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Gas and Drilling Not Clean Choices

Environmental Risks too Great; Alternative Fuels a Better Option

by Robert Howarth

Natural gas is marketed as a clean fuel with less impact on global warming than oil or coal, a transitional fuel to replace other fossil fuels until some distant future with renewable energy. Some argue that we have an obligation to develop Marcellus Shale gas, despite environmental concerns. I strongly disagree.

Natural gas as a clean fuel is a myth. While less carbon dioxide is emitted from burning natural gas than oil or coal, emissions during combustion are only part of the concern. Natural gas is mostly methane, a greenhouse gas with 72 times more potential than carbon dioxide to warm our planet (per molecule, averaged over the 20 years following emission). I estimate that extraction, transport and combustion of Marcellus gas ? together with leakage of methane ? makes this gas at least 60 percent more damaging for greenhouse warming than crude oil and similar in impact to coal.

The most recent method of hydro-fracking is relatively new technology, massive in scope and far from clean in ways beyond greenhouse gas emissions. The landscape could be dotted with thousands of drilling pads, spaced as closely as one every 40 acres. Compacted gravel would cover three to five acres for each. New pipelines and access roads crisscrossing the landscape would connect the pads. Ten or more wells per pad are expected. Every time a well is "fracked," 1,200 truck trips will carry the needed water.

Drillers will inject several million gallons of water and tens of thousands of pounds of chemicals into each well. Some of this mixture will stay deep in the shale, but cumulatively, billions of gallons of waste fluids will surface. Under current law, drillers can use absolutely any chemical additive or waste, with no restrictions and no disclosure. Recent experience in Pennsylvania indicates regular use of toxic, mutagenic and carcinogenic substances. Out of 24 wells sampled there, flow-back wastes from every one contained high levels of 4-Nitroquinoline-1-oxide, (according to the New York Department of Environmental Conservation). It is one of the most mutagenic compounds known. Flow-back wastes also contain toxic metals and high levels of radioactivity extracted from the shale, in addition to the materials used by drillers.

Industry tells us that surface and groundwater contamination is unlikely, since gas is deep in the ground and drilling operations are designed to minimize leakage. Nonsense. The technology is new and understudied, but early evidence shows high levels of contamination in some drinking water wells and rivers in other states.

Accidents happen, and well casings and cementing can fail. The geology of our region is complex, and water and materials under high pressure can move quickly to aquifers, rivers and lakes along fissures and fractures. Flow-back waters and associated chemical and radioactive wastes must be handled and stored at the surface, some in open pits and ponds unless government regulation prevents this. What will keep birds and wildlife away from it? What happens downstream if a heavy rain causes the toxic soup to overflow the dam? What happens to these wastes? Adequate treatment technologies and facilities do not exist.

What about government regulation and oversight? The DEC is understaffed,underfunded and has no history with the scale and scope of exploitation now envisioned. Federal oversight is almost completely gone, due to Congress exempting gas development from most environmental laws, including the Safe Drinking Water Act, in 2005.

We can be independent of fossil fuels within 20 years and rely on renewable green technologies, such as wind and solar. The constraints on this are mostly political, not technical. We do not need to sacrifice a healthy environment to industrial gas development. Rather, we need to mobilize and have our region provide some badly needed national leadership toward a sustainable energy future.

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Robert Howarth is the David R. Atkinson Professor of Ecology & Environmental Biology at Cornell University. An internationally known expert on environmental issues and water quality, he has worked on the consequences of oil and gas development for more than 30 years. The viewpoint is his own and should not be construed as a position of Cornell University.