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Testimony to Senate Utilities Committee

Horizontal Drilling

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Good morning Chairman Apple, Vice Chairman Petersen and members of the committee. I am Edward Cross, President of the Kansas Independent Oil & Gas Association (KIOGA). KIOGA represents the interests of independent oil and natural gas producers in Kansas. With over 1,400 members across the entire state, KIOGA is the lead state and national advocate for Kansas independent oil and natural gas producers. Our members account for 86% of the oil and 63% of the natural gas produced in Kansas. I am responsible for public policy advocacy and interaction with external stakeholders including elected officials, regulators, governmental decision-makers, and community thought leaders. I am here this afternoon to lead off the discussion of horizontal drilling and the development of the Mississippian Lime play in Kansas.

Unconventional resource plays across the nation are ushering in a new era for oil and gas production in the U.S. These emerging plays are tied to technology, and technology is tied to emerging plays, and together they are driving growth in domestic oil and gas production and America's economic vitality.

New and evolving technologies like 3D seismic, horizontal drilling, and hydraulic fracturing have allowed oil and gas companies to access reserves of previously unrecoverable oil and natural gas. These technologies have allowed access to substantial oil and natural gas reserves that are driving not just the oil and gas industry but America's energy security and economic outlook. According to the U.S. Energy Information Administration, these advances mean there is at least six times as much recoverable natural gas today as there was a decade ago and our nation's crude oil imports have dropped below 50%. The discovery of about 20 new

onshore oilfields over the past few years could collectively increase the nation's oil output by 25% within a decade.

With conventional oil and natural gas exploration and production, a trapping mechanism must be present along with a reservoir rock with favorable porosity and permeability. The reservoir rock must be overlain by a seal. And a source rock, with sufficient organic material buried deep enough to have generated hydrocarbons must be present.

With an unconventional resource play the reservoir, seal, and source rock are all one in the same. No structural element or trapping mechanism is required. Organic rich source rocks are drilled horizontally and multi-stage frac jobs are employed for well completion. In essence, the combination of horizontal drilling and hydraulic fracturing create the reservoir. Since unconventional resources do not require conventional reservoir quality rock with favorable structural positions, large areas are potentially prospective. As a result, it is not unusual to see hundreds of thousands of acres leased prior to drilling.

The Mississippian Lime play in northern Oklahoma and south-central Kansas is an emerging unconventional play benefitting from technological advancements. The play is in the early stages of definition and the potential of the play has not yet been established. There is not enough publicly available data.

The application of horizontal drilling and multi-stage fracs kicked off the expansion of unconventional shale gas plays earlier this decade. Development of the Barnett Shale in North Texas, Haynesville shale in Louisiana, Woodford shale in Oklahoma, and Marcellus Shale in the Appalachian Basin greatly expanded domestic natural gas production. Production of natural gas from unconventional resource plays has been prolific and outstripped the market bringing a collapse in natural gas prices. Relatively higher oil prices provided a huge incentive to search for oil.

Unconventional oil plays are more complex than unconventional shale gas plays because they include combinations of source rocks and reservoir rocks. Fractures are needed to produce oil from these tightly-packed rocks but some porous and permeable rock is also needed to assure economic production. Unconventional oil plays requires more complex technology and understanding of the geologic formation.

Drilling in the Bakken play in North Dakota and Montana in 2003 established that horizontal drilling and hydraulic fracturing can be used to recover oil from unconventional plays. A number of oil or liquid-rich plays have been discovered all over the country including the Mississippian Lime in Oklahoma and Kansas, Niobrara in Colorado-Wyoming-Kansas, Eagle Ford and Wolfberry in Texas, Bone Spring in New Mexico, and Utica in Ohio to name a few.

Studies by IHS Global Insight indicate the recent discovery of nearly 20 new unconventional oil and liquids-rich plays all over the U.S. could add 2.8 to 3 million barrels of new U.S. production by 2020. This could mean $1 trillion to the U.S. economy this decade and 1.3 million new jobs.

The oil and gas industry has been creative in developing technologies for developing unconventional oil and gas reserves. Small independent oil and gas companies have taken the risk and proven that oil and gas can be produced from unconventional plays using new technologies. Now, larger companies are coming in because it requires a large amount of capital and drilling to develop these reserves.

Unconventional oil and natural gas plays have invigorated the oil and gas industry across the nation and is a huge breakthrough for our nations energy security, economic vitality, and jobs outlook.

I appreciate the opportunity to provide these comments. Thank you for your time and consideration.