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Undiscovered Oil and Gas Resources and Assessment Units of the Jurassic-Cretaceous Cotton Valley Group, Northern Gulf Coast Region

The U.S. Geological Survey (USGS) is currently assessing the undiscovered resource potential of 25 priority provinces in onshore areas of the U.S. that contain about 95 percent of the known and undiscovered gas resources. The National Assessment of Oil and Gas project includes a re-evaluation of the potential for conventional and continuous-type basin-center gas systems in these high-priority basins in order to accommodate changing views and new data since the last USGS assessment in 1995. The Jurassic-Cretaceous Cotton Valley Group of the northern Gulf Coast region is a high priority unit for re-evaluation and assessment.

The petroleum assessment of the Cotton Valley Group was conducted using a Total Petroleum System (TPS) model. A TPS includes all of the important elements of a hydrocarbon fluid system needed to develop oil and gas accumulations, including source and reservoir rocks, hydrocarbon generation, migration, traps, and seals. A TPS is mappable and may include one or more assessment units. Each assessment unit has reservoir rocks with similar geological and exploration characteristics and risk. For this assessment, the Jurassic-Cretaceous TPS includes both Upper Jurassic Smackover Formation carbonates and calcareous shales, and Jurassic-Cretaceous Cotton Valley Group organic-rich shales. The Jurassic-Cretaceous TPS includes four new conventional Cotton Valley Group assessment units: (1) Cotton Valley Group Blanket Sandstone Gas, (2) Cotton Valley Group Massive Sandstone Gas, (3) Cotton Valley Group Updip Oil and Gas, and (4) Cotton Valley Group Hypothetical Updip Oil. Together, these four assessment units are estimated to contain a mean undiscovered conventional resource of 30 million barrels of oil, 605 billion cubic feet of gas, and 19 million barrels of natural gas liquids.