

DIGGING DEEP

▶ Drilling in the Haynesville Shale is possible with the unique combination of larger hydraulic fracturing methods, which use water and sand under high force to break the rock and release the gas, and horizontal drilling techniques.

Natural gas found deep in shale deposits is seen as one of the nation's most important sources of affordable, clean-burning fuel. The largest "shale play" in North America, and one of the largest in the world, is the Haynesville Shale in Northwest Louisiana, an expansive underground trove believed to contain more than 250 trillion cubic feet of natural gas.

"It's enough to fuel the entire nation for about a decade," said Scott Angelle, secretary of the Louisiana Department of Natural Resources. The state's well-established offshore oil and gas sector in the southern half of the state is now rounded out with substantial, unconventional, natural gas onshore holdings to the north.

"At one time, shale plays were viewed as uneconomical. Now, with new technology, they're viewed as the new normal," Angelle added. "Louisiana is clearly a natural gas province for the nation."

In the U.S., shale plays are believed to collectively hold enough fuel to sustain domestic energy needs for the next century, and advancements in recovery, such as horizontal

been steadily increasing production in Haynesville, and we like the development portfolio and the capacity. When it's up to full production, it's going to be one of the country's biggest assets. We're glad we got in when we did."

Unconventional natural gas was included among the high-growth industries named in the state's new Blue Ocean initiative. The aggressive strategy pinpoints five sectors in which Louisiana has the potential to become a dominant player.

According to Don Briggs, president of the Louisiana Oil and Gas Association, in 2009 alone, the companies now established in the shale play spent more than \$7 billion in Northwest Louisiana.

"That's incredible for economic development," said Briggs. "The number of jobs a project like this can have for the state is massive."

State officials believe the sector will create 40,000 to 55,000 direct and indirect jobs for recovering and reusing water, building natural gas pipelines and establishing compressed natural gas fueling stations. Growth in the sector will also lead to new opportunities for in-state oil field service companies due to increased demand for geophysical equipment and services, rig installation and manufacturing, well services and drilling services. **EQ**

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drilling and hydraulic fracturing, have made it possible to now extract these resources, according to Angelle. The Haynesville Shale play's "sweet spot" spans Bienville, Bossier, Caddo, DeSoto, Red River and Sabine parishes, areas that have seen major economic gains as a result of substantial investment by oil and gas exploration companies.

Shell, in partnership with Encana Corp., is one. The companies leased about 300,000 acres near Mansfield, La., in 2007 and began drilling in 2008. Currently, they're monitoring 27 rigs.

"Our unconventional natural gas portfolio is one we've been growing over the last few years," said Russ Ford, Shell executive vice president of Onshore Gas for Upstream Americas. "We've

