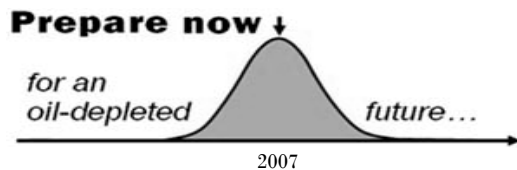


## WASHINGTON COUNTY PEAK OIL



There have been a number of issues about energy over the past couple of years that have been warning us that something is afoot. Most people haven't heard about "peak oil," or if they have most really don't understand what the buzz is about. Well, here's the answer.... The world is just about out of cheap and abundant oil, and natural gas.

No, we're not out of all the oil and natural gas, just the *affordable* stuff. All of the reasons for this reality are too extensive to include here, but enormous amounts of information are available on the subject via the internet. Just Google: "**Peak Oil**". You'll get more than five million references. (Yahoo! Has more than 18 million.)

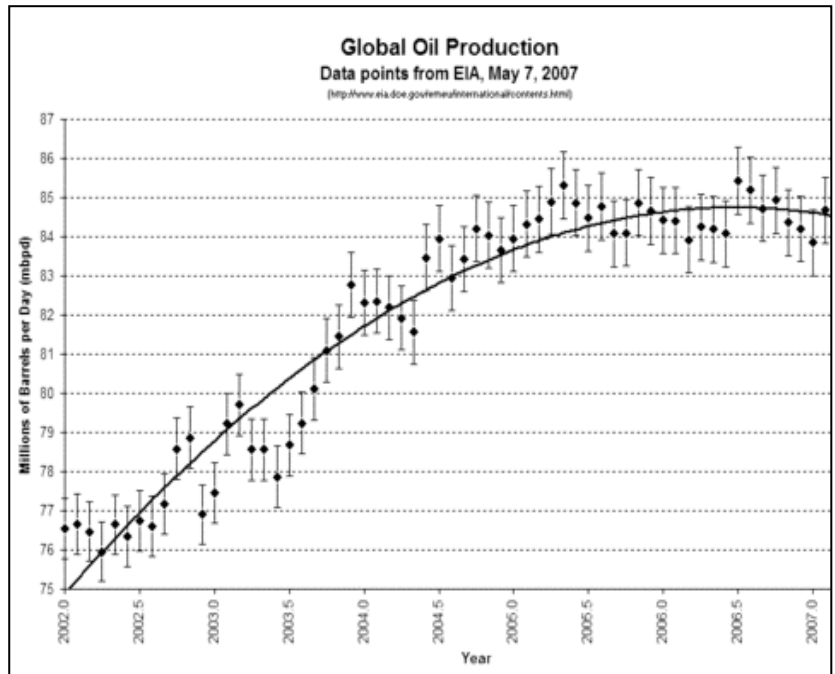
And then start studying; because this issue is going to have an *enormous* effect on your life in just the next few years. For societies leveraged on ever increasing amounts of cheap oil, such as the United States, the consequences will likely be dire. Without *significant* and successful cultural reform, profound economic decline appears inevitable. Do you think you ought to know about this?

### Facts (you can verify these):

- ◆ More oil wells have been drilled in the past 15 years than in all the previous years of exploration combined, and there is now a worldwide shortage of drilling rig equipment. But the last *major* oil discoveries were made more than 35 years ago.
- ◆ The USA consumes approximately 21 million barrels of oil per day -- 25% of all the oil produced on the planet. The world consumes approximately 85 million barrels of oil per day.
- ◆ Nine of the world's top ten International Oil Companies have now reported virtually flat or declining global production for two or more years in a row.
- ◆ Five of the six largest fields of the world have now "peaked", four of them in just the past *three years*. And the largest field in the world, Saudi Arabia's Ghawar field, has reduced production over the past year and has been pumped heavily for thirty years. Many experts claim it is near peak, or has peaked. Saudi Arabia's overall production is down 11% this year (2007).
- ◆ Of the 65 largest oil producing countries in the world, 54 have peaked and are now in decline.
- ◆ To meet the projected global demand for oil in the coming 5 years, to maintain "business-as-usual, the International Energy Agency (IEA) has forecast that the world will need to increase production, refine, and transport to market *10 million additional barrels of oil per day*, roughly the equivalent volume of all of Saudi Arabia's current daily production. Significantly, between now and then, the world must also produce an additional 3 million more barrels of oil daily just to replace the losses of supply from existing declining fields. That's 13 million additional barrels of oil per day -- within 5 years -- that's a 15% increase.
- ◆ The highest volume of total global crude oil production in a single month, in all of history, occurred in May of 2005 and global production has been declining ever since.

"Peaking" means an oil-producing well, basin, or region has reached the point in time where the technological maximum amount of oil is being pumped from it, and from that point on it produces less and less, sometimes in a very rapid production decline of even ten percent or more per year. This peak and decline usually occurs when approximately one half of the oil in a given well, basin or field has been extracted. Many fields, sometimes off shore, far from markets, in smaller fields, or of lesser quality, take ever more money *and energy* to extract and refine. Under these conditions, the rate of extraction inevitably drops. Eventually all oil fields reach a point where they become economically, and energetically unviable -- it costs too much to pump.

Oil is a finite resource. Government and industry experts report that we have likely discovered all the big fields on the



From the U.S. Dept. of Energy's Energy Information Administration (EIA), shows actual global production through May of 2007. Notice the plateau?

planet, which further infers that as the existing giant fields deplete, less and less oil can be made available to the world.

