

# New York's Ban on High-Volume Fracking Rocks the Foundations of 'Shale Revolution'

By [Peter Mantius](#), on December 31st, 2014

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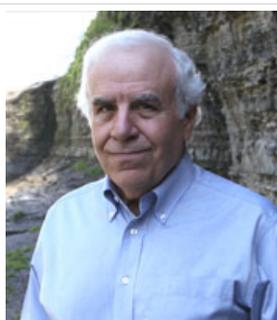
New York Gov. Andrew Cuomo greets supporters and anti-fracking demonstrators after casting his ballot, Tuesday, Nov. 4, 2014, in Mount Kisco, N.Y. (AP Photo/Julie Jacobson)

Emboldened by mounting scientific evidence and shifting poll data, Gov. Andrew Cuomo veered sharply away from America's conventional wisdom about the wonders of high-volume hydraulic fracturing of shale formations when he banned the practice in New York State on Dec. 17. While the oil and gas titans hope to contain the uprising to one state, the environmental advocates who masterminded it are quietly optimistic that it represents a tipping point, signaling impending decline for fossil fuels' decades-long hegemony.

Polls already show Cuomo's decision was a winner with the public. A recent Quinnipiac University poll found that New Yorkers favored the ban by a margin of 55 percent to 25 percent. Even the state's Republicans, who have historically backed fracking, favored the ban 42-40. And while Americans once overwhelmingly embraced fracking, they seem to have flipped. A Pew Research poll in November found that 47 percent of Americans oppose fracking, while only 41 percent favor it. As recently as March 2013, Pew found Americans favored fracking by a 48-38 margin.

For now, the New York advocates say they'll redouble their efforts to block pending fracking-related projects in the state while they try to coax the governor to take the logical next step: leading the nation towards renewable energy.

"My sense is people are very eager to pivot to fighting infrastructure projects without even taking time off for a victory lap," said Sandra Steingraber, a biologist from Ithaca who has been jailed for civil disobedience in protest of plans to store liquid petroleum gas in upstate salt caverns. Other New York activists are targeting proposed gas pipelines, compressor stations, oil trains, landfills that import radioactive fracking waste, and natural gas export facilities.



Tony Ingraffea

Tony Ingraffea, a recently retired geology professor at Cornell University, said he's ready to shift his focus away from the fracking wars. "I think Cuomo's very sincere when he says New York should be a leader in renewable energy. I have supreme confidence in the guy. He said he'd let the science dictate on shale gas, and he did.

"Sandra and I made sure early on that we weren't just 'no' people. The governor knows that. Now he's got all his sails out and the wind is blowing. It's not just the negative about shale, but the positive of renewables. He can ride that for a long time."

Whether or not Cuomo's decision signals a sea change in U.S. energy policy, it was certainly a ground-breaking repudiation of the fossil fuel industry's seven-year public relations campaign to shape conventional wisdom about modern fracking of shale formations.



Sandra Steingraber

Cuomo's ban rests on two harshly negative conclusions about fracking shale: the risks it poses to the environment and human health have been dangerously understated while its economic benefits have been unrealistically exaggerated.

Since 2008, the industry has used its bloggers, PR firms and lobbyists to promise a “shale revolution” that will bring about American “energy independence” even as diligent regulators satisfactorily limit environmental damage. Many in politics and the media have bought in.

Three weeks before Cuomo's bombshell, outgoing Maryland Gov. Martin O'Malley — like Cuomo, a Democrat with presidential aspirations — announced plans to allow shale development in his state. Some 30 states already do, while only Vermont (with negligible oil and gas prospects) and now New York ban it. President Obama has promised to promote shale, and he has cited industry-produced data on its economic prospects.

So Cuomo was bucking the establishment — even within his own Democratic Party — and he was rather reserved about announcing it. He delegated the responsibility of explaining his reasons to state Health Commissioner Howard Zucker and Department of Environmental Conservation Commissioner Joe Martens.



