FRONTIER COALBED GAS PLAYS IN UTAH
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ABSTRACT
Following the successful development of gas deposits associated with the coals of the Ferron Sandstone Member of the Mancos Shale in central Utah, several companies have begun looking for other economic coalbed-gas plays elsewhere in the state. Other prospective areas receiving attention from coalbed-gas exploration companies include the Blackhawk Formation coals in the Book Cliffs coalfield, the coals of the Emery Sandstone Member of the Mancos Shale in the northern Wasatch Plateau coalfield, the Niskani Formation coals in the Sege coalfield, and the Dakota Formation coals in the Altar-Kolob coalfields. Thick coals with potential for gas exploration also occur in the Frontier and Adaville Formations that extend south from Wyoming into the Hennes Fork coalfield in northern Utah. The coal geology, organic maturity, and structural data for these various areas, as well as the level of company activity, are summarized for these various coalbed-gas play areas.

INTRODUCTION
Since 1992, there has been remarkably successful development of Utah's gas deposits associated with the coals in the Ferron Sandstone Member of the Mancos Shale in central Utah's Emery coalfield. Encouraged by the success of the Ferron play, petroleum companies are looking elsewhere in the state for new, economic, coalbed-gas plays. There are currently six prospective coalbed-gas plays in Utah being explored (see location map): 1) Blackhawk Formation coals in the Book Cliffs coalfield, 2) coals in the Emery Sandstone Member of the Mancos Shale in the Wasatch Plateau coalfield, 3) Niskani Formation coals in the Sege coalfield, 4) Dakota Sandstone coals in the Altar-Kolob coalfields, 5) Straight Cliffs Formation coals in the John Valley-Kaparowits Plateau coalfields, and 6) the thick coals in the Frontier and Adaville Formations that extend south from Wyoming into the Hennes Fork coalfield in northern Utah. These plays have attracted varying levels of industry development interest. The undeveloped portions of these six plays are estimated to contain in-place gas resources ranging from 1.9 to 9.7 Tcf.

Wasatch Plateau and Hennes Fork plays

WASATCH PLATEAU PLAY
The coals in the Emery Sandstone Member of the Mancos Shale occur under the Wasatch Plateau, and are not exposed at the surface. These coals are thicker than the Blackhawk Formation coals and are also shallower. There is no overburden above the coals. The gas reservoirs are under the Wasatch Plateau coalfield, which is up to 17 coals thick with an aggregate thickness of about 120 feet, or about 50 feet. The coals are capped by the underlying Wasatch coalfield. The gas coals are the most productive of any in Utah, and the coals are about 150 feet thick, with the average being about 50 feet thick. The gas content of these coals is estimated to range from 1.4 to 3.8 Tcf.

HENRY'S FORK PLAY
This frontier coalbed gas play is located in the Uinta Mountains in eastern Summit County. This is a basin called the Uinta Basin, where the thick coals are both in the Frontier and underlying Adaville Formations. The Frontier play is located in the Uinta Range, where they are nearly exposed or buried by younger rocks. The coal plays in the Hennes Fork coalfield of Utah may be larger in volume than the corresponding plays in Wyoming. These two coalbed-gas plays occur in separate formations, with the Frontier play occurring at depths of 10,000 to 11,000 feet, and the Hennes Fork play occurring at 9,000 feet. These coals are also thick, ranging from 50 to 60 feet thick. The total gas content of these coals is estimated to range from 1.2 to 2.4 Tcf.