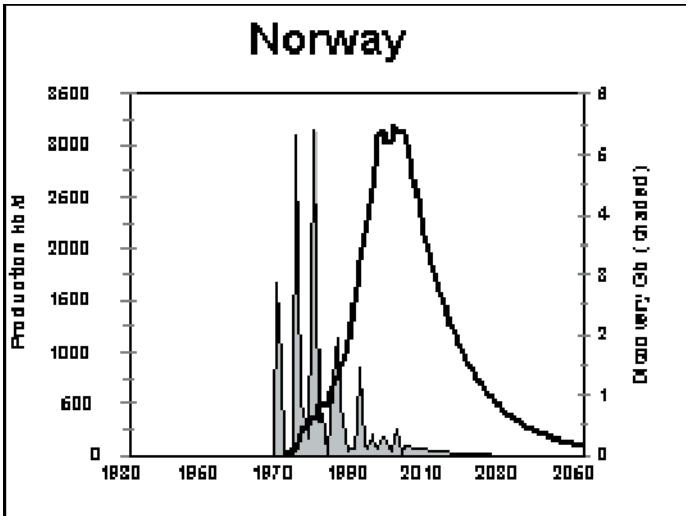
No, Daniel Yergin insists, new sources of oil have limited OPEC's clout over the last couple of decades and more oil is being found all the time. He points to the North Sea, Alaska, Russia and that greatest of all oil mirages—the Caspian Sea.

North Sea

The North Sea oil fields belong to the countries Norway and the United Kingdom. The United Kingdom pumped its fields vigorously, utilizing all the latest technology. As a result, they squandered their oil very quickly, and did such a thorough job of it that their depletion rate (currently 6.1%) gives the downward side of their production curve the shape of a cliff rather than a gentle slope. The United Kingdom peaked in 1999. They will be lucky to produce 720,000 barrels per day by 2020.[19]

Norway has perhaps the best documented oil fields in the world. And in the last couple of years, they have very honestly admitted that their oil fields are peaking. They have not exploited their fields as thoroughly as the United Kingdom. However, the effect of modern pumping technology can still be plainly seen in their production statistics: production was brought up quickly, the fields had a relatively short life, and the depletion curve is steep. Norway's production peak is occurring this year (2003). Their depletion rate is currently 7%. By the year 2020, they will be lucky to pump 900,000 barrels per day.[20]



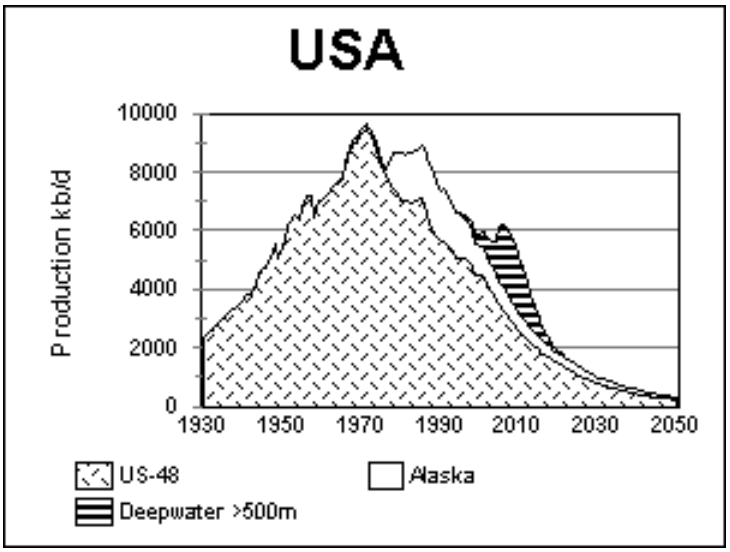


United Kingdom Production Curve (with discovery as a bar graph), courtesy of Colin Campbell. http://www.asponews.org/ASPO.newsletter.020.php#83

Norway Production Curve (with discovery in gray), courtesy of Colin Campbell. http://www.asponews.org/ASPO.newsletter.025.php#129