Howard Zucker

Zucker said he'd identified “red flag” health issues that needed more study before fracking can be declared safe. Martens noted that nearly two-thirds of the land area in the deepest Marcellus Shale — New York's most promising drilling region — would be off limits due to state and local rules. And at the current low market prices for natural gas, he said drillers aren't very interested anyway. “I'd say the prospects of (fracking) development in New York are uncertain at best,” Martens said.

Several environmental and health groups were pleasantly surprised by the governor's decision and heaped praise on him. Only weeks earlier they'd expressed deep skepticism about him.

A few who have long been suspicious of Cuomo's motives and intentions say — not for attribution — that evidence suggests that he was wavering until the very last minute on whether to follow the national herd and allow fracking in the Southern Tier. They note that Cuomo had floated that idea in 2012 before bowing to intense opposition. He then called for a detailed study of

fracking's health effects.

Later it was revealed that Cuomo staffers had edited and delayed a federal water study he had commissioned in 2011. The staffers toned down or removed references to environmental health risks of fracking, and they deleted a section on risks associated with gas pipelines and underground gas storage.

As the 2014 election season heated up, Cuomo maintained his neutrality on fracking while assuring both sides of the issue that he would make a final ruling before the end of the year. That neutrality cost him dearly in his state Democratic primary race in September against Zephyr Teachout, a relative political unknown. Although Cuomo won handily statewide, Teachout, an ardent anti-fracker, won dozens of upstate counties. She even defeated Cuomo in five of the eight counties in the Southern Tier area deemed most promising for fracking.

After the November election, in which Cuomo easily won another term, a rumor spread that the governor planned to green-light fracking and dump Martens as DEC commissioner, replacing him with Republican Mark Grisanti, who had just lost his seat in the state Senate. While Martens had carried environmental credentials to the post, Grisanti was a reliable industry ally when he headed the Senate Committee on Environmental Conservation. He had helped kill a bill that would have banned the import of fracking waste products from other states. The Grisanti rumor, which spread so widely that the DEC felt obliged to issue a formal denial, added to the unease within the anti-fracking ranks.

As Cuomo's self-imposed yearend deadline for a fracking decision approached, he reiterated his intention to follow the science. But he seemed to leave the door open for fracking on Nov. 6 when he said, “You can have credentialed academics on both sides — one side says they have more credentialed experts than the other side. They both say the same about the other.”

The governor's statement made Ingraffea and Steingraber cringe. To them it harkened back to pseudo-debates over the existence of global warming. They'd both closely tracked the new peer-reviewed scientific studies on the effects of modern fracking, and they knew the science was coming down strongly on one side — theirs. Cuomo had blurred that fact. “His statement set off alarm bells for us,” Steingraber said.

On Dec. 11, a group Steingraber helped found, **Concerned Health Professional of New York**, released its second edition of a compendium on scientific, medical and media reports on the risks and harms of high-volume fracking. She delivered it to the governor, Zucker's Department of Health and others.

The compendium took issue with an assertion made by Maryland's O'Malley and most fracking supporters that the health and environmental risks of the process can be successfully controlled by appropriate regulation. Not true — at least not so far — the report said. “Growing evidence shows that regulations are simply not capable of preventing harm,” it said. For example, a recent study of air quality in Colorado found that while toxic emissions per well were decreasing due to more stringent regulations, overall air quality continued to deteriorate due to the rapid increase in the number of wells



Maryland Gov. Martin O'Malley



Zephyr Teachout

regulations, even air quality continued to deteriorate due to the rapid increase in the number of wells.

The compendium included summaries of dozens of individual studies that found drinking water to be at risk from disposal practices. Other reports found significant correlations between drilling sites and high readings of carcinogenic benzene, which had turned up in the urine of drill site workers and in the bedrooms of homes near well pads. Others found increased emergency room visits and lower birth-weight babies. In addition, the compendium concluded, "the industry has no solution for rectifying the chronic problem of well casing/cement leakage."

