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Assessment of Undiscovered Gas Resources in the Mancos/Mowry Total Petroleum System, Uinta-Piceance Province, Colorado and Utah

The Mancos Shale and Mowry Shale are the primary source rocks in the Mancos/Mowry Total Petroleum System, Uinta-Piceance Province, Colorado and Utah. Both Types II and III organic matter are present in the Mancos and Mowry Shales. The onset of gas generation began between 72 and 20 Ma with peak generation occurring between 53 and 20 Ma, depending upon location in the basin. Gas migrated into fluvial, tidal, shoreface, and offshore sandstone reservoirs of the Morrison, Cedar Mountain, and Frontier Formations; the Dakota, Castlegate, and Sejo Sandstones; Morapos Sandstone Member of the Mancos Shale; Corcoran, Cozzette, and Rollins Sandstone Members of the Iles or Mount Garfield Formation; and the Prairie Canyon Bed of the Bluegate Member of the Mancos Shale, also known as the Mancos B. Three continuous gas Assessment Units were defined and assessed in the Mancos/Mowry Petroleum System based on the concept that gas charged most sandstones and competent fractured beds within, and in contact with, mature Mancos/Mowry source rocks. The three Assessment Units are: Piceance Basin Continuous Gas; Uinta Basin Continuous Gas; and Uinta-Piceance Transitional and Migrated Gas. Total gas resources having potential for additions to reserves over the next thirty years for the three Assessment Units were estimated at a mean of about 6.5 trillion cubic feet of gas (TCFG) with a range from 3.9 to 10.4 TCFG.