

National Assessment of Oil and Gas Fact Sheet

Assessment of Undiscovered Oil and Gas Resources of the Uinta-Piceance Province of Colorado and Utah, 2002

Using a geology-based assessment methodology, the U.S. Geological Survey estimates a mean of 21 trillion cubic feet of undiscovered natural gas and a mean of 60 million barrels of undiscovered oil in the Uinta-Piceance Province. Nearly all of the undiscovered gas resource is unconventional (continuous).

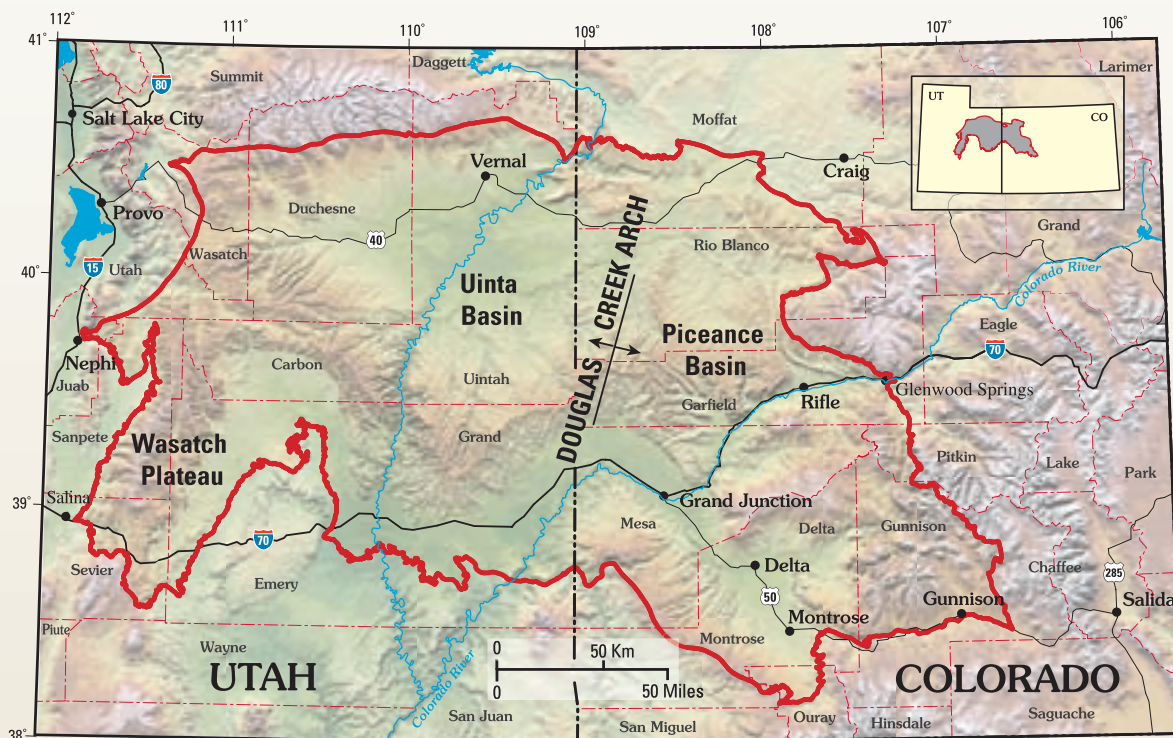


Figure 1. Uinta-Piceance Province located in northwestern Colorado and northeastern Utah. The Douglas Creek arch separates Piceance Basin from Uinta Basin. The Wasatch Plateau is included in this province.

Introduction

The U.S. Geological Survey (USGS) recently completed an assessment of the undiscovered oil and gas potential of the Uinta-Piceance Province of northwestern Colorado and northeastern Utah (fig. 1). The assessment of the Uinta-Piceance Province is geology based and uses the Total Petroleum System concept. The geologic elements of Total Petroleum Systems include hydrocarbon source rocks (source rock maturation, hydrocarbon generation and migration), reservoir rocks (sequence stratigraphy, petrophysical properties), and hydrocarbon traps (trap formation and timing). Using this geologic framework, the USGS defined five Total Petroleum Systems and 20 Assessment Units within these Total Petroleum Systems, and quantitatively estimated the undiscovered oil and gas resources within each Assessment Unit (table 1).

Resource Summary

The USGS assessed undiscovered conventional oil and gas and continuous (unconventional) oil and gas, including coal-bed gas (CBG in table 1). The USGS estimated a mean of 21 trillion cubic feet of gas (TCFG), a mean of 60 million barrels of oil (MMBO), and a mean of 43 million barrels of natural gas liquids (MMBNGL) in five Total Petroleum Systems. Nearly all of the undiscovered

gas resource is continuous (unconventional) rather than conventional. Of the 21 TCFG, 13 TCFG is estimated to be in the Mesaverde Total Petroleum System, and 7 TCFG is in the Mancos/Mowry Total Petroleum System. The Ferron/Wasatch Plateau Total Petroleum System and Mesaverde Total Petroleum System are estimated to contain 2.3 TCFG of coal-bed gas. The Phosphoria and Green River Total Petroleum Systems contain the balance of the undiscovered gas resource.