The well casing study, published in June 2014 by a team lead by Ingraffea, documented methane leaks into groundwater or the atmosphere. Analyzing more than 41,000 oil and gas wells drilled in Pennsylvania since 2000, the team found horizontally fracked shale wells leaked at a far higher rate than conventional gas wells and that at least 6 percent of high-volume fracking wells drilled since 2009 leaked. And leaking consistently increased as the wells aged.

Ingraffea also participated in a highly influential 2011 study — coauthored by Robert Howarth and Renee Santoro — that found that the volume of methane leaking



Utica Shale

from all phases of the gas production process was probably much higher than the industry was admitting. It called for further study by independent scientists. The research that has followed strongly supports their original hypothesis.

Ingraffea, like Steingraber, didn't care to rely on state officials to find the relevant science. Both agreed that spoon-feeding was the prudent path. "I've never yet seen powerful data all by itself change anything," Steingraber said. "It has to be carried by someone into the political arena."

After all, DEC officials consistently failed to include the latest scientific data and analysis in versions of their supplemental generic environmental impact statement — proposed state rules of the road for high-volume fracking. "The first and second versions of the SGEIS had missed 90 percent of the papers," Ingraffea said. "It was clear the consulting firm working for the DEC was filtering them."

When the first SGEIS was issued in 2009, there were only six peer-reviewed studies on fracking impacts, he said. In the past five years, 400 more have been published. In early December, the group **Physicians, Scientists and Engineers for Healthy Energy**, which Ingraffea co-founded, delivered those studies to the Cuomo administration.

PSE included a statistical analysis of the reports. It found that 87 percent of studies that considered health impacts of fracking found potential or actual adverse impacts, while 13 percent found no significant health risks. More than 95 percent of studies dealing with fracking's effect on air quality identified harms, while less than 5

percent found none. Roughly 73 percent of studies on water found harms, while 27 percent did not.

The DOH's Zucker said more longer-term health studies were needed, but he likened the effects of fracking to harm caused by second-hand smoke, which weren't fully understood for many years. Of 30 early studies, only nine found harm from second-hand smoke, Steingraber noted.

If Zucker's conclusions were influenced by input from the Ingraffea and Steingraber groups, Martens surely took note of Jerry Acton's analysis showing the limited economic potential of drilling the Marcellus Shale in New York.





A hydraulic fracturing operation at a Marcellus Shale well (Wikipedia)

Acton, a former systems analyst at IBM and Lockheed, analyzed hundreds of gas wells in Pennsylvania. He found that initial production results correlated very strongly with the depth and the thickness of the drilled shale formation. It showed a sweet spot of highly successful wells only 40 miles southwest of Binghamton, N.Y., that were drilled into shale that was notably deep and thick. But as the shale formation in Pennsylvania rose toward the surface and thinned out, the results dropped markedly (and predictably, based on Acton's criteria). New York's Marcellus is much shallower and thinner than the noted Pennsylvania sweet spot. Its geology is far more similar to the geology in the Pennsylvania regions that have been poor producers.

In an update issued in November, Acton noted the national market price for natural gas has ranged from \$3.50 to \$5 per thousand cubic feet for many months, and usually hovered below \$4. That's well below the cost of extracting gas from even the most promising areas of New York, he found. "Break-even prices in New York are all above \$7 per thousand cubic feet," Acton concluded. "Profitable recovery of natural gas in New York is unlikely at current prices or at prices in the near future."

Acton found that the state's SGEIS document had overestimated New York's total economically extractable gas by a factor of 20 or more. Art Berman, a nationally-known geologist and petroleum exploration and production expert used a different methodology to arrive a similar results for New York's prospects. Like Berman and oil and gas experts at the Post Carbon Institute, Acton doesn't believe industry claims that shale formations across the country assure years of cheap and abundant natural gas supplies. "All of shale is vastly overhyped," he said in a recent interview.



