

The U.S. Geological Survey 2007 Oil and Gas Assessment of the Illinois Basin, C.S. Swezey, U.S. Geological Survey, Reston, VA 20192, cswezey@usgs.gov; J.R. Hatch, U.S. Geological Survey, Lakewood, CO 80225, jr hatch@usgs.gov; S.T. Brennan, J.A. East, J.E. Repetski, and E.L. Rowan, U.S. Geological Survey, Reston, VA 20192, sbrennan@usgs.gov, jeast@usgs.gov, jrepetski@usgs.gov, erowan@usgs.gov

In 2007, the U.S. Geological Survey (USGS) completed an assessment of the undiscovered, technically recoverable oil and gas resources in the Illinois Basin. In this assessment, the USGS identified four total petroleum systems (TPS), which are named according to their primary source rocks as follows: (1) the Precambrian to Cambrian TPS, (2) the Ordovician Ancell/Maquoketa TPS, (3) the Devonian-Mississippian New Albany TPS, and (4) the Pennsylvanian coal and shale TPS. The most prolific of these source rocks is the Devonian-Mississippian New Albany Shale, which has supplied petroleum to most of the Silurian through Pennsylvanian reservoirs. However, throughout most of the basin the New Albany source rock has only been buried deeply enough to enter the window of oil generation. Consequently, most of the reservoirs are oil reservoirs that contain very little thermogenic gas. In addition to identifying source rocks, the USGS delineated 19 reservoir intervals or assessment units (AU's). Most of the undiscovered oil is estimated to be in the Ordovician Dutchtown to Galena AU and in the Upper Silurian carbonates (reefs) AU. In contrast, most of the undiscovered gas is estimated to be in the Devonian-Mississippian New Albany continuous gas AU and in the Pennsylvanian coal bed gas AU. The gas in these two AU's is primarily biogenic gas, although some thermogenic gas is also present.