Alaska

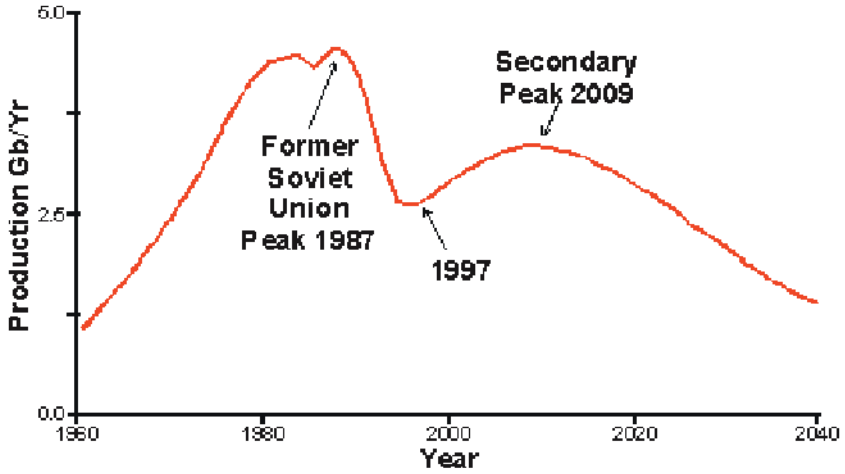
Discovered in 1969, the giant Prudhoe Bay field added 13 billion barrels of oil to US reserves just when it was sorely needed. However, this field was exploited using the latest technology and was soon depleted. Overall, it did not change the production peak for the US, but it did give the country a secondary (smaller) peak, and broadened out the downward side of the production curve. Due to geology, additional fields (including ANWR) are smaller by orders of magnitude. The current depletion rate for the entire US is 6%. By 2020, the US will be lucky to produce 1.4 million bbl/d, and will be importing 90% of its oil.[21]



US Production Curve (with Alaska and deepwater), courtesy of Colin Campbell. http://www.asponews.org/ASPO.newsletter.023.php#109

Russia

Daniel Yergin points to Russia as a foil to Middle Eastern oil dominance. However, it is well known that Russian oil production peaked in 1987.[22] Though Russia has boosted its production tremendously in the last few years, it has done so at a cost. Russian oil is currently much more expensive to produce than Middle Eastern oil and they will lose their profit margin if oil prices dip much below $20/barrel. And the increased production will result in a much steeper depletion rate. The graph below was drawn in 1998, before Russia stepped up production. Now it is likely that the secondary peak will occur sooner and the downward side of the production slope will be much steeper. It would be foolish to bet on Russian oil production to thwart OPEC beyond 2010.



Russian Production Curve, Duncan & Yougquist, 1998. http://www.dieoff.com/page133.htm

The Caspian Region—Central Asia

This leaves the much touted Central Asian—Caspian Sea region. Yet, as I reported last December, exploration of this area has yielded dismal results.[23] The latest news to add is that Shell Oil is pulling out of Turkmenistan, following on the heels of Exxon-Mobil.[24] Below is a table comparing EIA figures of proven reserves with Colin Campbell's figures for total known and future reserves in four key Central Asian countries. It is obvious upon reviewing this data that Central Asia will present no threat to OPEC hegemony after the OPEC crossover event. This point is further driven home when we factor in problems inherent with the Central Asian and Caspian oil: the problem of transporting it to areas of demand, and unresolved political squabbles about ownership of Caspian Sea oil. And dare we mention that most of the oil discovered in this region has a high sulfur content, which makes it even less desirable?

Country (in billions of barrels, Gb)	**EIA Proven Reserves**	**CJ Campbell Projected Total Reserves**
Azerbaijan	1.2	21
Kazakhstan	5.4	36
Turkmenistan	0.546	4.4
Uzbekistan	0.594	2.4
Total	7.74	63.8

Derived from EIA data (http://www.eia.doe.gov/emeu/cabs/contents.html) & data supplied by Colin Campbell (http://www.asponews.org/ASPO.newsletter.026.php)

Daniel Yergin claims that new discoveries will be made, mentioning that every year oil companies spend billions of dollars searching for new reserves. Perhaps Mr. Yergin is not aware of all the signs of industry downsizing.[25] Oil exploration had a bumper year for discovery in 2000 at 24 billion barrels (Gb) of newly discovered oil. But this figure dipped sharply in 2001 to 16 Gb, slightly above the ten year average of 14 Gb. The latest data from BP placed daily world oil consumption at around 75 million bbl/d in 2001.[26] That means that in the year 2001, the world consumed approximately 7 Gb of oil, or about 11% more oil than was discovered in the previous halcyon year of 2000. In 2002, the Executive Vice-President and Director of Exxon-Mobil (the world's largest oil company) confirmed that oil discovery peaked in the 1960s.[27]

