



**Dave Hardy**  
Secretary of Revenue

**STATE TAX DIVISION**

**Matthew Irby**  
Tax Commissioner

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2023 JUN 30 P 3:54

OFFICE OF WEST VIRGINIA  
SECRETARY OF STATE

June 30, 2023

The Honorable Mac Warner  
Secretary of State  
Building 1, Suite 157-K  
State Capitol  
Charleston, West Virginia 25305

Dear Secretary Warner:

Attached for filing in the State Register are tentative natural resources property valuation variable for the 2024 Tax Year that have been developed by the State Tax Department for use in determining the appraised value of coal, oil, natural gas, managed timberland and other natural resource properties for ad valorem tax purposes.

The State Tax Department will accept written public comments on all variables until August 1, 2023. Final valuation variables will be filed on or before September 1, 2023. Public comments concerning the variables should be forwarded to the following address:

West Virginia State Tax Department  
Property Tax Division  
Attention: Deanna Sheets  
P.O. Box 2389  
Charleston, WV 25328-2389

Sincerely,

**Matthew R. Irby**  
State Tax Commissioner

Attachment

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2023 JUN 30 P 3: 54

OFFICE OF WEST VIRGINIA  
SECRETARY OF STATE

**OIL AND GAS PROPERTIES ANALYSIS**

**Tax Year 2024**

July 1, 2023  
Matthew R. Irby  
State Tax Commissioner  
Department of Revenue

## OIL AND GAS CAPITALIZATION RATE

The Tax Year 2024 cost capital analysis for WV Oil and Gas was completed on 06/09/2023 using the Q4 2022 Cost of Capital Professional study. Returns were selected and calculated for the time period ranging from 1928 to 2022 using a geometric mean. The Capitalization Rate is based on the weighted cost of capital where the equity proportion is set at 76% and the debt portion is set at 24%.

### 5.4.2.a: Equity Portion:

The Build-Up Model was selected for the computation of the cost of equity capital. Given the components selected the formula used is as follows:

$$\begin{aligned} \text{CoE} &= \text{RFR} + \text{ERP} + \text{IRP} + \text{SP} + \text{USRP} \\ 15.75\% &= 4.14\% + 5.01\% + 2.76\% + 1.54\% + 2.30\% \end{aligned}$$

5.4.2.a.1 A **4.14%** Risk Free Rate (RFR) was selected, representing the 20-Year Treasury Constant Maturity Rate available on 12/31/2022 at the Federal Reserve Bank.

5.4.2.a.2 A **5.01%** Equity Risk Premium (ERP) was selected, representing the Historical ERP calculated using the S&P 500 average annual return of 9.86% derived from CRSP data for the 1928 - 2022 period and a 4.85% 20-year T-Bond average annual return (Reconstructed) for the same timeframe.

5.4.2.a.3 An implied **2.76%** Industry Risk Premium (IRP) was calculated using an industry beta of 1.55. The 5-Year industry beta for 2022 US - Oil & Gas Exploration & Production was sourced from Salvidio & Partners and included 15 firms. Implied Industry Risk Premium = (Industry Beta \* ERP) - ERP = (1.55 \* 5.01%) - 5.01%.

5.4.2.a.4 A **1.54%** Size Premium (SP) was selected. The Size Premium was based on CRSP decile 6\_8 which included 1,107 firms with an equity market capitalization size ranging from \$377,076,000 to \$2,365,076,000 in Q4 2022. The CRSP decile 6\_8 mean annual return reached 11.41% between 1928 and 2022. The mean annual return for the S&P 500 for the same period was 9.86%.

5.4.2.a.5 A **2.3%** Unsystematic Risk Premium (USRP) was selected based on market and production factors.

### 5.4.2.b Debt Portion:

5.4.2.b.1 A borrowing rate (pre-tax cost of debt) of **5.87%** was selected. (Moody's Seasoned Baa Corporate Bond Yield)

5.4.2.b.2 A tax rate of **19.34%** was selected. Damodaran 2022 (Oil and Gas Exploration and Production Money Making Firms)

The Weighted Average Cost of Capital (WACC) was also computed for WV Oil and Gas TY 2024. Given the components selected the formula used is as follows:

$$WACC = (CoE * We) + (KdPreTax * (1 - t) * Wd)$$

$$13.10\% = (15.75\% * 76.00\%) + (5.87\% * (1 - 19.34\%) * 24.00\%)$$

The West Virginia Weighted Average Cost of Capital for oil and gas is calculated as 13.10% WACC.

