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Project aims to improve natural gas production

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The Kansas Geological Survey is teaming up with Wichita-based American Energies in a project to demonstrate a new technology that will help operators of marginal gas wells improve their gas production.

The project, a microscale nitrogen rejection plant, has been built at the Elmdale Field in Chase County.

"We're real excited about it," said Lynn Watney, a geologist with the survey and one of three investigators for the project. The project is led by Saibal Bhattacharya as principal investigator with Watney and David Newell as co-investigators.

"We're working closely with American Energies and doing assessments of the reserves and the ability of the plant to remove nitrogen from the gas and improve its quality," Watney said.

Natural gas is sold on the basis of its heat content, with 950 BTU per cubic foot being considered the minimum for "pipeline quality."

About 17 percent of the known natural gas reserves in the United States -- 32 trillion cubic feet -- has a low BTU rating. Most of those reserves are trapped in small fields, marginal wells or behind pipes in remote areas, Bhattacharya said. Those fields are too small to produce sufficient feed volumes using existing technologies.

What KGS hopes to do with the project is design, build and optimize a two-tower microscale nitrogen rejection plant with a footprint of less than 400 square feet.

"We wanted small gas operators to see that they could easily build this plant for about \$100,000 and operate it at a rate of return of at least 40 percent," Watney said.

The project also needs to demonstrate that the technology can free enough gas to significantly add to the national reserve -- at least 1 trillion cubic feet of gas -- by removing nitrogen content.

"Not all the low-BTU gas in the country is because of nitrogen," Bhattacharya said. "There are other things such as carbon dioxide, sulfur dioxide or water. But our project is focusing exclusively on nitrogen."

The Kansas Geological Survey provided the surface equipment to set up the plant and did geologic work on the reserve assessment for the Chase County project.

Alan DeGood, president of American Energies, said the project was funded by the KGS, the Stripper Well Consortium and his company.

"At this point, we haven't made it commercial, but we're close," DeGood said. "Within a few weeks, we should have it running. If we can get just a third of the low-BTU gas in Kansas to market, it will have a positive impact."

Watney said the survey researchers are planning a presentation on the project before the Kansas Geological Society in Wichita in March.

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