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Texas shale generates benefits, downsides

Outlet

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Shale oil and gas development in Texas, which has resulted in billions of dollars of economic benefits to the state over the past two decades or so, has also brought challenges such as increased induced seismicity, increased highway traffic and risks of pollution from drilling wastewater, according to a comprehensive study released Monday by an academic consortium. Although, the impacts of shale development have been "both positive and negative and from an economic perspective, they have been overwhelmingly positive for most of the people of the state," said Christine Ehlig-Economides, chair of the Task Force of The Academy of Medicine, Engineering and Science of Texas, which prepared the 204-page report, said in an interview Monday. The study examined the impacts on the state of shale oil and gas development, which began in the Barnett Shale natural gas play in the mid-1980s and has served as the growth engine of the state's oil and gas industry, which today accounts for an annual gross product of \$473 billion as well as nearly 3.8 million jobs. Driven by horizontal drilling and hydraulic fracturing developed in the Barnett crude oil production has risen from about 1 million barrels per day in 2000 to 2.66 million b/d in 2016, while natural gas production grew from 15.47 Bcf/d to 22.21 Bcf/d over the same period, according to data from the Texas Railroad Commission. Ehlig-Economides said one of the biggest negative effects of shale development in the state is its impact to the transportation system, particularly to the state's rural highways and roads. "If you live in these areas, you may not be accustomed to these roads being used by 18-wheelers," she said. The report recommends that state leaders examine how the state can develop policies to accommodate the transportation needs of both the shale gas industry and other motorists. In addition, the report focused on how to reduce the need for using freshwater for oil and gas operations. "Texas is doing a lot of due diligence to make sure we won't have a crisis around water," Ehlig-Economides said. Concerns over the use of freshwater by the oil and gas industry were heightened in recent years, during which Texas suffered through a period of drought. Concerns over water usage alleviated "Initially, there was a lot more concern about competition for water resources," Ehlig-Economides said. "We haven't abandoned this concern, but the industry has learned how to reuse water or how to use water that is not needed for municipal requirements. The report also examined the problems associated with induced seismicity caused by the disposal of wastewater from oil and gas operations and found that "between 1975 and 2008 there were, on average, one to two earthquakes per year of magnitude greater than M3.0. Between 2008 and 2016, the rate increased to about 12 to 15 earthquakes per year on average." The study recommended increasing research on the issue to understand the problem, and to "facilitate interdisciplinary collaboration directed toward mitigation and avoidance of induced seismicity." Also relating to water issues, the report found that "surface spills and well casing leaks near the surface are the most likely pathways," for contamination of groundwater, rather than hydraulic fracturing, which has frequently been identified as the main culprit. The study recommended that the state continue to encourage producers to reuse produced water as a way to cut down on transport and disposal. Michael Young, a senior research scientist at the Bureau of Economic Geology at the University of Texas at Austin, said researchers found no documented cases in which fracking led to groundwater contamination. "Surface management is a greater risk," he said in an interview Monday. Young said there is a danger of contamination from water coproduced with oil and gas, "every time the water changes hands," and called on regulators to examine ways to reduce spillage during the transport of oilfield wastewater. The report "reaffirms that Texas' science-based policies are protecting our environment while allowing oil and natural gas development to make our communities, state and nation more secure," Todd Staples, president of the Texas Oil and Gas Association, said in a statement. "Specifically, like many studies before, TAMEST's report concludes that fracking is not contaminating water or causing earthquakes." "The task force should be commended for including diverse perspectives in this effort to better understand existing research and new opportunities for study," Staples said. Report confirms industry's view

on fracking "We are pleased to see that the TAMEST report further validates what oil and gas advocates have noted for years — development of Texas' natural resources is being done in a responsible, safe and environmentally friendly manner," Ed Longanecker president of the Texas Independent Producers and Royalty Owners, said in a statement. "I haven't read the whole 200 plus page TAMEST report. What I've reviewed so far makes clear what we already knew: that shale development is a tremendously positive activity for our state and nation, and it's safe," Railroad Commissioner Ryan Sitton said in an email statement Monday. Sitton said he agrees with many of the recommendations of the report, such as the need to address the issue "of road damage from industry trucks and the need for better spill reporting and monitoring." Jim Magill