

Tapping into 100-year supply of natural gas

April 3 2019, by Chris Adam

It is a figure that has been thrown around quite a bit lately in the energy debate – the United States has enough energy in shale to provide all of the nation's transportation fuels for 100 years. But two challenges remain – how to tap into that supply and how to process it into fuel at a reasonable price.

Now, a research team at Purdue University has come up with a series of patented solutions that may help address those hurdles. The team has developed a [two-step process](#) to convert shale [natural gas](#) to liquid fuels such as gasoline and diesel. Current processes are capital-intensive with high operating costs.

"We have come up with a portfolio of technologies to address this problem," said Jeffrey Miller, a professor in Purdue's Davidson School of Chemical Engineering. "It is important because the U.S. is sitting on this massive and secure [energy](#) supply and a potential of greater than about \$25 billion per year market if a successful process can be commercialized."

Shale gas molecules present production problems for [oil refineries](#) because they are much lighter than oil molecules and require a different production process. Miller said the Purdue team developed a catalytic process that uses less energy when compared to existing technologies, and also created improved catalyst structures for both process steps.

"Another challenge in dealing with the light shale gas hydrocarbons is that they are typically located in areas of the U.S. that are far from

heavily populated cities and expensive to transport," Miller said. "So, our higher molecular weight products are economically transported to existing refineries where they can be processed to transportation fuels."

Provided by Purdue University

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