Jerry Acton

**The Post Carbon Institute** notes on its website that the Energy Information Administration, an arm of the U.S. Department of Energy, is the go-to authority on oil and gas prospects even though it has repeatedly missed the mark. "Policymakers, media, investors and the general public typically receive EIA forecasts with little to no circumspection, despite their poor track record," the institute says. EIA once estimated the Marcellus Shale to have 410 trillion cubic feet of recoverable natural gas, but it has since slashed that estimate by 80 percent to 84 tcf. It once estimated Poland's shale potential at 187 tcf, but later cut that to 1.3 tcf. EIA also blundered in estimating how much oil could be extracted by modern fracking in California. It cut its initial projection of 15.4 billion barrels by 95 percent to 600 million barrels.

In New York State, Acton found a wide gap between the hopeful expectations of landowners and economic reality. He found break-even prices for several areas with active landowner coalitions to be more than \$20, while break-even exceeded \$40 for others. That's five to 10 times the current market price of gas.



Congressman Tom Reed

The expectation/reality gap is at least that wide in Steuben County, home of Congressman Tom Reed (R-Corning), co-chairman of the pro-industry Congressional National Gas Caucus. Reed told supporters that Congress may have the authority to reverse Cuomo's state ban. "This is about presidential politics, trying to win a presidential primary," Reed said.

Meanwhile, several landowner coalitions have threatened to sue the state over its "takings" of their members' rights to cash in on gas leases and royalties. Rumbings about such filings have occurred for at least five years, but those legal initiatives have never progressed to the satisfaction of their backers.

**The Joint Landowners Coalition of New York Inc.** plans a rally for supporters Jan. 5 in Binghamton, according to its website. "This will need to be the biggest gathering of landowners and NG supporters ever," the online notice said. "Each and every single one of you is asked to be there with all the friends, family and extended family you can bring to prove Gov. Cuomo and his lackeys are lying frauds."

The notice is accompanied by a cartoon showing Cuomo's face on the body of brown dog defecating on the eight counties of the Southern Tier that they believe hold the best economic potential for shale drilling.



While the landowners coalitions continue their passionate support of gas drilling, the industry's biggest players have retreated from New York. Lou Allstadt, a former head of oil and gas exploration and production in North America for Mobil Oil before it merged with Exxon, said major energy companies drilled test wells in New York more than five years ago and were generally disappointed with the results. Since then they've been relatively quiet about the fracking squabble in New York.

But Cuomo's ban has symbolic — if not immediately practical — significance for the energy giants. Because as other states see that New York has followed Germany's example in banning fracking, others jurisdictions could follow.

Karen Moreau, executive director of the New York State Petroleum Council, called Cuomo's ban irresponsible. She said the state's "families, teachers, roads and good-paying jobs have lost out to political gamesmanship ... A politically motivated and equally misinformed ban on a proven technology used for over 60 years — throughout the country to great success — is shortsighted and reckless, particularly when New York depends on safely produced natural gas just over the border in Pennsylvania ... We look forward to continuing to work with the landowners and our labor allies, who are focused on creating jobs. This is a missed opportunity to share in the American energy renaissance and for New York's future prosperity."

Ingraffea noted it's technically inaccurate to use "fracking ban" as a short-hand term for Cuomo's action. He pointed out that fracking has been done relatively safely in New York for about 60 years and will continue. However, high-volume hydrofracking that injects millions of gallons of water, sand and unspecified chemicals along the horizontal plane of a shale formation is a 21st century innovation. That's what New York is banning. Even that type of drilling might be permitted in New York if water use is limited to less than 300,000 gallons per well.

But activists don't consider that much of a threat because they doubt the economics work. Instead they are focused on blocking pending fossil fuel infrastructure projects and on unleashing the potential of solar, wind and other renewable energy options. They also need to keep their movement energized in the wake of their huge victory with the ban.