In the last couple of years, many officials of the oil majors have made coded statements confirming oil depletion.[28] BP admitted the problem of oil depletion by spinning it into a challenge to develop solar energy.[29] Robert Anderson, the former head of ARCO, said it quite plainly, stating that the oil industry was "a sunset industry—and the sun is low in the sky."[30] They say actions speak louder than words, and in the last few years industry mergers and layoffs have emphasized these whispered words. Industry layoffs target exploration and development staff. Shell has begun the latest round of layoffs, cutting 1,000 exploration & production jobs in its European staff.[31]

Beyond this, Daniel Yergin falls back onto the feeble arguments that new technologies will find oil where none existed before and render previously unproductive fields economical. There is a modicum of truth to this. DOFF technology (digital oil field of the future) will find some more small puddles of oil, but the big fields have already been mapped, and most of them have been produced to their peak. DOFF will also lower the costs of extraction somewhat. But it will also increase current production from fields and so hasten their peak and decline.

In the end, we will not find enough new oil to offset the world oil peak, and little enough to ameliorate the downward slope. Non-conventional production is already running into severe cost overruns.[32] And, in any case, non-conventional oil will not drastically change the profile of world energy production, as exemplified by the first graph in this article.

Mr. Yergin is simply trotting out a line of disinformation to pacify investors and the public at large, and to obfuscate the real reasons for the invasion of Iraq.

A Note on North American Natural Gas

Bloomberg's recently released an article stating that US natural gas supplies are still severely depleted. Normally April is the time of year to begin restocking NG supplies. However, this spring has been chilly enough in many areas of the country that NG demand is still up and the restocking of supplies has not yet commenced. Bloomberg's warns that supplies are so depleted that it will be hard to prepare for next winter. And if this summer is hot, summer cooling demand will likely push NG prices above the record highs of earlier this year.[33]

People hoping for an economic recovery had better hold their breath and pray for a mild winter next year (and a mild summer this year).

END NOTES

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(continued from page 2, FTW Breaks 100K)
honed as an LA news director and PR consultant to get the original ad run despite what appeared to be steep political opposition in Washington. After hearing that the goal had been reached Levine observed, “When we place the order and write the check to the ad brokerage firm that will book the ads then we will have some real clout.”

Ruppert says that now that the goal has been reached, the order will be placed this week and Ken Levine can work his magic again. If one or two of the originally targeted papers refuses to run the ad it will trigger a serious PR campaign that will focus on that paper’s suppression of First Amendment rights in America. And ***FTW*** has changed its strategy from running all the ads on one day to running them at staggered intervals over a period of two weeks to a month. “The powers that be who assume they are untouchable will never know what city ***FTW*** is going to strike in next. There is no doubt that with the money raised we will reach the 40-50 million readers originally targeted, perhaps in more than 12 cities and we will reach the audience we need to reach,” added Ruppert.

Now that the money has been raised, there will be a delay of as much as one to four weeks before the first ad is run. The full-price for these ads, with a guaranteed date of publication would have been more than $400,000. As it is, Ruppert is confident that with Levine managing the campaign, ***FTW*** will have some say in when the ads run and notes that, “The people who offered so much to make this happen are going to be very surprised with what we can achieve. Ken is an absolute master at this game.”

Reaching $100,000 in less than a month is a testament to the hope people felt when they saw the first ad run in The *Washington Post*. It was an end to their feelings of alienation and was a totally empowering effort for them. ***FTW*** ‘s web site visitors topped thirty thousand on the day following that ad, and all who are involved in the current campaign believe that by running the ad in major cities throughout the country a threshold can be crossed in the American consciousness that will encourage more people to speak out, and more importantly, to believe and know that they are not alone and that they can make a difference.

IMPORTANT NOTE: Starting today ***FTW*** will create a new timeline listing important developments in this campaign to change America. Please visit regularly to watch our progress.

(continued from page 1, Paris Peak Oil Conference)

Olivier Appert, Chairman of the IFP, bluntly acknowledged that many oil experts have concluded that world oil depletion is between five and ten per cent per year and that 60 Million barrels per day (Mbpd) of new capacity is needed to meet demand. On that basis he concluded in his opening remarks, "It is timely to reopen the debate." Appert however told the audience that he was an optimist basically because he predicted that new technologies would produce new discoveries and better recovery in the future.