**Cost of Capital = 13.10% WACC for West Virginia Oil and Gas as of 07/01/2023.**

CAPITALIZATION RATE -13.10%			
Year	Multiplier	Year	Multiplier
1	0.9403	16	0.1484
2	0.8314	17	0.1312
3	0.7351	18	0.1160
4	0.6500	19	0.1026
5	0.5747	20	0.0907
6	0.5081	21	0.0802
7	0.4493	22	0.0709
8	0.3972	23	0.0627
9	0.3512	24	0.0554
10	0.3105	25	0.0490
11	0.2746	26	0.0433
12	0.2428	27	0.0383
13	0.2146	28	0.0339
14	0.1898	29	0.0299
15	0.1678	30	0.0265

<b>Decline Rates for Natural Gas and Oil Formations: Central</b>					
<b>Central: Braxton, Clay, Fayette, Nicholas, Webster</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
12	Alexander, Benson	-0.31	-0.20	-0.10	<b>Braxton</b>
14	Benson	-0.48	-0.08	-0.08	<b>Clay</b>
16	Benson, Balltown+	-0.45	-0.16	-0.12	<b>Fayette</b>
17	Gordon +	-0.30	-0.07	-0.07	<b>Nicholas</b>
18	Big Injun	-0.34	-0.13	-0.13	<b>Webster</b>
19	Big Injun, Big Lime	-0.36	-0.13	-0.13	
22	Big Lime	-0.34	-0.34	-0.13	
26	Ravencliff	-0.40	-0.40	-0.25	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper *	-0.41	-0.22	-0.09	
110	Marcellus *	-0.41	-0.22	-0.09	
9	Exception (Median)	-0.41	-0.22	-0.09	
10	Non-Filer	-0.30	-0.07	-0.07	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>Decline Rates for Natural Gas and Oil Formations: East</b>					
<b>East: Berkeley, Grant, Greenbrier, Hampshire, Hardy, Jefferson, Mineral, Monroe, Morgan, Pendleton, Pocahontas, Preston, Randolph, Summers, Tucker</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
1	Oriskany	-0.30	-0.30	-0.19	<b>Berkeley</b>
14	Benson	-0.31	-0.17	-0.12	<b>Grant</b>
20	Benson +	-0.44	-0.20	-0.08	<b>Greenbrier</b>
21	Benson, Fifth	-0.29	-0.28	-0.09	<b>Hampshire</b>
32	Brallier +	-0.48	-0.20	-0.05	<b>Hardy</b>
33	Elk, Benson	-0.39	-0.21	-0.08	<b>Jefferson</b>
34	Elk, Benson, Riley	-0.53	-0.19	-0.05	<b>Mineral</b>
35	Elk, Benson, Riley +	-0.36	-0.19	-0.11	<b>Monroe</b>
36	Elk, Benson, Balltown	-0.34	-0.18	-0.11	<b>Morgan</b>
37	Elk, Alexander, Benson	-0.50	-0.07	-0.07	<b>Pendleton</b>
38	Elk, Alexander, Benson +	-0.40	-0.16	-0.16	<b>Pocahontas</b>
39	Huntermville	-0.31	-0.31	-0.14	<b>Preston</b>
40	Fox, Haverty	-0.36	-0.21	-0.15	<b>Randolph</b>
93	4th Sand	-0.42	-0.32	-0.08	<b>Summers</b>
94	50 Foot	-0.34	-0.26	-0.07	<b>Tucker</b>
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
110	Marcellus	-0.59	-0.22	-0.17	
9	Exception (Median)	-0.41	-0.22	-0.10	
10	Non-Filer	-0.29	-0.07	-0.05	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>Decline Rates for Natural Gas and Oil Formations: South</b>					
<b>South: McDowell, Mercer, Raleigh, Wyoming</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
8	Berea	-0.34	-0.15	-0.15	<b>McDowell</b>
22	Big Lime	-0.31	-0.19	-0.07	<b>Mercer</b>
23	Big Lime, Maxton	-0.31	-0.19	-0.07	<b>Raleigh</b>
24	Big Lime, Ravencloff	-0.29	-0.29	-0.17	<b>Wyoming</b>
25	Berea +	-0.37	-0.12	-0.08	
26	Ravencloff	-0.40	-0.08	-0.07	
28	Weir	-0.44	-0.20	-0.10	
29	Weir +	-0.28	-0.21	-0.08	
30	Weir, Big Lime	-0.37	-0.19	-0.13	
42	Maxton, Ravencloff	-0.40	-0.08	-0.07	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.27	-0.13	-0.09	
97	Coalbed Methane (Vertical)	-0.03	-0.10	-0.05	
98	Coalbed Methane (Horizontal)	-0.05	-0.05	-0.32	
110	Marcellus *	-0.36	-0.19	-0.09	
9	Exception (Median)	-0.36	-0.19	-0.09	
10	Non-Filer	-0.23	-0.08	-0.05	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>Decline Rates for Natural Gas and Oil Formations: South West</b>					
<b>South West: Cabell, Lincoln, Logan, Mingo, Wayne</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
3	Devonian Shale	-0.31	-0.15	-0.04	<b>Cabell</b>
8	Berea	-0.36	-0.11	-0.11	<b>Lincoln</b>
18	Big Injun	-0.38	-0.22	-0.04	<b>Logan</b>
22	Big Lime	-0.19	-0.19	-0.19	<b>Mingo</b>
43	Berea, Big Lime	-0.18	-0.18	-0.18	<b>Wayne</b>
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Wejr	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper *	-0.38	-0.22	-0.10	
110	Marcellus *	-0.38	-0.22	-0.10	
9	Exception (Median)	-0.38	-0.22	-0.10	
10	Non-Filer	-0.18	-0.11	-0.04	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.



