

WHAT THE FRACK?

Scraping the Bottom of the Barrel is Not Good to the Last Drop

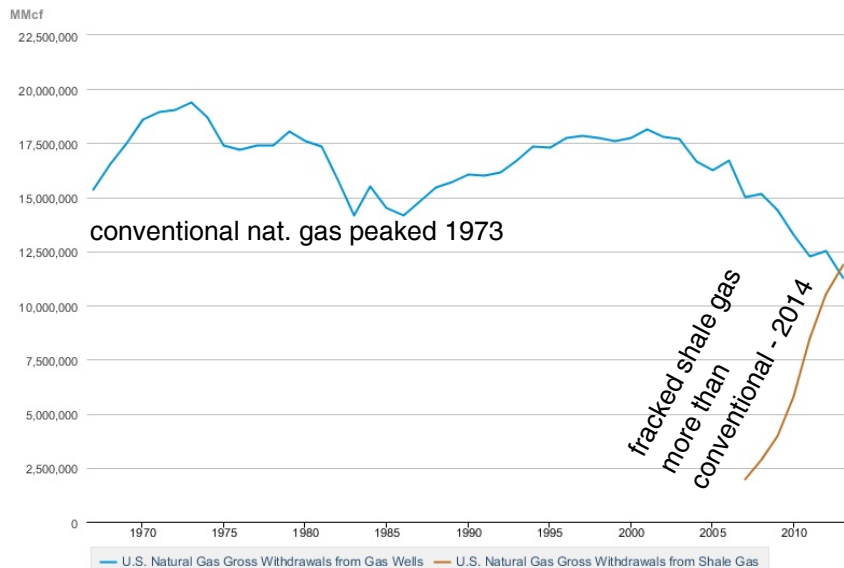
US natural gas peaked 1973, declined sharply since 2000, fracked gas peaking now

Fracking is not only toxic, it also has been exaggerated in the resource size.

Conventional "natural" gas extraction peaked in the US in 1973. The sharp decline of nat. gas since 2000 is the reason for the shale gas fracking boom. Fracked gas keeps cold cities heated in the winter and now runs a major part of the electric grids.

In 2014, fracked gas surpassed conventional gas. But fracked gas is either near or at its peak

Natural Gas Gross Withdrawals and Production



Source: U.S. Energy Information Administration

production, with enormous implications for social cohesion as it declines. Two of the three top fracked gas regions have peaked, due to depletion.

Fracking for gas and oil delayed rationing. Without fracking, Obama would only have lasted one term, since most voters do not like the consequences of economic contraction.

As depletion becomes more obvious, the economic impacts are likely to be extremely profound. Our society is completely unprepared for the downslope in terms of logistics or psychology.

Fracking should be banned but this would have an enormous cost, which is why a ban probably won't happen before depletion.

Exaggerated estimates: fracked oil in California downsized more than 99%

California's oil industry claims fracking in the "Monterey Shale" could extract 15 billion barrels, two years of US combustion. This could pose severe threats to water quality in drought zones, but the other half of the story is the oil is not there.

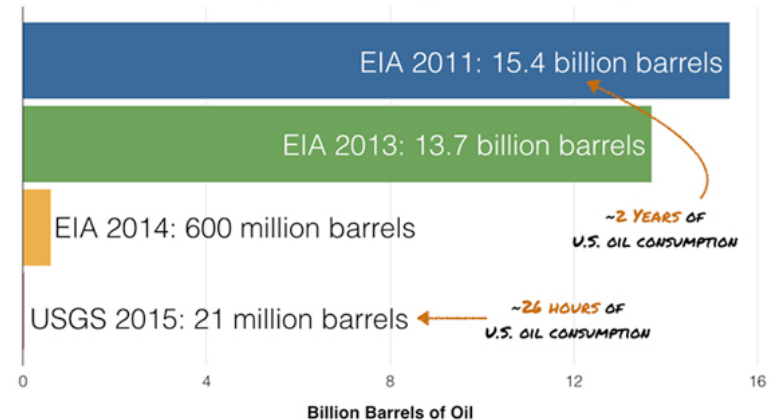
Post Carbon Institute looked at the geological evidence, documenting that these estimates were wildly exaggerated. **details: PostCarbon.org**

In 2014, the Energy Information Administration conceded the estimates were bogus and downsized estimates to 600 million barrels. In 2015, the US Geological Survey further downsized the estimate to 21 million barrels, less than one percent of the original claim. Fracking was a boom and bust.

details: www.PeakChoice.org/peak-frack.html

Monterey Shale chart of fracked oil estimates from PostCarbon.org

Estimates of Technically Recoverable Tight Oil in the Monterey Formation



Peak Blame and the decline of concentrated energy

The reason we use fossil fuels is they are more concentrated and easier to use than sunlight and wind. It would be nice to have simple replacements for this stored energy, but our growth based economy requires ever increasing use of resources.

Now that the easy to extract fossil fuels are in decline, replaced by difficult to extract energy, our economy is having increased difficulty sustaining continued growth.