"I think it's human nature that it will lose some steam," said Bill Podulka, a Cornell-trained physicist who chairs **Residents Opposed to Un-Safe Shale Gas Extraction**, or ROUSE. "There are only so many years you can put that much effort out. But I do see a core of people who have gotten the idea. And the flip side is the hope (the ban provided)."

Podulka helped plan a November conference at Ithaca College titled "Fracking's Collateral Damage" that addressed pending infrastructure projects. It drew several dozen activists from around the state. He said he believes the battles over the New Market and Constitution pipeline projects will generate the most heat, if only because they disturb so many properties over dozens of communities. Other projects are apt to continue drawing intense local opposition. They include Crestwood Midstream's planned liquid petroleum gas, or LPG, storage project near Watkins Glen and the proposed Port Ambrose export terminal for liquified natural gas in the ocean off New York City. Here is a map that locates and describes more than 20 New York energy infrastructure projects: <http://www.youareherenymap.org>.



From the Joint Landowners Coalition of New York website



Bill Podulka



The pipeline battles are fundamentally different from the fracking fight because they are ultimately decided by the Federal Energy Regulatory Commission rather than Cuomo and state officials. While Cuomo proved to be flexible enough to respond to polls and overwhelming science, activists doubt that FERC will ever prove so responsive. Many view FERC as an entrenched regulatory fortress that defends the fossil fuel industry against all challengers, including communities with health and safety priorities. More than one has considered mounting a federal court challenge to FERC's perceived bias.

But Podulka dismissed that as a long shot because the commission is quite well insulated legally and politically. "You'd need a lot of legal firepower to launch that, and you have to find the resources to fight that battle," he said. Plus, FERC "feels it has a lot of protection from this (incoming Republican) Congress."

The current climate in Washington seems unlikely to produce either a carbon tax or new subsidies for wind, solar and other renewables that would match existing fossil fuel subsidies, Podulka added. "We're not going to see too much federal action," he said. "The best we can hope for is Congress won't do too much to discourage renewables."

Even if federal policies through the 2016 election tend to chill renewable development, Cuomo has the authority to boost state financial incentives for solar and provide ample funding for renewables research, Podulka said.

Cuomo has already taken steps to capitalize the state's "Green Bank," and the state Public Service Commission is taking steps to reform electric utility regulation to accommodate major changes in small-scale renewable energy sources and the state's electric grid.

In October, the Green Bank said it had agreed in principle to complete \$200 million in transactions with financial and energy market players. For example, two banks are in advanced negotiations to finance BQ Energy's 4 megawatt SteelSun ground-mounted solar photovoltaic project in Lackawanna. The Green Bank will provide guarantees and other financial incentives to the lenders.

Meanwhile, Acton is working with members of Ingraffea's PSE group to continue developing plans to shift the state's energy source mix away from fossil fuels. In March 2013, a PSE board member, Stanford professor Mark Z. Jacobson, co-authored a study that found it technically and economically feasible to convert the state's electric power system to one fueled exclusively by wind, water and sunlight.

Ingraffea said Cuomo is well aware of the Jacobson paper. "I know he's seen it, talked to people about it," he said. "He hasn't dismissed it as some academic exercise."



Mark Z. Jacobson



**Peter Mantius**

Peter Mantius is a reporter in New York. He covered business, law and politics at *The Atlanta Constitution* from 1983-2000. He has also served as the editor of business weeklies in Hartford, CT, and Long Island. He is the author of *Shell Game* (St. Martin's Press 1995), a nonfiction book on Saddam Hussein's secret use of a bank office in Atlanta to finance billions of dollars in arms purchases from Western countries before the 1991 Persian Gulf War.