For Further Information

Supporting geologic studies of Total Petroleum Systems and Assessment Units, and the methodology used in the Uinta-Piceance Province assessment are in progress. Assessment results are available at the USGS Central Energy Team website: <http://energy.cr.usgs.gov/oilgas/noga/>

Uinta-Piceance Assessment Team

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Table 1. Uinta-Piceance Province Assessment Results.

[MMBO, million barrels of oil; BCFG, billion cubic feet of gas; MMBNGL, million barrels of natural gas liquids. Results shown are fully risked estimates. For gas fields, all liquids are included under the NGL (natural gas liquids) category. Undiscovered gas resources are the sum of non-associated and associated gas. F95 represents a 95 percent chance of at least the amount tabulated. Other fractiles are defined similarly. Fractiles are additive under the assumption of perfect positive correlation. Gray shade indicates not applicable. CBG is coal-bed gas]

	Total Petroleum Systems (TPS) and Assessment Units (AU)	Field type	Total undiscovered resources											
			Oil (MMBO)				Gas (BCFG)				NGL (MMBNGL)			
			F95	F50	F5	Mean	F95	F50	F5	Mean	F95	F50	F5	Mean
Conventional Oil and Gas Resources	Phosphoria TPS													
	Hanging Wall AU	Oil	1.75	4.13	8.37	4.47	0.47	1.21	2.67	1.34	0.03	0.07	0.17	0.08
		Gas					10.48	24.78	50.27	26.81	0.30	0.78	1.70	0.86
	Paleozoic/Mesozoic AU	Oil	2.66	5.82	11.55	6.29	0.71	1.70	3.69	1.89	0.04	0.10	0.23	0.11
		Gas					15.82	43.74	94.30	48.04	0.47	1.36	3.21	1.54
	Ferron/Wasatch Plateau TPS													
	Ferron Sandstone Gas AU	Gas					10.73	35.91	81.23	39.75	0.03	0.07	0.19	0.08
	Mesaverde TPS													
	Mesaverde Sandstone Gas AU	Gas					17.91	58.95	140.12	66.41	0.13	0.46	1.18	0.53
	Green River TPS													
Uinta Green River Oil and Gas AU	Oil	2.74	8.52	20.52	9.63	7.59	24.83	63.73	28.88	0.42	1.45	3.98	1.73	
	Total Conventional Resources	7.15	18.47	40.44	20.39	63.71	191.12	436.01	213.12	1.42	4.29	10.66	4.93	
Continuous Oil and Gas Resources	Mancos/Mowry TPS													
	Piceance Basin AU	Gas					649.30	1,463.09	3,296.86	1,652.90	0.60	1.43	3.45	1.65
	Uinta Basin AU	Gas					1,781.69	2,965.07	4,934.43	3,110.69	3.16	5.81	10.67	6.22
	Uinta-Piceance Transitional and Migrated Gas AU	Gas					1,429.61	1,742.59	2,124.11	1,755.26	0.74	1.98	5.31	2.37
	Ferron/Wasatch Plateau TPS													
	Deep (> 6,000 ft) Coal and Sandstone AU	Gas					0.00	52.04	136.43	59.10	0.00	0.00	0.00	0.00
	Northern Coal Fairway/ Drunkards Wash AU	CBG					451.14	722.18	1,156.05	752.33	0.00	0.00	0.00	0.00
	Central Coal Fairway/ Buzzards Bench AU	CBG					311.61	512.69	843.54	536.73	0.00	0.00	0.00	0.00
	Southern Coal Fairway AU	CBG					78.16	145.81	255.49	152.59	0.00	0.00	0.00	0.00
	Southern Coal Outcrop AU	CBG					0.00	9.95	30.71	10.56	0.00	0.00	0.00	0.00
	Mesaverde TPS													
	Uinta Basin Continuous AU	Gas					4,134.19	7,018.47	11,915.02	7,391.36	5.52	10.31	19.27	11.09
	Uinta Basin Transitional AU	Gas					889.42	1,431.73	2,304.72	1,492.97	1.18	2.10	3.76	2.24
	Piceance Basin Continuous AU	Gas					1,902.23	2,956.15	4,594.01	3,064.27	5.00	8.69	15.09	9.19
	Piceance Basin Transitional AU	Gas					161.74	284.47	500.33	301.73	0.29	0.56	1.07	0.60
	Uinta Basin Blackhawk Coalbed Gas AU	CBG					181.97	433.84	1,034.28	498.78	0.00	0.00	0.00	0.00
	Mesaverde Group Coalbed Gas AU	CBG					138.72	322.45	749.54	367.77	0.00	0.00	0.00	0.00
	Green River TPS													
	Deep Uinta Overpressured Continuous Oil AU	Oil	24.83	37.57	56.84	38.78	35.72	60.74	103.29	63.99	2.23	4.17	7.79	4.48
		Total Continuous Resources	24.83	37.57	56.84	38.78	12,145.49	20,121.27	33,978.81	21,211.03	18.72	35.05	66.41	37.84
	Total Undiscovered Oil and Gas Resources	31.98	56.04	97.28	59.17	12,209.20	20,312.39	34,414.82	21,424.15	20.14	39.34	77.07	42.77	