The Slope of Dysfunction

Contributed by Dmitry Orlov
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Editor's note: Culture Change has made the claim for almost two decades that collapse of the whole petroleum infrastructure and the economy was closer than any other known oil-industry analysis suggested. For example, we have politely corrected Dr. Colin Cambell's claim that the "second half of the Age of Oil" was going to be the result of peak oil. Now, Dmitry Orlov has made the most clear case yet that petrocollapse is beginning. - Jan Lundberg

Perhaps you have heard of the Peak Oil theory? Most people have by now, even the people whose job used to involve denying the possibility that global crude oil production would peak any time soon. Now that everybody seems a bit more comfortable with the idea, perhaps it is time to reexamine it. Is the scenario Peak Oil theoreticians paint indeed realistic, or is it firmly grounded in wishful thinking?

Here is a typical, slightly outdated Peak Oil chart. I chose it because it looks pretty and conveys the typical Peak Oil message, which is that global crude oil (and natural gas condensate) production will rise to a lofty peak sometime soon, and then drift down gently, over several decades, until, by the year 2050 or some other distant date, less than half as much oil will be produced globally. Since this would still be a very impressive number, and since we have decades to adjust to living with half as much oil, this would not necessarily pose a major problem. Some combination of new energy from wind, solar, biomass and nuclear sources, coupled with efficiency improvements such as light rail and electric cars, better-insulated buildings and so on, would allow us to plug up the gap.

Peak Oil theorists base their calculations on data from the many oil-producing provinces that have already peaked, such as the United States, which peaked in 1970. The majority of oil-producing provinces and countries are past peak now, providing the theorists with a wealth of precise data. But they seem to have overlooked one little detail, which, I believe, is rather important. What do countries do when they reach their peak and can no longer supply themselves with sufficient quantities of oil from their depleting domestic sources? They turn to imports, of course. They can do so if their local peak comes before the global peak; they cannot do so if it comes after. This makes local peaks poor analogies for the global peak.

And what happens if a country cannot import oil to make up for the production deficit? It just so happens that we have a convenient example of just such a scenario unfolding: post-Soviet oil production after the collapse of the USSR. There, production declined 43% between 1987 and 1996. The decline was arrested and reversed by the introduction of foreign investment and technology (Source: Marek Kolodziej and Doug Reynolds, ASPO Workshop, Lisbon, Portugal, May 19. 2005).

Note how just around the time of the collapse oil production goes into free-fall, which is only arrested in mid-1990s. Had the Former Soviet Union remained economically isolated, the free-fall would have continued. Kolodziej and Reynolds drew some interesting conclusions based on these data. Firstly, the crash in oil production preceded collapse in USSR's Gross Domestic Product. The lag time between the two, and the severity of the collapse are clear enough to ascribe causality: to say that the oil crash caused the economic collapse. On the other hand, coal and natural gas production, which also crashed, did so after the GDP collapsed, again, with a significant enough lag time to say with confidence that

it was economic collapse that caused coal and gas production to crash.

What actually happens to an economy and a society under such circumstances? With oil in short supply, industrial production plummets, the economy stalls, there is a financial crisis because of debts going bad, followed by a commercial crisis because of falling demand and lack of credit, followed by political collapse caused by dwindling government revenues, followed by social collapse as unemployment rises and crime becomes rampant. After a while of this, the idea of you and your friends going out to the oil field and pumping some more oil starts to seem rather odd, and so oil production heads to zero.

The global oil peak is different from all the little localized peaks in that the planet as a whole cannot import its way out of an oil shortage, resulting in a global economic collapse. The economic collapse will, in turn, cause global oil production to crash even faster, extinguishing the industrial economy.

It seems possible that certain countries which are currently oil exporters might be able to keep the oil flowing, provided they have nationalized their oil production and are sufficiently authoritarian and militarized to quell any unrest. But modern oil production is a technically complicated business (the easy-to-get-at oil is all gone) while the field service equipment and parts delivery system is fully globalized and exceedingly complex. Shocks to any part of the global economy are very likely to disrupt the whole before too long. Nevertheless, it seems likely that some countries will be able to keep their military supplied with fuel, until enough of their equipment wears out.

What, then, of our canonical Peak Oil scenario, which is that global crude oil (and natural gas condensate) production will rise to a lofty peak sometime soon, and then gently waft down, over several decades, until, by the year 2050 or some other distant date, less than half as much oil will be produced globally? Ever eager to present a hopeful vision, I will say here and now that I believe this scenario to be entirely plausible... but it requires alien intervention. As Russian oil production was saved by foreigners, so Earthling oil production must be be saved by aliens from outer space. Here's an updated Peak Oil slide:

Although we have absolutely zero data on which to base this assumption, we must assume that oil production throughout the rest of the universe has not peaked yet. Further, we must assume that interstellar vessels will deliver this oil to Earth in a timely manner, making up for any planetary production shortfall before Earth's economy collapses. Further, since Earth has few resources to trade for this oil, let us assume that the aliens will be happy to give us their oil in exchange for a truly excellent recipe for brioche à tête which (for reasons we should find intuitively obvious) no-one in the rest of the universe has been able to perfect.

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The above article came from Dmitry Orlov's blogsite Club Orlov, dated June 25, 2009. He has written several articles for Culture Change and the Sail Transport Network. Use our Search mechanism to find them!