

Peak oil is defined as the point in time when conventional oil production reaches its maximum possible rate. This point is believed to occur when conventional reserves are depleted by about half, after which the remaining oil becomes increasingly difficult to extract and refine, causing production rates to enter a permanent decline. Peak oil does not mean that oil itself is running out—abundant quantities remain underground—but it does mean that after the peak of production, the rate of supply is slower, the energy return on investment is lower (EROI—how much energy is put in compared to how much one gets out), and the cost of the oil is higher. Peak oil is not a theory. It is a description of the production curve of a finite resource.

According to the International Energy Agency (IEA), world conventional oil production peaked in 2006 at around 72 million barrels/day (mpd). This is backed up by production data, which shows that since 2005, overall production has stopped rising and is now on a flat, undulating plateau. This has caused producers to turn increasingly towards more expensive and environmentally problematic forms of energy like tar sands, deep-water wells, and fracking.

Although the industry promotes the idea that fracking shale and other tight rock formations can drive economic growth for the foreseeable future, this is highly unlikely. As geologists Arthur Berman and David Hughes point out, the decline rates of fracked shale gas wells are astronomically steep, dropping in production by up to 90% in the first year alone. High initial production rates are more than offset by rapid exhaustion rates. Simply maintaining production requires larger and larger investments, which reduces and eventually eliminates profits. For example, in 2012 the industry drilled more than 7,000 new wells at a cost of \$42 billion just to maintain the same production rates as 2011, but the value of the shale gas produced that year was only \$32.5 billion. Production data from various U.S. states also reveals that the industry has overestimated many reserves by as much as 400-500%.

At some point sooner rather than later, therefore, the shale gas bubble will burst, and many investors are going to lose their money. European scientists at the Energy Watch Group predict that U.S. shale oil and gas production will peak after 2015, followed by a sharp decline.

Contrary to industry claims, shale gas is not a clean bridge fuel. According to the journal *Climatic Change*, 3.6% to 7.9% of the methane from fracked shale wells escapes through leaks and venting over a well's lifetime. (These figures may also be grossly underestimated, since it is impossible to measure methane leakage far away from the well head.) And since methane is 20 times more potent of a greenhouse gas than CO₂ over a 100 year period (and 100 times more potent over ten years), the carbon footprint for shale gas is worse than oil or even coal.

The precise date of peak oil is still under debate, but any way one looks at it, the age of cheap oil is ending and energy costs will continue to rise into the foreseeable future, exacerbating the current recession. As we go deeper into the 21st century it has become clear that fossil fuels and the growth-based, capitalist economy that relies on them have failed, causing an ecological and economic crisis beyond anything civilization has faced. These converging global crises necessitate a concerted grassroots effort to transition to a more sustainable and just economic system that is not based on endless growth and whose energy requirements are in parity with the environment. Kicking the global oil addiction is an integral part of this process, and we need to start now.

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