But quiet, official support of the conference fell far short of the political and economic mobilization the organizers believe necessary to respond to a crisis that might start grinding national economies to a halt and causing massive dislocations in short order. As one conference organizer told ***FTW***, "The fact that several governments have asked to be kept 'fully informed,' or that the French government allows us to use their facilities, or that major oil companies and automakers like Daimler-Chrysler come to make presentations is a way of listening closely to what we are doing without having to publicly accept what we are saying. The political and economic ramifications of that are too drastic from their perspectives, but each hour of delay only assures that the eventual crisis will be worse once it has been acknowledged."

IFP Chairman Appert's optimism was belied by experts like Laherrère, whose brutally honest graphs and plots not only mirror the truth of declining discovery and production but also establish scientifically that there are no more major significant reserves to be found. Other experts established definitively that wildly exaggerated hopes for polar or deep sea discoveries, or tar sands production are both unfounded and dangerously deceptive because of the excessive production costs and the investment required to develop what will likely prove to be disappointing yields.

In the end, the most realistic and integrated analyses were delivered by political scientist and author Michael Klare and Professor Kenneth Deffeyes of Princeton, a one-time colleague of the late M. King Hubbert, whose Hubbert Curve predicted today's events with startling accuracy some six decades ago. These two conference presenters gave integrated presentations incorporating real-world current events and showed clearly that Peak Oil is here now.

BBC sets the tone

One of the first presentations of the conference was the screening of a new *BBC* documentary which aired on March 26, 2003, titled, "The War For Oil." In stark and irrefutable detail the film verified every major aspect of Peak Oil including declining production, vanishing discovery rates, smaller field sizes and increasing demand. It pointed out that worldwide production capacity was stretched to the limit and that the US would be importing seventy per cent of its oil by 2020 and ninety per cent by 2050.

The *BBC* documentary also quoted oil expert and Bush administration advisor, Matthew Simmons, as stating very clearly that the United States government was very worried about Peak Oil. Simmons should know. He runs a Houston-based investment bank for the energy industry and was an advisor to Vice President Cheney's secretive, 2001, National Energy Policy Development Group (NEPDG) which has refused to make its records public. He remains a close advisor to George W. Bush.

Confirmation of Peak Oil's role in 9/11

Starting in October 2001 ***FTW*** reported, and has continued to maintain, that Peak Oil was the driving factor behind the US government's highly questionable and illegal conduct and what we believe was its actual complicity in the attacks themselves. This was necessary in order to motivate public support for a war which otherwise would not have been acceptable to the American people. Simmons has never deviated in his public support for the Bush administration and his stated belief that the invasions of Afghanistan and Iraq had nothing to do with oil. Yet Simmons, a CFR member who also contributed to the (James) Baker Institute-CFR energy report released in April, 2001, delivered the strongest and clearest warning about Peak Oil of the entire conference. And, his conference statements provide the first-ever hint at some of the topics that were discussed behind closed doors in the months leading up to the attacks. ***FTW*** also got the chance to question him about oil and war.

Speaking at the end of the conference via satellite from his Houston offices, Simmons said:

"Is peaking an important question or issue? First of all, if you start out by saying usable energy is the world's most critical resource then obviously it is an important issue. Without …energy, we have no sustainable water, no sustainable food, and no sustainable healthcare…

"What peaking does mean, in energy terms, is that once you've peaked, further growth in supply, is over… So is this issue important, I think the answer is an emphatic yes. Why does this issue evoke such controversy? Well, I think for several reasons, first of all, the term "peaking" unfortunately, does suggest a bleak future. It also suggests high future energy prices and neither are a pleasant thought. I think it is human nature, basically, to say that we really like to have pleasant thoughts. The one crying wolf is abandoned unless the wolf turns out to be already at the front door, and by then, the cry is generally too late. And crises are basically problems, by definition, that have gone ignored. And all great crises were ignored until it became too late to do anything about it..."

Simmons pointed out that five-sixths of the world barely uses any energy but that this is where demand is growing fastest. ***FTW*** reported recently that auto sales in China jumped 50% in 2002 alone. Simmons indicated that deep water oil was "the last frontier" and then made the not too cheery observation that two thirds of the exploratory wells were turning out to be dry

holes. Dry holes were also becoming commonplace in the Middle East on dry land.

Natural gas appeared to be an even more pressing issue. US natural gas supply must come from the North American continent because there are too few LNG ports, tankers, or terminals, and LNG conversion results in significant energy loss. Looking at the North American picture, Simmons observed that in 1990, there was large growth in natural gas production in the US. By 2001, with record drilling, there was no increase in supply, and by 2003, production was in serious decline. These statistics are not surprising to those who have watched gas prices quadruple over the last eighteen months. And, confirming the pattern seen with oil discoveries, Simmons noted, "New Texas [gas] wells decline by eighty-three per cent one year after drilling."