Economic impacts of energy decline are leading to increased instability, with social chaos that can be as challenging as the ecological damage.

Financial hardships lead to demagogues — the classic example is 1930s Germany. **Trump is indicative of the blaming likely to happen on the energy downslope.**

Energy literacy about energy decline could be a partial antidote for scapegoating, but would require admitting **we have reached the limits to growth on an abundant, round, finite planet.**

Using solar panels for a quarter century taught me **living on our solar budget will power a much smaller, steady state economy no longer based on exponential growth.**

Moving beyond fossil fuels is not about electric cars, but relocalizing food production, since solar panels cannot power long distance food shipments. **Breeding plant varieties for changing climates will probably be the most important adaptation to changing climates.**

— Mark Robinowitz, PeakChoice.org

ALASKA PIPELINE: PEAK & DECLINE

low flow shutdown threshold for Arctic winter estimated to be between 300 and 500 thousand barrels / day (109 million to 182 million / year)

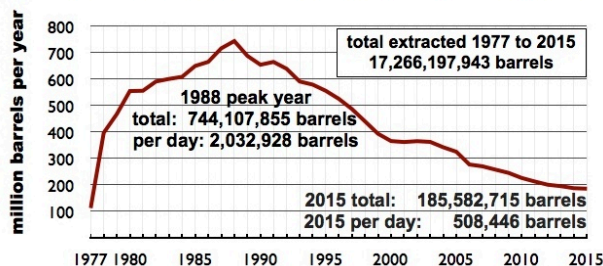


chart: www.PeakChoice.org/peak-alaska-pipeline.html

data: www.alaska-pipe.com/TAPS/PipelineOperations/Throughput

US coal peaked in 1999 due to depletion

Coal depletion is why “export” of coal through the Northwest is unlikely in large amounts.

Coal that only exists in exaggerated estimates cannot be exported.

details: www.PeakChoice.org/peak-coal.html

Geology and Markets, not EPA, Waging War on Coal

cleanenergyaction.org/2014/06/04/geology-and-markets-not-epa-waging-war-on-coal/

The EPA is not waging a war on coal. This isn't to say that a war on coal would be a bad idea, but rather that it's mostly unnecessary. Coal in the US is dying off on its own, and at most what we're doing is equivalent to taking it off life support. Our task is to manage the graceful transition to a much lower carbon energy system.

The proposed EPA carbon regulations are just the first baby steps we need to take down the path of avoiding catastrophic warming. The EPA, the state legislatures and regulatory bodies, and (someday) the US Congress are all going to have to do a whole lot more work in the years to come, working together to transform our energy system much faster and much more profoundly than these regulations alone can.

Because there's so much more work to do, **it is important that we do not allow the EPA and the Obama administration to be made into scapegoats for the decline of the coal industry. We must not allow this kind of work to remain politically poisonous, or we'll never build the kind of momentum we need to finish the job.**

Powder River Basin producers finding it more costly to get to coal reserves

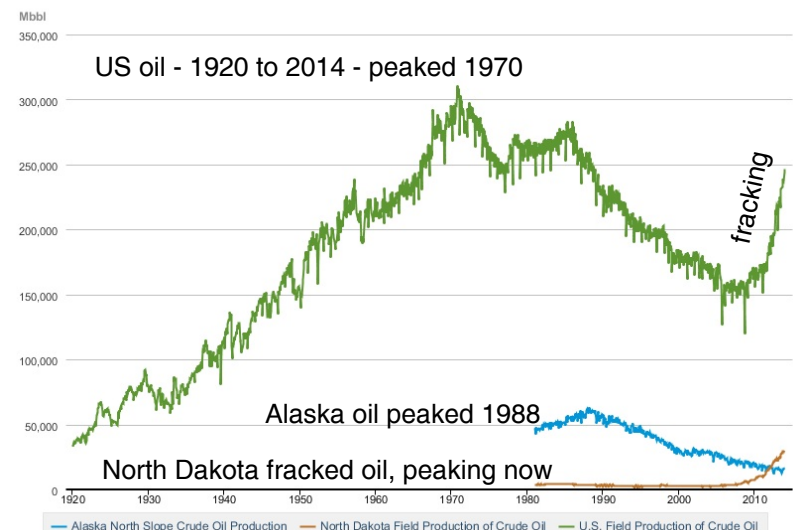
www.platts.com/latest-news/coal/washington/power-river-basin-producers-finding-it-more-costly-21402408

“There's very little low ratio coal out there anymore,” said Al Elser, BLM's assistant district manager for solid minerals in Casper, Wyoming.”

comment from <http://ricefarmer.blogspot.com>
Powder River Basin coal is some of the cheapest in the world. But as this article shows, **the “easy coal” is pretty much gone. That of course means rising prices, and declining net energy. As with oil, coal is not going to literally “run out,” but price increases will create an increasing drag on the economy. It's all downhill from here.**



Crude Oil Production



Source: U.S. Energy Information Administration