There is another problem -- the oil demands of the global marketplace have been *expanding rapidly* in the past decade and are now on the verge of an even more explosive and extraordinary expansion. Today, China's economy is growing at 11-14% per year, and is the second largest importer of oil in the world, after the USA. They have just *begun* the industrialization of their nation -- which is *four times larger* than the USA in terms of population. Year over year, China is increasing oil imports by 20%. India is close behind. All developing countries require more oil each year.

So, we have rapidly rising consumption *demand* that is occurring across the planet at the same time the world oil *supply* is peaking and starting to decline. That simply means there isn't going to be enough oil to go around -- global competition for increasingly limited petroleum resources. And THAT is the peak oil issue.

Unfortunately, Natural gas is peaking only a few years behind. In fact, the IEA forecasts "very tight" natural gas supplies by the end of this decade (2010). Natural gas generates roughly half of all the electricity used in Washington County, and heats more than half our homes.

## What are the implications?

The answer is complex. But it can also be made very simple: **Transportation and the economy**. Oil has been very, very cheap -- cheaper than bottled water. There are precious few liquids on the planet that are as inexpensive as oil. At \$60/barrel, oil costs about 20 cents a cup (8 ounces.)



Today, 70 percent of all the oil produced goes to make transportation fuel -- for cars, trucks, trains, planes, and ships. As we run low on oil to manufacture these fuels, there is nothing on the planet that can replace those liquid fuels in the *quantities* we are using today, or at a similar low cost, let alone meeting global projected growth rates. And for certain methods of transport, such as air, no other energy source can currently be substituted for oil.

## Food Supply

One of the most profound impacts we can expect is the impact on our food supply. The agriculture industry relies very heavily on petroleum. 95 percent of all fertilizers and pesticides come from petrochemicals; and oil is used to till, plant, irrigate, harvest, transport, and store all that food. In fact, 95 percent of all the energy used in the agriculture industry comes from petroleum.



What will happen to the cost or availability of food when the price of transportation fuel doubles, triples, and quintuples? The average distance a typical food item travels today, before ending up in your home kitchen, is more than 1500 miles, and for every calorie of food produced, it takes 10 calories of petroleum energy and petrochemicals to produce it and get it to your kitchen table. Where is that energy going to come from if not from oil?

## Other Products

Petrochemicals are the base or raw ingredient used in the manufacture of more than half a million identifiable products that we use and count on every day; like lipstick, and plastics, and asphalt. So, if there is a shortage of oil, and oil becomes very expensive, then all the products made from oil also become scarce or expensive.

The entire world economy is based upon the *abundant* availability of this cheap liquid fuel. It is what makes it possible for products to get from the producers to the marketplace, and people to get to and from work or school or the grocery store. A healthy and *growing* marketplace is fundamentally required to enable Americans to continue to live at our current standards of living.

When abundant, inexpensive oil is no longer available to support that growth, the economic model upon which the world is currently based will be extremely vulnerable to failure. When the economy falters many companies and industries will suffer, and fail. Virtually all businesses are heavily dependent upon other businesses to enable what they do -- it's called the "supply chain". When companies fail jobs and incomes are lost. When jobs and incomes are lost people don't buy stuff. When people don't buy stuff more companies fail, more jobs are lost, and even more people don't buy stuff. It is a downward spiral that snowballs as it

goes. The result of this snowball effect across all industries could very realistically result in a collapsed global economy -- most probably a very serious economic depression similar or worse than that of the 1930's -- only this time it won't end. There won't be sufficient energy available for the world to recover.

With chronic petroleum shortages, and the resulting higher prices affecting both availability and cost of transportation fuels, food, electricity and other products, we stand to face some very, very serious problems. And again, it won't be temporary -- the conditions will increase in severity month after month as oil production declines further and further, and gets more and more expensive, and as more and more countries compete to secure desperately needed supplies.

Finally, consider the average miles-per-gallon your car currently provides. Imagine yourself pushing your car for that number of miles. THAT's how much energy is in a single gallon of gasoline -- and there is nothing we have now that can replace it in the volumes we currently consume.

## Preparation

We all need to prepare...including you. Preparation consists of four approaches, and one major reality check:

1. Adapt to a profoundly simpler lifestyle as compared to your current norm. Call it, "powering down". Research how to do this. (Adopting new behaviors takes *time* and *effort* so it's to your advantage to start now);
2. Develop the necessary skills to become as self-sufficient as possible; in terms of food, water, energy, and personal transportation, and *conserve* as much as possible. That means a large home vegetable garden, canning and preserving skills, bulk food storage, rainwater harvesting and renewable energy generation (like passive and active solar power), and a bicycle;
3. Promote community re-localization to your family, friends, neighbors, colleagues and community leadership; reducing dependency on long-distance supply chains. Redirect your purchases toward locally produced agriculture and goods, local services, and local and decentralized energy production.
4. Reduce or eliminate your fossil fuel use, especially for transportation -- use mass transit, bike, or walk. Work closer to home. Support alternative, renewable fuels and energy. Increase the energy efficiency of your home. Withdraw your support for further development of highways, suburban or ex-urban sprawl, and large personal vehicles.
5. **Reality Check:** *If you wait* to start preparing, the resources you need or the conditions you count on to adapt may be exhausted, too expensive, or no longer viable. For example, if you wait until things get tough to trade in your SUV for a hybrid or plug-in car, there may not be any left (due to demand), and there may be no one willing to take that SUV in trade.



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