Unlike oil, natural gas production tends to reach a plateau and then fall straight down a cliff because the gas moves quickly from the well until there is no more pressure and then it just stops.

Confirming that the once-hoped-for Caspian Sea oil bonanza had proved to be a major bust, Simmons noted that in 2001, twenty out of twenty-five new wells sunk in the Caspian basin had produced dry holes. That was the same year that Kazakhstan's supposed giant Kashagan field was opened but by 2002, British Petroleum and Statoil had withdrawn from it, and by 2003, the rest of the original major investors also had pulled out.

The Golden Triangle and "Plan B"

In an ironic reference to the Southeast Asian region known for its CIA-connected cultivation of the opium poppy, Simmons observed that the Middle East was still the "Promised Land," and that eighty-five per cent of all Middle Eastern oil was in a golden triangle running from Kirkuk, in northern Iraq, through Iran to the United Arab Emirates, then west through Saudi Arabia's central oil fields, then northwards and back up to Kirkuk. In Simmons' analysis, Saudi Arabia was "home court."

Referring to a 1960's report from The Club of Rome suggesting that there were limits to growth, Simmons observed that, "The world has no Plan B."

During a brief question and answer session, this writer posed a question to Simmons which evoked laughter from the audience and a blushed, bowed head from Simmons.

Q. Mike Ruppert: I have two questions. In the Baker Institute CFR Report from April, 2001, you were kind of dissenting and you called for a Manhattan Project-type investment program to address energy, what would that entail? My second question is in The War on Terrorism since 9/11, we have gone to Afghanistan, and we've seen some pipeline development across Afghanistan, we've seen Iraq, now Saudi Arabia, developments in West Africa, also in Colombia where the terrorism coincidentally seems to appear exactly where the oil is, either in large reserves or in swing producing nations, do you believe that is all coincidental? (Audience laughter)

A. Simmons: (More laughter) Those are pretty intelligent questions. What I encouraged people to think about when the Council on Foreign Relations and the Baker Institute were doing the energy blueprints was to think in terms of future energy plans the way we did the Marshall Plan in rebuilding Europe. It was about collecting the largest group of experts we could and having them fan out across Europe and figure out how we could get from A to Z. I still believe that there is an urgent need for an Energy Marshall Plan. I think we need to couple that with a water, a water energy program...

On the terrorists, I don't know if you can draw any parallels on why does it seem that every place we have energy we also have terrorism other than just musing about the fact that over the last twenty years while we have apparently benefited from these unbelievably low bargain oil prices, the prices were so low that none of the host nations were able to basically create any semblance of a modern society. And over a 20-year period of time, all of their populations exploded, they all have high birthrate, very young people, and terrible economies. Unfortunately, we ended up with an oil price that was so low that it was hard for them to maintain a healthy infrastructure and there was nothing left over to start rebuilding their societies. I suspect that had they been lucky enough to have had energy prices two to three times higher and then worked carefully with these producing countries to be enlightened about how they should spend this newfound wealth instead of putting in some young and powerful leaders to start creating a middle class then the people would have started focusing more on how to become more prosperous. I guess in hindsight that is easy to say.

Another questioner asked Simmons why there was such an unbelievable disconnect between oval office policy and Simmons' stated views. The first words out of Simmons' mouth in reply were, "The US has some unbelievable energy problems."

DIFFERENT MOTIVATIONS, SOME CONSENSUS,AND ALICE IN WONDERLAND

The ASPO conference was attended by oil company experts, academics from the fields of geology, and the sciences, such as political science, alternative energy advocates, economic and financial concerns like Deutschebank, government research facilities, and, journalists. Three "camps" emerged fairly quickly. The Peak Oil camp generally represented those who felt that oil and gas depletion was extremely serious and about to become the paramount issue on the planet because there are no suitable alternative energy sources either in the near or intermediate term that will soften the effects. The Alternative Energy Panacea camp generally agreed that Peak Oil was imminent but argued that alternative energy sources would generally permit life to go on as usual. The Flat Earth camp, generally comprised of oil company employees, oil industry representatives, representatives of the International Energy Agency (IEA) and investment banks, and, politicians, all off whom generally assumed that demand and increased investment would somehow produce all the solutions and energy necessary to solve any problems and, that new

technology would find the oil and gas that most attendees of the conference – especially after the presentation of data from undisputed experts – agreed was nonexistent.