<b>Decline Rates for Natural Gas and Oil Formations: South Central</b>					
<b>South Central: Boone, Kanawha</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
3	Devonian Shale	-0.23	-0.08	-0.05	<b>Boone</b>
4	Huron	-0.31	-0.15	-0.04	<b>Kanawha</b>
8	Berea	-0.23	-0.14	-0.09	
18	Big Injun	-0.29	-0.25	-0.12	
27	Huron, Shales above Huron	-0.21	-0.08	-0.05	
28	Weir	-0.30	-0.21	-0.14	
29	Weir +	-0.31	-0.25	-0.09	
31	Devonian Shales +	-0.27	-0.07	-0.05	
86	Big Injun-Oil	-0.19	-0.18	-0.10	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper *	-0.33	-0.19	-0.08	
110	Marcellus *	-0.33	-0.19	-0.08	
9	Exception (Median)	-0.33	-0.19	-0.08	
10	Non-Filer	-0.19	-0.07	-0.04	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>Decline Rates for Natural Gas and Oil Formations: North</b>					
<b>North: Brooke, Hancock, Marshall, Ohio, Tyler, Wetzel</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
11	Gordon	-0.47	-0.31	-0.09	<b>Brooke</b>
13	Alexander, Benson, Riley	-0.26	-0.16	-0.15	<b>Hancock</b>
15	Benson, Riley	-0.18	-0.16	-0.06	<b>Marshall</b>
93	4th Sand	-0.42	-0.32	-0.08	<b>Ohio</b>
94	50 Foot	-0.34	-0.26	-0.07	<b>Tyler</b>
95	Injun/Weir	-0.51	-0.26	-0.09	<b>Wetzel</b>
96	Maxton	-0.70	-0.27	-0.08	
97	Coalbed Methane (Vertical)	-0.23	-0.08	-0.05	
110	Marcellus	-0.52	-0.23	-0.18	
9	Exception (Median)	-0.39	-0.23	-0.08	
10	Non-Filer	-0.18	-0.16	-0.06	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>Decline Rates for Natural Gas and Oil Formations: North West</b>					
<b>North West: Pleasants, Ritchie, Wood</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
2	Huron, Rhinestreet	-0.41	-0.26	-0.07	<b>Pleasants</b>
4	Huron	-0.42	-0.24	-0.14	<b>Ritchie</b>
5	Huron, Shales above Huron	-0.39	-0.25	-0.14	<b>Wood</b>
8	Berea	-0.31	-0.15	-0.15	
11	Gordon	-0.38	-0.10	-0.10	
12	Alexander, Benson (No Riley)	-0.34	-0.23	-0.10	
13	Alexander, Benson, Riley	-0.32	-0.20	-0.10	
14	Benson	-0.19	-0.19	-0.10	
44	Rhinestreet, Huron, Shallow Shale	-0.43	-0.28	-0.11	
47	Alexander, Riley, (No Benson)	-0.41	-0.05	-0.05	
48	Rhinestreet, Alexander, Benson, Riley	-0.31	-0.24	-0.10	
49	Weir, Squaw, Big Injun	-0.27	-0.17	-0.07	
50	Rhinestreet	-0.40	-0.27	-0.27	
51	Rhinestreet +	-0.36	-0.21	-0.10	
52	All Upper Devonian (Undiv)	-0.48	-0.33	-0.19	
53	Huron, Chemung	-0.35	-0.11	-0.09	
54	Huron, Hampshire, Pocono	-0.12	-0.12	-0.11	
55	Upper Devonian (Above Huron)	-0.46	-0.33	-0.23	
56	Chemung Sands= Riley, Bradford, Balltown, Speechley, Warren (No Benson or Alexander)	-0.28	-0.18	-0.10	
83	Huron Oil	-0.74	-0.44	-0.40	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper *	-0.39	-0.23	-0.13	
110	Marcellus	-0.46	-0.29	-0.23	
111	Utica	-0.46	-0.29	-0.23	
9	Exception (Median)	-0.39	-0.23	-0.13	
10	Non-Filer	-0.12	-0.05	-0.05	

