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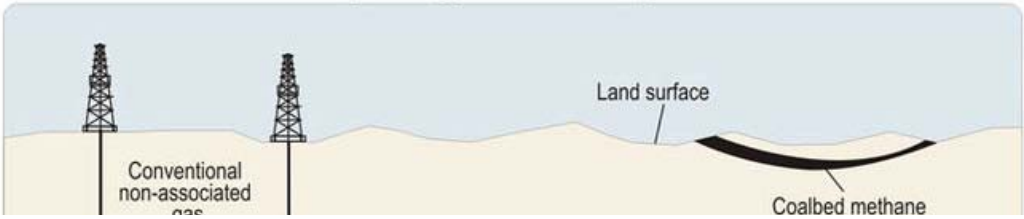
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Does Anyone Really Know How Long the Shale Gas Boom Will Last?

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For everyone with an opinion on natural gas, fracking and the great American shale gas boom, the holiday season kicked off with a bit of a bombshell when the prestigious science journal *Nature* [published a news feature](#) that called the decades-long promise of abundant natural gas a “fallacy.”

In broad strokes, that assertion was based on what has become a pretty familiar argument in energy circles: That forecasts for the longevity of the shale gas boom, including projections from energy companies and the federal Energy Information Administration, are little better than guesswork. Multiple indicators suggest that boom might go bust much sooner than expected, critics say — perhaps just a few years from now.

If that were to prove true — a point that is the subject of rancorous debate today — it might raise real questions about current American energy policy.

Natural gas, after all, is the cleanest-burning fossil fuel, it has [enjoyed tremendous rhetorical support from the climate-conscious Obama administration](#) — and even [grudging support from many green groups](#). And the expectation that new drilling techniques will keep the nation awash in cheap natural gas for many decades is driving plans to [begin exporting the fuel as liquefied natural gas, or LNG, to global markets](#) — a historical first in the continental U.S.





It has also helped to justify [tough new federal emissions regulations for existing power plants](#), proposed by the Environmental Protection Agency and slated for implementation in the next two years. Should that come to pass, the new rules — which target both particulate pollution and carbon dioxide emissions — would almost certainly force utilities to shutter many coal-fired power plants and make the switch to natural gas.

Needless to say, the new regulations will spend a good deal of time [being fought over](#) in [federal courts](#). But it's clear that the United States is putting a lot of eggs in the natural gas basket. And that makes studies like the one that appeared last month in *Nature* all the more worrisome for some industry watchers.

To be sure, warnings that the domestic natural gas supply might be over-hyped have been [percolating](#) in the [news media](#) for [several years](#). The concern is in part driven by the observed drop-off in production rates at many existing shale gas wells. Such wells often deliver mightily in the first year or so, only to quickly go feeble. This, some critics have argued, is unsustainable, as companies are forced to rapidly drill new wells in order to make up for the rising losses at existing ones — and always in areas that are less productive than the last.

The *Nature* article takes things further by tucking into research out of the University of Texas at Austin. That research, funded by the [Alfred P. Sloan Foundation](#), suggests that while many gas-bearing shale formations are geographically vast, the number of so-called “sweet spots” where the fuel can be extracted in meaningful volumes could be far smaller than originally thought. That conclusion derives in part from UT's use of a much finer-scale analysis of four major shale formations — the Marcellus, Haynesville, Fayetteville and Barnett plays — than those conducted elsewhere. In a [prominent information graphic](#), the *Nature* analysis suggested that the UT team's aggregate projections show a precipitous decline in natural gas production beginning just five years from now, while projections from industry, and even the federal government, show copious amounts of stable or rising gas production far longer into the future — in one case through 2040.

The analysis echoes work by other researchers, including [J. David Hughes](#), a geoscientist and research fellow at the [Post Carbon Institute](#), a sustainability think tank based in California. In October, Hughes published a 300-page analysis, titled “[Drilling Deeper](#),” which concluded that shale gas — as well as shale oil — is “unsustainable in the medium- and longer-term at the rates forecast by the EIA, which are extremely optimistic.”

It’s telling, of course, that the researchers from UT’s Bureau of Economic Geology (BEG), which is spearheading the shale analysis published in *Nature*, penned [an angry letter](#) to the editors of the journal, suggesting that the author had grossly misrepresented their research — including in that dramatic chart. “The feature includes no original scientific data or work, misrepresents the BEG study results, ignores the treatment of uncertainties and scenarios, and editorializes a very important global issue,” the researchers declared.

The U.S. Energy Information Administration also chimed in, [suggesting in a scathing letter](#) that the article was “filled with inaccurate and distorted reporting.”

That may well be the case, but it might still be worth considering the consequences should predictions of a looming falloff in natural gas production prove correct. Quite aside from the myriad environmental questions that continue to swirl around fracking, from air pollution and water contamination to methane leakage and exacerbated climate impacts, what happens if the nation bets too optimistically on the long-term availability of natural gas? With coal-fired power facing ever-steeper regulatory hurdles, what happens if natural gas production plummets and prices skyrocket? Is the rush to export natural gas a wise move, given the uncertainties that linger over the resource’s long-term availability?

Such are the sort of concerns being raised by critics like Art Berman, a geologist and long-time skeptic of the shale gas boom. If the most dire predictions are correct, Berman recently [wrote at his Petroleum Truth Report blog](#), the U.S. might find itself suddenly saddled with a gas-reliant infrastructure at precisely the moment when coal has been regulated out of the running as a ready alternative, nuclear power remains costly and politically unpopular, and renewables would still represent a tiny fraction of the American electricity production portfolio.

“Add it all up and it’s potentially a huge mess,” Berman wrote.

If you’re the EIA, such concerns fail to miss the larger picture. Pointing to a [similarly worrying editorial](#) that accompanied the article in *Nature*, the agency suggested in its letter that there are always winners and losers in the energy game, that economics drives innovation, and that the U.S. energy industry is nimble enough to re-purpose export terminals, redirect pipelines and otherwise adapt to changing circumstances without much fear of so-called technological “lock-in.”

“While there will undoubtedly be losing investments in natural gas (and in other energy technologies such as nuclear, biofuels, and renewables), does *Nature* really suggest that we take a time out until uncertainty is resolved?” the agency argued. “And, despite, the views expressed by writers of the feature and editorial, uncertainty regarding prospects for natural gas supply will continue to be two-sided, with upside as well as downside possibilities.”

Whether the upside or downside projections will prevail, of course, remains to

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be seen. If gas outputs are still flowing and growing 10 or 20 years from now, the skeptics will have been proven wrong — though if they're right, we'll know sooner than might be comfortable for a lot of stakeholders. For now, the lesson may simply be this: Shale gas resources are buried at mind-boggling depths, and in many important ways, even the experts are still very much groping in the dark.

Tom Zeller Jr. has written on energy and environment for The New York Times, The Washington Post, National Geographic, HuffPost and Bloomberg View. You can follow him on Twitter [@tomzellerjr.](#)



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