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Battle Rages Over Forecasts for U.S. Gas Production

By Robert Fares | December 16, 2014 | 1

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Earlier this month, the prestigious academic journal *Nature* published a news feature titled “Natural gas: the fracking fallacy,” casting doubt on the long-term prospects of the U.S. natural gas supply*. The article cited recent findings from an interdisciplinary University of Texas (UT) study showing future gas production from the four major U.S. shale formations could fall far short of estimates from the U.S. Energy Information Administration (EIA) and others. *Nature* argues UT’s findings are indicative of systemic errors in the way EIA and industry forecast gas production, and warns the future U.S. natural gas supply might be “vastly overestimated.”

The source of the discrepancy between UT’s projection and those from EIA and others is the spatial resolution from which current and future well productivity is calculated. To approximate how much natural gas will be produced from a region in the future, the EIA divides the country into smaller geographic blocks, and then uses information about current natural gas production to project how much natural gas will be produced from each block. For example, the EIA slices up shale

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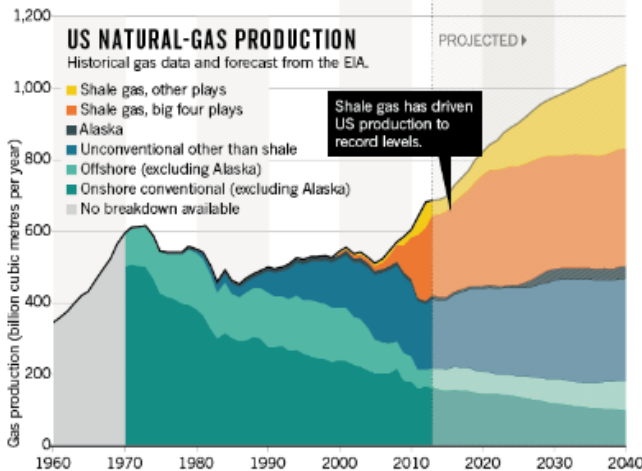
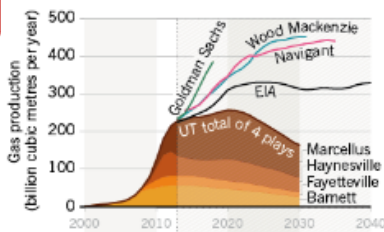
problem is that they are far distributed over the extent of a county. Rather, there are shale gas “sweet spots” within each county that drilling companies work hard to identify and exploit as soon as possible. To include the effect of these sweet spots in their projection, the UT researchers analyzed natural gas production from geographic blocks just one square mile in area—a resolution 20 times finer than that used by EIA. Doing so revealed just how much shale gas sweet spots might throw off estimates of future production: the UT researchers predict production from the four most prolific shale formations in 2030 will be about half what the EIA estimates.

Since its initial publication, *Nature*’s article has stirred up its fair share of controversy. The most notable criticism by far came on Sunday from EIA Deputy Administrator Howard Gruenspecht, who [issued](#) a sharp rebuke of the article, saying it “misconstrues the actual relationship between EIA and [UT],” and “is filled with inaccurate and distorted reporting.”

EIA’s chief criticism is that *Nature* “selectively [collected] information and sources to fill . . . a dramatized story line built around . . . a (false) conflict meme.” While *Nature* frames the discrepancy between UT and EIA’s estimates as a “Battle of the Forecasts,” EIA argues the variation seen between UT’s, EIA’s, and industry’s forecasts in *Nature*’s own graphic illustrate the fact that EIA and UT are just two

FORECASTS

Gas production in the United States is climbing rapidly, and the US Energy Information Administration predicts long-term growth. But studies by the University of Texas at Austin forecast a much more pessimistic outlook than those offered by the EIA and several companies, such as Goldman Sachs.



