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Hydraulic fracturing key to educational affordability

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A&M Systems. The lands generate income through a variety of pursuits, including grazing, wind power and solar power. By far, oil and gas production is the most lucrative endeavor. Fiscal year 2018 revenue to the Permanent University Fund totaled approximately \$887 million of which more than 90 percent came from minerals (oil and gas) royalty. The support from the Permanent University Fund and Available University Fund are key to making the high quality education of the UT and A&M Systems some of the most affordable in the country.

There have been questions about the need for hydraulic fracturing in relation to University Lands' oil and gas operations. It is important to recognize that without it, there would be no shale development, which would erase the 10 year oil and gas production boom in Texas and in the U.S. This would significantly limit the income coming from University Lands, and overall oil and gas production in the United States would be cut by more than half.

Lowering production rates in the United States would not result in a lack of consumption of oil and gas — it would simply mean more imports and higher prices. A decade ago, the U.S. imported over 65% of its oil. Now the Energy Information Agency projects we will be a net exporter of oil by 2021. This is a great benefit to our economy, relieving supply pressures in the Texas and world markets, as well as to University Lands royalty income.

Given the key role of fracturing in oil and gas production in the United States and on University Lands, its economic benefits should be without question. However, we should still ask whether hydraulic fracturing is sustainable and responsible. I would say that the answer is yes.

Society has co-existed with, and benefited from, oil and gas operations for more than 100 years, and technology is constantly shrinking the industry's environmental footprint. Environmental performance has not been degraded by the introduction of hydraulic fracturing and horizontal wells, but the oil and gas activity has significantly increased. Consequently, it is the responsibility of mineral rights owners, operators, regulators, and citizens to do their best to protect all of our natural resources. These energy resources enable our high standard of living in this country.

For example, fresh water supply demands are being reduced by recycling and fracturing fluids technology development that allows the use of undrinkable brackish water for fracturing. Groundwater contamination risks are not higher in fractured wells than in conventional oil and gas wells, because the wellbore construction through aquifers is the same in both cases. It should be acknowledged that best practices,

On air quality, University Lands has worked with the Environmental Defense Fund and its operators to promote best practices related to methane leaks, resulting in methane emissions reductions while oil production increases.

Another example of a University Lands environmental incentive is the fact that, unlike many lease owners, it requires operators to pay royalties on flared gas. This is a powerful financial incentive for operators to minimize flaring, which not only causes unnecessary emissions but wastes energy resources.

There have been small, but detectable, earthquakes in North Texas and Oklahoma linked primarily to produced water injection wells, but collaboration between University researchers, regulators and producers have resulted in reduced seismicity. Continuing efforts are focused on addressing rising activity in West Texas, spearheaded in part by state and industry funded efforts at UT Austin in the form of TexNet and the Center for Integrated Seismicity Research.

In the end, University Lands cannot force its operators to use a particular procedure, but as a responsible landowning entity, it can incentivize its operators to adopt best practices. These involve adopting methods that maximize the value of the resource for Texas academic institutions as well as promoting sustainable processes and responsible environmental stewardship.

Olson is a professor in and chair of UT's Hildebrand Department of Petroleum and Geosystems Engineering

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