

OT – Supply side increase in oil – not likely

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I found this on the web a couple years ago and like its simple common sense. The scary things are:

1. There is nowhere near a "100 year" supply of oil identified.
2. The growth rate in consumption is greater than 5%

The Mirage of a Growing Fuel Supply

By Dr. EVAR D. NERING

SCOTTSDALE, Ariz. When I discussed the exponential function in the first–semester calculus classes that I taught, I invariably used consumption of a nonrenewable natural resource as an example. Since we are now engaged in a national debate about energy policy, it may be useful to talk about the mathematics involved in making a rational decision about resource use.

In my classes, I described the following hypothetical situation. We have a 100–year supply of a resource, say oil that is, the oil would last 100 years if it were consumed at its current rate. But the oil is consumed at a rate that grows by 5 percent each year. How long would it last under these circumstances? This is an easy calculation; the answer is about 36 years.

Oh, but let's say we underestimated the supply, and we actually have a 1,000–year supply. At the same annual 5 percent growth rate in use, how long will this last? The answer is about 79 years.

Then let us say we make a striking discovery of more oil yet a bonanza and we now have a 10,000–year supply. At our same rate of growing use, how long would it last? Answer: 125 years.

Estimates vary for how long currently known oil reserves will last, though they are usually considerably less than 100 years. But the point of this analysis is that it really doesn't matter what the estimates are. There is no way that a supply–side attack on America's energy problem can work.

The exponential function describes the behavior of any quantity whose rate of change is proportional to its size. Compound interest is the most commonly encountered example it would produce exponential growth if the interest were calculated at a continuing rate. I have heard public statements that use "exponential" as though it describes a large or sudden increase. But exponential growth does not have to be large, and it is never sudden.

Rather, it is inexorable.

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Calculations also show that if consumption of an energy resource is allowed to grow at a steady 5 percent annual rate, a full doubling of the available supply will not be as effective as reducing that growth rate by half to 2.5 percent. Doubling the size of the oil reserve will add at most 14 years to the life expectancy of the resource if we continue to use it at the currently increasing rate, no matter how large it is currently. On the other hand, halving the growth of consumption will almost double the life expectancy of the supply, no matter what it is.

This mathematical reality seems to have escaped the politicians pushing to solve our energy problem by simply increasing supply. Building more power plants and drilling for more oil is exactly the wrong thing to do, because it will encourage more use. If we want to avoid dire consequences, we need to find the political will to reduce the growth in energy consumption to zero or even begin to consume less.

I must emphasize that reducing the growth rate is not what most people are talking about now when they advocate conservation; the steps they recommend are just Band-Aids. If we increase the gas mileage of our automobiles and then drive more miles, for example, that will not reduce the growth rate.

Reducing the growth of consumption means living closer to where we work or play. It means telecommuting. It means controlling population growth. It means shifting to renewable energy sources.

It is not, perhaps, necessary to cut our use of oil, but it is essential that we cut the rate of increase at which we consume it. To do otherwise is to leave our descendants in an impoverished world.

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