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**OurRight** · a month ago  
 Why haven't they shut down the natural gas pipelines to NY? If it is such a health hazard how can anyone use it? Why isn't NG and its use banned in NYS? Is Cuomo going to have a buy back program for all gas furnaces, stoves, dryers, generators? Will there be a surgeon general's warning attached to any product having anything to do with Fracked gas? Where is the outrage from those activist to follow through? How is it NYS can use what it condemned?  
 3 ^ | v · Reply · Share

**Ops45** · a month ago  
 Another one-sided bunch of nonsense masquerading as reporting. "Emboldened by mounting scientific evidence and shifting polling data" is correct on the shifting polling data. since the Governor is so focused on his personal political future and demonstrates no

interest whatsoever in the economy and residents of the state of upstate New York. As far as mounting scientific evidence, let's take a look at an examination of Zucker's "analysis" (<http://www.morganlewis.com/pub...>

"Acting New York State Health Commissioner Howard Zucker announced the NYSDOH conclusion and also commented personally that he would not allow his family to drink tap water in an area where hydraulic fracturing occurred, a comment that apparently garnered no mutual support at the cabinet meeting. The NYSDOH report itself is inconclusive. The report's executive summary states the following:

"[I]t is apparent that the science surrounding HVHF [High Volume Hydraulic Fracturing] activity is limited, only just beginning to emerge, and largely suggests only hypotheses about potential public health impacts that need further evaluation . . . . As with most complex human activities in modern societies, absolute scientific certainty regarding the relative contributions of positive and negative impacts of HVHF on public health is unlikely to ever be attained. In this instance, however, the overall weight of the evidence from the cumulative body of information contained in this Public Health Review demonstrates that there are significant uncertainties about the kinds of adverse health outcomes that may be associated with HVHF, the likelihood of the occurrence of adverse health outcomes, and the effectiveness of some of the mitigation measures in reducing or preventing environmental impacts which could adversely affect public health."

[see more](#)

3 ^ | v · Reply · Share ›



**rockjockpa** · a month ago

Excellent summation of nearly every bit of inflammatory flagrant anti-fracking propaganda ever published. If you are using thoroughly debunked Ingraffea as an expert you are dredging the bottom of the barrel. Perhaps you should have interviewed some real experts that have done REAL research and publish their work in real scholarly publications. And good luck with those solar and wind projects.

So please turn up the thermostats and thank the frackers for keeping you warm.

3 ^ | v · Reply · Share ›



**jackson** → rockjockpa · a month ago

what will you tell your grandchildren about how you made all your money and why you felt hoarding wealth was more important than their health?

2 ^ | v · Reply · Share ›



**Joseph Skorupa** → rockjockpa · a month ago

I see, we had no thermostats, nor ways to keep ourselves warm prior to about 2008?

^ | v · Reply · Share ›



**rockjockpa** → Joseph Skorupa · a month ago

No, without the shale revolution and fracking you and those less fortunate on fixed incomes and in poverty would likely be paying 4 to 5 times as much for nat gas, realize that in 2008 gas prices peaked at nearly \$15/MCF and they are at \$3.00 now.

I am shocked that you support greatly increasing costs on those least able to afford it. That would be the direct effect of banning fracking. I would expect you to be a bit more compassionate to those in need.

^ | v · Reply · Share ›



**tke265** · a month ago

can you spell b u l l s h i t

2 ^ | v · Reply · Share ›



**Frank Chernega** · a month ago

Health is without a doubt the overriding factor in all of this. Zucker was not qualified to render a decision on drilling as he had no Masters in Public Health (MPH) like a doctor in his position as NY DOH commissioner should have. Former DOH commissioner Dr. Nirav Shah has an MPH and so does this doctor, Dr. Theodore F. Them, from Sayre PA Guthrie Clinic, who is chief of their Occupational and Environmental Medicine dept. In addition Dr. Them also has a PhD in inorganic and bioinorganic chemistry, as well as his M.D.

