Deep Opportunities in the South Louisiana Transition Zones

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ABSTRACT

The south Louisiana land/water transition zone has nearly one hundred years of production history and has all the signs of a mature province. However, during the last decade, deep wells drilled below or adjacent to existing fields have resulted in some significant deep discoveries. Among them are some newly found deeper reservoirs that have increased the fields' production rates hundreds of percent and added reserves in excess of hundreds of billions of cubic feet of gas to individual fields. These new discoveries have generated great returns for the operators and significantly increased the value of their assets. These new discoveries have caused the industry to re-evaluate the deep hydrocarbon potential of south Louisiana.

Our regional studies, along with high-quality deep-targeted 3-D seismic data, have resulted in a systematic understanding of the deep prospectivity. This area is characterized by extensive detachment surfaces at about 22,000 feet in deep section. Above these surfaces, syndepositional salt movement and associated growth fault systems have created extensive structural deformation. The Miocene slope deposits dominate the deep section below 12,000 feet. The interaction between salt tectonics and sand-rich slope sedimentation resulted in stacked reservoirs, high-density traps, multiple-play types, and abundant migration pathways in the deep section. The excellent geological conditions, together with relatively high pressure, created numerous high-productive deep targets through most of the study area. With available new technology, knowledge and data, the under-explored deep plays provide innumerable opportunities for oil and gas exploration and production in south Louisiana.

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