

Exclusive

## UT study shows greater Barnett reserves, slower decline rate

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In a report that may alter the way shale gas fields are viewed, the University of Texas at Austin's **Bureau of Economic Geology** indicated the Barnett Shale has cumulative reserves of 44 Tcf and will decline at a much slower rate than previously assumed.

The study, funded by the Alfred P. Sloan Foundation, was released Feb. 28. The authors of the report concluded production has likely reached its peak at approximately 2 Tcf/year, but they said fears of a rapid dropoff are unfounded; production will still be at approximately 900 Bcf/year in 2030.

Scott Tinker, the director of the BEG and co-principal investigator for the study, said the analysis of each of the 16,000 wells drilled in the Barnett through mid-2011 allowed for a more comprehensive look at the play and its production levels.

"What [the findings] speak to is that [shale gas] fields are not falling off a cliff," he said. "The wells have steep declines, but the fields do not. It's more like a mound, not a mountain."

The ability to look at every well gave the investigators a few surprises, Tinker said.

"The production quality was a bit of a surprise; it's not homogenous," he said. "There are 3 to 4 to 5 Bcf wells, down to ones around 1 Bcf."

Tinker said the study assumed "rigorous economics," with prices remaining at \$4/Mcf. At that price, he said, there are a lot of wells that can be drilled in the Barnett, but not throughout the play. Taking the exact locations of the wells into account, he said, as opposed to taking an average per square mile of the play, helped lead the BEG to more robust conclusions than those of the [U.S. Geological Survey](#). The USGS estimated fewer reserves and a greater decline rate.

"We were able to see what was low-quality rock and what was high-quality rock. ... There's a lot of good rock to be drilled in the good areas, and that may be the primary difference," Tinker said. "In some of the better areas of the Barnett, they have already drilled 20 wells in a square mile; and in the lesser areas they haven't drilled any, or they drilled one, saw it wasn't producing that well and didn't go back. That gives you a different result than just assuming there are approximately eight wells for every square mile."

Assumptions that \$4/Mcf is not a sufficient price to support long-term gas production are also inaccurate, Tinker said.

"There are a lot of wells very economic at \$4," he said. "Some are not. You can't write the whole field off because of an average. You've got to be a lot more granular than that."

The BEG is in the process of completing similar studies on the Haynesville, Fayetteville and Marcellus shales. While the geologies differ, Tinker said, the findings from the Barnett study suggest the nation's supply of shale gas could last longer than skeptics anticipate.

"If you put these together, you can see the composite of those plays, along with the other plays in the U.S., being a long-term rise [in production] with a plateau several decades from now," he said. "If I were to hypothesize, that would be a reasonable guess."

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