\* New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>North Central: Barbour, Doddridge, Gilmer, Harrison, Lewis, Marion, Monongalia, Taylor, Upshur</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
11	Gordon	-0.41	-0.14	-0.12	<b>Barbour</b>
12	Alexander, Benson	-0.37	-0.19	-0.11	<b>Doddridge</b>
13	Alexander, Benson, Riley	-0.40	-0.28	-0.05	<b>Gilmer</b>
14	Benson	-0.31	-0.17	-0.12	<b>Harrison</b>
15	Benson, Riley	-0.34	-0.17	-0.14	<b>Lewis</b>
18	Big Injun	-0.36	-0.16	-0.13	<b>Marion</b>
21	Benson, Fifth	-0.31	-0.20	-0.14	<b>Monongalia</b>
28	Weir	-0.34	-0.34	-0.07	<b>Taylor</b>
29	Weir +	-0.28	-0.28	-0.23	<b>Upshur</b>
33	Elk, Benson	-0.34	-0.16	-0.11	
34	Elk, Benson, Riley	-0.42	-0.27	-0.08	
37	Elk, Alexander, Benson	-0.49	-0.23	-0.08	
38	Elk, Alexander, Benson +	-0.38	-0.20	-0.12	
40	Fox, Haverty	-0.46	-0.16	-0.08	
50	Rhinestreet	-0.28	-0.03	-0.03	
57	Alexander, Benson, Balltown	-0.39	-0.26	-0.08	
58	Alexander	-0.35	-0.20	-0.10	
59	Alexander +	-0.39	-0.22	-0.10	
60	Alexander, Benson, Riley +	-0.39	-0.35	-0.12	
61	Balltown	-0.35	-0.20	-0.10	
62	Balltown, Speechley	-0.28	-0.22	-0.10	
63	Balltown, Speechley +	-0.30	-0.13	-0.10	
64	Benson, Balltown, Speechley	-0.28	-0.22	-0.09	
65	Benson, Bradford	-0.37	-0.20	-0.10	
66	Benson, Balltown	-0.29	-0.23	-0.11	
67	Benson, Riley +	-0.38	-0.14	-0.10	
68	Benson, Speechley	-0.30	-0.22	-0.14	
69	Brallier, Elk	-0.42	-0.20	-0.13	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