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voices in a continually-evolving quest to predict future U.S. gas production as accurately as possible. According to EIA, the presence of a discrepancy does not imply that there is a conflict between EIA and UT. Rather, disagreement amongst researchers is an integral part of a cooperative scientific process that seeks to improve humanity’s collective knowledge.

EIA’s second major criticism is that *Nature* overly inflated the claim that U.S. natural gas production might decrease sooner than expected, arguing the news article and accompanying editorial function as an integrated “newsatorial” that blurs the line between objective reporting and editorial opinion. EIA points to the fact that *Nature* featured extensive comments from UT Department of Petroleum and Geosystems Engineering Chair Tad Patzek, who serves as President of the Association for the Study of Peak Oil and only authored one of the five original research papers cited. Patzek’s quotes take on an alarmist tone (“We’re setting ourselves up for a major fiasco.”), while quotes from UT Bureau of Economic Geology Director and study co-Principle Investigator Scott Tinker are much more measured (he calls his team’s estimates “conservative,” and indicates actual production could turn out to be higher).

Evidence from the popular media suggests EIA is correct that *Nature* might have misconstrued the key takeaways from UT’s study. For example, an *Ars Technica* article reporting on *Nature*’s story [used](#) the headline “US natural gas production could peak in 2020,” despite the fact that UT’s analysis focuses on production from only four major U.S. shale gas formations—not the whole of the United States. Production from these four formations cannot be extrapolated to describe total U.S. gas production, as evidenced by the fact that EIA predicts production from the four formations in question will level off by 2020, but total U.S. production will continue to rise until 2040. *Ars Technica* was far from the only news outlet to either implicitly or explicitly extend UT’s results to cover the whole United States.

For the most part, I think EIA’s criticism of *Nature*’s article and accompanying editorial are fair. While it’s true that natural gas production could decline more quickly than many realize, our knowledge of the future is far from definitive, and *Nature* did not frame its stories in a way that sufficiently acknowledged and quantified the uncertainty surrounding natural gas production forecasts.

This is not to say that there is not an element of truth to *Nature*’s article and editorial. The findings from the UT study indicate that the way natural gas potential is conventionally quantified has clear limitations. These limitations are something we should acknowledge and apply to improve our understanding of the U.S. natural gas supply and what role natural gas should play in the global energy transition.

EIA has asked *Nature* to “recognize the shortcomings of its reporting and provide its readers more insightful and scientific coverage” of natural gas in the United States. It seems *Nature* may have ignited a real battle in the way it framed the “Battle of the Forecasts.” I’m eager to see how *Nature* will respond to EIA’s condemnation.

* Scientific American is part of the Nature Publishing Group.



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About the Author: Robert Fares is a Mechanical Engineering Ph.D. student at the University Texas at Austin, where he studies the economic and environmental implications of emerging grid technologies. Follow on Twitter [@robertfares](#).

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Great article by Mr. Fares, pointing to how we may, in all the hoopla about how “energy independent” the US suddenly seems to be, may *not* be for all that long. Every time I drive by a gas station and see a lower price than the last time I drove by, I take the long view and remember that “we’ve seen this movie before”. I think we’d be well advised to invest the savings we are enjoying in the short term in some long term infrastructure such as solar and wind, and an updated national power grid.



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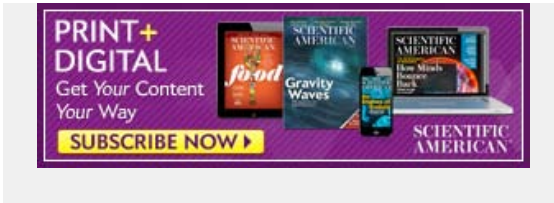
One quibble, if I may. I was dismayed to see a publication of this calibre allow a spelling error to get through: “it’s”:

“Since it’s initial publication, Nature’s article...”

Mr. Fares thus joins the ever-lengthening parade of those who don’t know the difference between the possessive form – “its” – and the contraction “it’s”.

Does SA employ editors who check such things? One must wonder if budget cuts are cutting into credibility here.

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