Dishonest Reserve Reporting and Definitions

There was no defense raised from any of the attending camps for overstated oil reserve estimates previously produced by either the US Geological Survey (USGS) or the IEA. It took little effort from experts like Campbell, Laherrère, Aleklett, Chris Skrebowski of the UK's Institute of Petroleum, and Professor Kenneth Deffeyes of Princeton to demonstrate that the books on oil reserves are as cooked as the books of Enron.

The chief misleading error always committed by both oil companies and government institutions is their failure to backdate reserve discoveries. When oil companies drill their first successful well in any field they generally have a reasonable idea of how much oil will be ultimately recoverable. The first problem is, that if they report the anticipated size of the field in the year of discovery, they have to pay taxes on all of it. Naturally, they report the reserve estimates as increasing over time to spread out the tax burden. They do it also to keep share prices up and stable, and to stimulate continued investment by reporting the discovery of new reserves in older fields that are not new discoveries at all. And in cases where national production is determined by stated "proven" reserves, estimates are sometime changed, as with the OPEC nations in the mid 1980s, simply as a result of an accountant applying an eraser to the previously stated reserves when more cash is needed as a result of increased production.

Experts like Campbell and Laherrère insist that all reserves everywhere should immediately be backdated to the first successful borehole in a field and then the amount pumped subsequently subtracted as a means of accurately determining how much oil is really left. To engage in honest discussion of what is really there, terms like Probable, Estimated, and even Proven Reserves need to be thrown out in favor of Ultimately Recoverable Reserves (URR) which have been properly backdated. Anything else is pandering to the needs of an accountant, a politician, or a stock market analyst.

There is a reason why -- in spite of all the reserve numbers put out by governments, oil companies and market analysts -- a company called Petroleum Consultants in Geneva Switzerland publishes an annual report on oil reserves country by country and charges a reported million dollars per copy. The CIA is reported to have a hand in its drafting and is a recipient of the work product. That is a testament in itself to the unreliability of reserve estimates from other sources.

Emerging Visions of the Future

There were crossovers of opinion and these descriptions are not all inclusive. One oil company executive, Ali Samsam Bakhtiari, Ph.D., of the National Iranian Oil Company, was firmly in the Peak Oil camp and he presented startling figures on oil depletion in Iran as well as analyses that showed that Saudi Arabia's vaunted reserves of 250 billion barrels (Gb) might be far lower than reported. "Saudi Arabia has already produced 100 Gb out of ultimately recoverable reserves of 260 Gb. It may have less oil and may have passed mid point of production which means decline," he said.

As ***FTW*** has repeatedly reported, once a field, a nation, or the planet passes the peak of production, each new barrel produced on the average requires more money and more energy, while at the same time tending to be of declining quality and thus more expensive to refine. Bakhtiari's assessments were supported by other presentations showing that even though 43% of the world's URR may be located in the Middle East their size may be far less than hoped for and the nations in the region may be actually peaking much sooner than expected.

The sobering numbers tended to reinforce Simmons' position as presented to the Bush administration and debate frequently turned to alternative energy sources. No one at the conference presented any evidence of any combination of alternative energy sources which would replace hydrocarbon energy and no one alleged that even if such a mix was available it could be implemented in time to prevent major economic and human catastrophes.

This writer walked away with the conclusion that as a result of political and economic denial, as the lights started going out, as cars stopped running, as fertilizers and pesticides became too expensive for third world nations, and as famine started to hit the planet, coal and nuclear would be the knee-jerk solutions reached for and that they would not prove to be effective for anything except an immediate finger-in-the-dyke solution.

One conclusion generally accepted by almost every attendee was that hydrogen, contrary to popularly accepted comfort promotions by writers like Jeremy Rifkin, was not a solution either in the near or long term because of intensive costs of production, inherent energy inefficiencies, lack of infrastructure and impracticalities. Speaking for Daimler Chrysler, which paid lip service to Peak Oil yet acknowledged that it had done extensive research on hydrogen vehicles, Dr. Jorg Wind told the conference that his company did not see hydrogen as a viable alternative to petroleum-based internal combustion engines.

"We use fossil fuels to make hydrogen. That does not result in a significant CO2 reduction. We predict that by 2020 only 5% of fuel use will be hydrogen and that infrastructure and the political framework is the most important factor. In order of relevance and likelihood from the standpoint of the auto industry Wind stated that we would see improved conventional vehicles, starter hybrid vehicles, electric hybrid vehicles and, finally, fuel cell vehicles as solutions, but he had little optimism that fuel cells would ever amount to a significant market share. In a telling left-handed acknowledgement of Peak Oil, Wind noted that one third of all diesel fuels currently used in Germany were biodiesel relying on recycled waste and or plant feedstock. He was particularly

critical of ethanol stating that it was not energy efficient.

