



Risk Assessments: Playing the "What If?" Game

Posted by [Robert Rapier](#) on July 2, 2009 - 10:15am

Topic: [Supply/Production](#)

Tags: [climate change](#), [global warming](#), [greenhouse gas](#), [peak oil](#) [[list all tags](#)]

I spend a lot of time playing "What if?" It is an important aspect of my line of work, but we all do this to some extent. I do it when I am driving - "What if that car at the next intersection pulls out in front of me?" - when I am working "What if that high pressure line ruptures?" - and at home - "What if I wake up and find the house is on fire?" I also spend a lot of time pondering the question "What if there are energy shortages in the near future?"

When we do this, we are generally trying to understand the potential consequences of various responses to a given situation. This sort of exercise is a form of risk assessment, and it is a very important tool for making decisions about events that could impact the future. Sometimes the consequences are minor. If I choose not to take an umbrella to work and it rains, there is probably a small consequence. If I choose to pass a car on a blind hill, the consequence may be severe, and may extend to other people.

In this essay I will explore the implications of the question: "What if I am wrong on peak oil or global warming?"

What If I'm Wrong About Peak Oil?

I guess it was my training as a scientist that instilled in me the position that conclusions are tentative. (I was two years into a Ph.D. in chemistry before I decided the job prospects were better for a chemical engineer). They are subject to revision as additional data come in, and you have to always be willing to consider that your preconceptions may be wrong. But acknowledging that I could be wrong has to go hand-in-hand with the consequences of being wrong.

I have formulated a lot of "what if" questions around timing and consequences of peak oil. My view on peak oil is that it presents an enormous challenge for humanity, that global oil production will peak within 10 years (if it hasn't peaked already), and that there is no easy solution. I see spiking oil prices and the subsequent fallout as a prelude to what lies ahead. These views have influenced my profession, where I have chosen to live, what I read, and what I say to others. Fear of peak oil has influenced some people not to attend college, or to quit their jobs and move away to remote locations. It has even caused some people to decide against having children. But what if I am wrong about the timing/consequences of peak oil? How would that impact me?

For me, this one has low consequences. If I am wrong and we have adequate oil supplies for the next 40 years, then perhaps I live a more frugal life than I might have otherwise. I prefer to walk, ride a bike, or take a train instead of hopping into a car to drive some place. When I drive, I probably drive a smaller car than I would have otherwise. I grow some of my own food. Then again, I have always been frugal, so perhaps I would have done all of these things regardless. The one thing that it may have impacted upon in a major way is my interest in energy.

But if I am right, then I have plans in place to manage the impact as well as I can. Those plans start with minimizing my energy consumption. It is my small insurance policy. If the [worst case](#) turns out to be right, then there isn't a lot I can do except try to make sure my family and I are in circumstances that minimize the risk. Further, I have done a lot of work that is aimed at improving our energy security in the years ahead. That work includes [promoting renewable energy technologies](#) that I think can make a long-term contribution, but also arguing for [conservation](#), and [better utilization of our own natural resources](#). So if I am correct, then I have chosen to work on things that have the potential to mitigate the consequences.

But what if the other side is wrong? Government agencies devoted to monitoring our natural resources often reassure us that there is plenty of oil for decades to come. But what if the government, industry, etc. turn out to have missed the mark on peak oil? In that case I think we will be in for a lot of trouble.

If the peak comes quickly and the decline is steep, I believe we will be wholly unprepared. There is not a cheap, easy substitute for oil. Much higher prices will be inevitable in such a situation. Industries - such as the airline industry - won't be prepared and we will see perhaps entire sectors go bankrupt. While I do believe that over time we can transition to natural gas vehicles (and I don't think the [situation with natural gas is as dire](#)), that will take some time. If the government is wrong and the peak happens much sooner than expected, we will be in for a very difficult transition period.

In other words, their consequences of being wrong are much worse than my consequences of being wrong. If they are wrong, people may starve during a difficult post-peak transition. If I am wrong, we move to a healthier, more sustainable lifestyle.

What If I am Wrong on Global Warming?

Another question I think a lot about is "*What If I am Wrong on Global Warming?*" I come down on the side that human activity is contributing to global warming, yet the scientist in me reminds me that "conclusions are tentative." But each camp has elements that feel – all too often with religious fervor - that the other side's position will lead to either environmental or economic devastation. So we get a lot of vitriol in this discussion, which I don't like.

If the Al Gore contingent is correct, then we are facing some very major problems. As I have written before, [I don't expect us to be able to rein in carbon dioxide emissions](#), so I see a future with ever higher atmospheric CO₂, and potential environmental devastation if Al Gore is correct.

On the other hand are those who believe that human activities play little or no role in global warming. They view the opposition as putting global economies at risk by putting a price on carbon emissions. While I think environmental devastation is a much worse consequence than economic stagnation, the impact of that could be pretty severe as well.

What I would prefer to see – instead of two opposing camps dug into bunkers and tossing verbal grenades at each other – are more open minds on both sides. I would like to see the sides posing the question "What if I am wrong?" Another good question to ask in these sorts of debates is "Is there any evidence that would convince me that I am wrong?" I don't know what scientists will say when they look back at this issue a hundred years from now, but I don't want to see the debate squelched by those who shouted the loudest.

In conclusion, I never discount the possibility that I could be wrong about any number of things. I

would say that precious few of my views are embedded in granite. That's why I write; to discuss, debate, learn, and change my mind when reason dictates that. But before you decide to respond to this essay with a strongly worded opinion, ask yourself the question "What if I am wrong?"



This work is licensed under a [Creative Commons Attribution-Share Alike 3.0 United States License](http://creativecommons.org/licenses/by-sa/3.0/).