

## **Is Shale Gas Too Good to Be True?**

December 1, 2010 by Geoffrey Styles

Yesterday I participated in a webinar on The Energy Collective examining the sustainability aspects of the shale gas revolution. The online audience asked good, probing questions, and if there was a theme to them, it seemed to be that somehow the sudden abundance of natural gas resulting from a novel combination of shale-exploitation technologies--as well as the technologies themselves--must at a minimum be considered a mixed blessing, if not actually too bitter a pill to swallow, because of its perceived shortcoming and the potential threat it poses to other, favoured energy technologies. I find that simultaneously understandable and unfortunate.

I came of age just as US attitudes concerning energy shifted from the assumption of perpetual abundance to perennial insecurity and periodic scarcity. Energy security has been a consistent theme of public discourse for my entire adult life, varying only in intensity as we lurched from crisis to crisis with long respites in between. If the shale gas revolution had arrived thirty years earlier, I'm confident it would have been embraced as a national windfall--a jackpot lottery win. After all, we're talking about a newly accessible resource that is equivalent to finding an Iraq's worth of hydrocarbons under our feet, not deep offshore or in some distant country. Yet despite boosting US gas production to levels unseen since the early 1970s and resetting gas prices to pre-2000 levels, after adjusting for inflation, the reception of shale gas has been decidedly mixed, as witnessed by yesterday's vote by the New York legislature to impose a six-month moratorium on gas drilling in a state overlying a portion of one of the largest gas reservoirs in the world.

Shale gas isn't the silver bullet for our energy and emissions problems, but it can contribute significantly towards alleviating both. Combined-cycle power plants burning gas emit only about 45% as much greenhouse gases as best coal-fired power plants, and comparisons to the oldest, least-efficient US coal plants are even more favourable. At current gas prices, which are mainly the result of the shale gas boom, the resulting power is cheaper than from any renewable source without substantial subsidies, and that most even after subsidies. In the last several years gas-fired power plants have taken market share from coal equivalent to the entire output of all US wind farms, and there's no wait for scaling-up.

At the same time, the concerns about shale gas reflected in some of yesterday's questions are entirely understandable, particularly in an era dominated by low trust in all institutions. For example, is it possible that unreported natural gas leaks are releasing enough methane, which is a strong greenhouse gas, to offset all the emissions benefits from gas-fired generation? Perhaps, even though the gas leaks identified in a new GAO report amount to just 0.2% of US marketed production, and thus equate to only about 6% of the CO<sub>2</sub>-equivalent emissions associated with US gas consumption. But as I noted in the webinar, even if the leaks are in fact much larger they are controllable; they are not an inherent feature of shale gas production in the way coal's CO<sub>2</sub> emissions are inherent in coal combustion.

Concerns about water consumption and safety hit even closer to home. Having reviewed the list of fracking chemicals on Halliburton's website, I wouldn't want them in my drinking water, either, any more than I'd want my family consuming any of the various household chemicals under our kitchen sink or elsewhere in our home. However, there's nothing about the process of hydraulically fracturing shale strata thousands of feet deeper underground than the deepest aquifers that puts our drinking water at any greater risk than many routine industrial or agricultural operations. As a technology fracking is neither newer nor riskier than many other things to which we don't give the slightest thought. Much of the attention it has gained is the result of its application in unaccustomed places--a reaction shared by wind turbines, utility-scale solar plants, and long-distance transmission lines.

The biggest uncertainties associated with shale gas don't concern the size of the resource or our ability to extract it safely, but whether we will decide to allow this to be done on a scale that would make a meaningful difference in our energy and emissions balances, or under such tight restrictions that we will forgo its game-changing potential. Like anything, shale gas drilling and fracking must be done responsibly, in accordance with state and local regulations and to industry standards that are constantly improving. Post-Deepwater Horizon, that's a

much tougher sell, but it doesn't make it any less important. Shale gas isn't perfect energy, not because of any unique imperfections, but because there is no perfect energy source. It requires mature, reasonable assessments of its risks that don't assume that there is.

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