French presenters confirmed that ethanol was only viable in France due to a three hundred per cent government subsidy to farmers. Otherwise it was a net energy waster.

When asked by ***FTW*** if Daimler-Chrysler had estimated the costs for infrastructure changes and capital investment to produce fuel cell vehicles Wind stated that the company did not know these costs. The implication was that having evaluated the technology involved in the vehicles themselves the company didn't consider it worthwhile to undertake further financial evaluation.

Wind elicited groans from the audience when he asserted that everything was customer driven and that corporations bore no responsibility for the shortage of practical solutions to the looming crisis.

"It may not be profitable to slow decline"

Dutch economist Maarten Van Mourik of the Netherlands Economic Institute delivered some chilling facts and then offered perhaps the most memorable quote of the entire conference.

He had little hope for deep sea exploration, stating that deep water non-conventional oil would represent only five per cent of world supply by 2020. Ultimately it would produce only about 5 Gb. The world is currently consuming a billion barrels of oil every twelve days. "It is way too expensive. The cost is fifty to sixty million per rig and there is little guaranteed return." He noted, not surprisingly, in view of recent developments in the "war against terrorism," that West Africa was the best deep water oil prospect with Angola being the most likely candidate for new activity.

After looking at more of the various alternatives, Van Mourik revealed an underlying truth that is certain to exacerbate the effects of Peak Oil, "It may not be profitable to slow decline."

Hydrogen's Lead Financial Balloon

Pierre-Rene Bauquis, Vice President of the French Energy Institute, associate IFP professor and former special advisor to the president of TotalFinaElf, confirmed prior research by ***FTW*** citing hard scientific data showing that hydrogen is not a practical solution. As a member of Environmentalists for Nuclear Energy he made no secret of his advocacy of nuclear power. And it is quite probable that if Total or any other oil company could make a profit from hydrogen they would rush to do it, especially since they know that they are running out of their current product.

Noting that one half of all oil is used for transportation, Bauquis insisted that renewable energies sources would not solve the problem and stated flatly that "Hydrogen is not the fuel of tomorrow." He noted that the first internal combustion engine, built in 1805, was a hydrogen engine and that it was quickly discarded because of the problems hydrogen poses with transportation, storage and efficiency.

Bauquis observed that, "Commercial production of hydrogen is two to five times the cost of the fossil fuels used to make it. Transportation is impossible. It is two times as costly to transport hydrogen as it is to transport electricity. The storage costs for hydrogen are one hundred times the cost of liquid petroleum products."

He was equally unforgiving when it came to ethanol. "To replace forty per cent of the oil in use you would need three times the currently available farmland just for feedstock."

Bauquis drew some groans from the audience when he insisted that the "Chernobyl" disaster was a hoax perpetrated by Green Peace which had grossly exaggerated the number of deaths resulting from the 1986 nuclear accident but his observations about hydrogen are consistent with a wide number of scientific studies from a number of differing political and economic interests. He did acknowledge that perhaps in several decades, so-called green or white hydrogen (produced by electrolysis rather than from methane) might become feasible but only as a result of nuclear energy to power the conversion process.

One audience member elicited boisterous audience laughter by asking another presenter, "Now we have one situation in the market in which we get conventional fuel, namely oil, we burn it in a combustion engine, and we do work. Now what I understand the hydrogen defendants are promoting, led by Mr. Jeremy Rifkin, is a hydrogen economy consisting basically in getting the conventional fuels again and producing alternative/solar energies or clean energy…or a wind generator…to produce electricity to then split the water molecules into hydrogen and oxygen and then compressing the liquefied hydrogen for transportation and storage and then injecting the hydrogen into the fuel cell to produce electricity to do work in the machine. Do you really believe that this is efficiency?"

Russia's Got Gas

J. Peter Gerling, head of the Energy resources section of Germany's Federal Institute for Geosciences, after repeating that worldwide reliance on oil and natural gas was increasing rather than decreasing, observed that Russia has an estimated one-half of all the estimated ultimately recoverable reserves of natural gas on the planet. The tiny nation of Qatar, where the US has located its Central Command headquarters, has more natural gas than North and South America combined. This does the US little good for the time being until massive LNG tanker fleets and infrastructure are built but it goes a long way towards explaining why Paris and Berlin have been slowly forming an economic partnership with Russia. It also explains why

experts like Colin Campbell believe that the UK will ultimately join the European Union. Chris Skrebowski of the UK's Institute of Petroleum had previously noted that by 2007, Britain will be in its second year of gas imports and its first year of oil imports, the once proud North Sea fields having been nearly depleted by that time.