He also has a PhD in inorganic and bioinorganic chemistry as well as his M.D.

and says Zucker's report is exposed as a sham in this radio interview - <http://marcellusdn.podbean.com...> To listen click on the "listen now" triangle below the 6 line paragraph. If we landowners get 4 -5 more PA doctors like Dr. Them who live and practice in PA where drilling is done, Zucker's report is toast.

2 ^ | v · Reply · Share ›



**Joanne Corey** · a month ago

Thanks so much for the excellent article. As a resident of a Broome County town on the PA border, I'm happy that HVHF will not be coming to our state. We've seen too many problems for our PA neighbors.

One small correction: Dr. Ingraffea was not a geology professor at Cornell. He was the Dwight C. Baum Professor of Engineering in the civil and environmental engineering department. His specialty is rock fracture mechanics.

3 ^ | v · Reply · Share ›



**turkey** · a month ago

Brilliant piece of work in this subject.

1 ^ | v · Reply · Share ›



**Joe Tex** · a month ago

Excellent overview !

1 ^ | v · Reply · Share ›



**Pat Goldsmith** · a month ago

What a fantastic article, thorough, knowledgeable, in-depth: thank you very much! I agree with Dr. Steingraber. I am ready to pivot without pause to fighting against fracking infrastructure and to making New York the renewable energy capital of the world. Those who favor fracking like to say that those of us who oppose it are hypocrites. Not true. We favor an immediate transition to renewable energy. Natural gas is not a bridge to renewables. It is in direct competition with the resources we need now to get off fossil fuel. The billions of dollars sunk into new pipelines, compressors, cracking factories, etc. are billions that we need to put into renewable infrastructure now. That's where you'll find good-paying, permanent local jobs and the economy of the future. There isn't a moment to lose!

1 ^ | v · Reply · Share ›



**Jake Jackson** · 25 days ago

What's irresponsible is pro drilling people such as Karen Mareau and others calling it "Junk Science" and "Proven technology being used for over 60 years" That statement is a lie. the UNCONVENTIONAL Slick-water hydro-fracking technique has only been happening since 2005 when Cheney got Bush to sign the energy bill with included the Halliburton Loophole. If these people only knew how ridiculous and ignorant they sound touting an extremely toxic industry, arguing with Scientists, Doctors and Health professionals that it's not dangerous. What do any of these experts get for falsify any of the Science? It's very obvious in PA what the negative impacts are. Just go visit some of the families living without potable water for more than 5 years. Or the farmers whose cattle are all born with birth defects or dead. Check out some of the major fish kills that happened in the streams and creeks of PA where drilling waste was dumped or leaked into them. It's a toxic industry that needs to stop for the benefit of all living things! Especially our children.

^ | v · Reply · Share ›



**Taxpayer1301** · a month ago

Yes, there are many of us fractivists who have already turned to the battle for renewables. No need to pause, this is a true fight for energy independence not the faux one puffed up by the fossil fuel companies and their fellow-travelers like Rep. Tom Reed.

^ | v · Reply · Share ›



**Mary Sweeney** · a month ago

Great article, thank you!

The article notes that "a recent study of air quality in Colorado found that while toxic emissions per well were decreasing due to more stringent regulations, overall air quality continued to deteriorate due to the rapid increase in the number of wells." I think this raises an important point that cannot be emphasized enough: since shale gas wells deplete rapidly, more and more wells have to be quickly drilled and fracked in order to maintain a steady supply of gas. This means that even if each individual well posed only a small risk of harm to the environment and/or public health and safety, the overall risk would still be large. (In other words, a small, per-well risk

multiplied by a very large number of wells can still result in an unacceptably large risk.) Moreover, the large number of wells required results in industrialization of rural and suburban landscapes--a problem that regulations cannot solve unless they severely limit the number of wells, which would in turn severely limit the amount of gas extracted as well as any economic benefit from the gas.

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**Frank Chernega** · a month ago

This doctor disagrees - <http://marcellusdn.podbean.com...>

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