Sticky Tar Sands in Canada

Professor Kjell Aleklett made a stunning graphic display of how the world's oil is distributed by using twenty champagne bottles to represent the two trillion barrels of oil with which the planet was endowed. After removing nine bottles to indicate what had already been used he put two bottles aside to represent the oil that will be found in the future. He also used two bottles to represent the oil that had been given to the US. Showing that one bottle was empty, he then poured one last glass from the remaining bottle and stated that America has just poured the very last glass from its endowment of oil. Five of the remaining nine bottles in the reserve he indicated were in the Middle East and of those three represented the oil in Saudi Arabia and Iraq.

He then turned to tar sands projects which had once been heralded as Canada's (and America's) salvation but which have been proven to be a financial and ecological disaster. A previous speaker had noted that the process of obtaining oil from tar sands which involves washing the strip mined sand with steam requires three barrels of fresh water for every barrel of oil produced.

Aleklett then noted that Canada was using such a tremendous amount of natural gas to boil the water that its own domestic heating needs were being compromised. Other speakers had previously commented on the fact that under the NAFTA and FTAA agreements, Canada was obligated to sell natural gas to the US at low prices even to the point of not meeting its own requirements. There clearly is not enough natural gas to produce tar sands, which have not been profitable to date, even as the wastewater and strip mining destroys much of Alberta's pristine landscape. As a result, said Aleklett, Alberta is now considering the construction of a nuclear reactor for the sole purpose of making steam to work the tar sands.

No one needed to ask about energy returned on energy invested.

Stating the Obvious

American Five College Professor of Peace and World Security, Michael Klare, author of the book, *Resource Wars*, provided the much needed integration of Peak Oil issues with world events by noting that US oil imports passed fifty per cent for the first time in 1999 and that this share has been steadily increasing. Correctly noting that the US war machine is dependent upon petroleum he started by looking at the actual text of the report of the NEPDG Cheney energy task force published shortly before the attacks of 9/11.

As is so often the case with government reports such as those produced by the CIA's Inspector General evaluating the CIA's role in the drug trade, it is necessary to discard letters of transmittal and summaries to find out what the report really says. Klare noted that Chapter 8 of the Cheney report disclosed that what the secretive body really advocated was an increased reliance on oil and natural gas. The report stated that US demand would increase by 7.7 Mbpd between 2000 and 2020 and that all of that increase would necessarily come from the Middle East. As ***FTW*** has reported on numerous occasions, throughout the Clinton years, the US steadily prepared for military conflict by engaging in many joint military operations and base expansion throughout the region. The greatest focus was on Saudi Arabia.

Klare's analysis left no doubt that the military operations witnessed since 9/11 were indeed the result of an elaborate plan put into place and executed steadily for more than a decade and that US energy, military, and anti-terrorism policies were really three strands of the same rope, all meshing perfectly in global and hegemonic conquest.

Princeton Professor Kenneth Deffeyes – a colleague of King Hubbert and author of the book, *Hubbert's Peak: The Impending World oil Shortage,* argued that Peak Oil actually arrived in 2000 by noting that production has actually been declining since that time. As further evidence of the production peak, Deffeyes noted that since 2000, there has been a 30% drop in stock values, interest rate cuts have not helped, two million have become unemployed and the employed have been unable to retire, budget surpluses have vanished, the middle class has vanished, and the World Trade Center has vanished. He added that the only way to meet the delusional USGS oil discovery predictions for the United States would be to make Iraq the 51st state.

One of his greatest concerns, he said, was the cost of fertilizer production for the Third World, implying that natural gas shortages and related electrical manufacturing and transport costs might precipitate a famine of unimagined proportions.

From ***FTW****'s* perspective the reality of Peak Oil has been almost completely transparent since 9/11. As a cosmological explanation of the sublimely convenient attacks of 9/11, abetted by the US government, the sequential war to control the largest oil reserves on the planet, the near hysteria over biological warfare, the steady assault on civil liberties, and the continually declining economic performance, there is no other construct which provides a canvas on which these developments fit.

The second annual ASPO conference in Paris only deepened our conviction.