North Central: continued				
Code	Formation	Year 1	Year 2	Year 3 +
70	Brallier	-0.40	-0.22	-0.15
71	Deeper/Onondaga or Oriskany/Helderberg	-0.24	-0.24	-0.03
72	Elk, Alexander	-0.42	-0.22	-0.09
73	Elk, Benson +	-0.38	-0.20	-0.12
74	Elk	-0.43	-0.12	-0.10
75	Elk, Riley	-0.60	-0.35	-0.17
76	Fox +	-0.46	-0.18	-0.09
77	Haverty, Elk, Benson (No Alexander)	-0.35	-0.16	-0.16
78	Haverty	-0.45	-0.15	-0.15
79	Riley	-0.44	-0.22	-0.10
80	Speechley	-0.30	-0.18	-0.09
81	Alexander, Benson, Speechley	-0.39	-0.24	-0.10
82	Haverty, Elk, Alexander	-0.47	-0.14	-0.14
85	Fifth, Oil	-0.45	-0.25	-0.22
87	Bayard All	-0.30	-0.20	-0.05
88	Fifth	-0.29	-0.18	-0.12
89	Fifth +	-0.25	-0.15	-0.13
90	Gordon, Injun All	-0.41	-0.23	-0.23
91	Squaw	-0.37	-0.31	-0.06
92	Injun +	-0.34	-0.22	-0.22
93	4th Sand	-0.42	-0.32	-0.08
94	50 Foot	-0.34	-0.26	-0.07
95	Injun/Weir	-0.51	-0.26	-0.09
96	Maxton	-0.70	-0.27	-0.08
97	Coalbed Methane (Vertical)	-0.23	-0.08	-0.05
98	Coalbed Methane (Horizontal)	-0.05	-0.05	-0.32
109	Trenton/Deeper *	-0.38	-0.21	-0.11
110	Marcellus	-0.59	-0.29	-0.23
9	Exception (Median)	-0.38	-0.21	-0.11
10	Non-Filer	-0.23	-0.03	-0.03

\* New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>Decline Rates for Natural Gas and Oil Formations: West</b>					
<b>West: Jackson, Mason, Putnam</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
1	Oriskany	-0.40	-0.40	-0.29	<b>Jackson</b>
2	Huron, Rhinestreet	-0.13	-0.12	-0.03	<b>Mason</b>
3	Devonian Shale	-0.31	-0.15	-0.04	<b>Putnam</b>
4	Huron	-0.29	-0.14	-0.05	
5	Huron, Shales above Huron	-0.38	-0.15	-0.06	
6	Huron, Berea	-0.29	-0.08	-0.08	
7	Berea, Devonian Shale	-0.08	-0.08	-0.08	
8	Berea	-0.36	-0.16	-0.16	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper *	-0.35	-0.20	-0.09	
110	Marcellus *	-0.35	-0.20	-0.09	
9	Exception (Median)	-0.35	-0.20	-0.09	
10	Non-Filer	-0.08	-0.08	-0.03	

\* New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

<b>Decline Rates for Natural Gas and Oil Formations: West Central</b>					
<b>West Central: Calhoun, Roane, Wirt</b>					
<b>Code</b>	<b>Formation</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3 +</b>	
2	Huron, Rhinestreet	-0.49	-0.11	-0.06	<b>Calhoun</b>
4	Huron	-0.33	-0.22	-0.14	<b>Roane</b>
27	Huron, Shales above Huron	-0.42	-0.23	-0.12	<b>Wirt</b>
44	Rhinestreet, Huron, Shallow Shale	-0.51	-0.14	-0.11	
45	Devonian Shale, Pocono	-0.25	-0.17	-0.12	
46	Pocono	-0.29	-0.25	-0.12	
84	Big Injun, Oil	-0.41	-0.41	-0.11	
93	4th Sand	-0.42	-0.32	-0.08	
94	50 Foot	-0.34	-0.26	-0.07	
95	Injun/Weir	-0.51	-0.26	-0.09	
96	Maxton	-0.70	-0.27	-0.08	
109	Trenton/Deeper *	-0.42	-0.24	-0.10	
110	Marcellus *	-0.42	-0.24	-0.10	
9	Exception (Median)	-0.42	-0.24	-0.10	
10	Non-Filer	-0.25	-0.11	-0.06	

• New Formation(s) involved in recent production. These will be valued with the Exception Rates until decline information is available.

## Average Industry Operating Expense Results – Safe Harbor

### CONVENTIONAL GAS

- Average Operating Expenses	=	\$5,000
- Coal Bed Methane, Vertical Wells Expenses	=	\$9,000

### OIL

- Average Operating Expenses	=	\$5,750
- Average Enhanced Operating Expenses	=	\$9,000

Minimum Working Interest Appraisal	=	\$500 per well
Flat Rate Royalty Multiplier	=	5.75

Home Use Only Wells: Appraised at \$500 per well

Industrial Use Only Wells:\* Gas MCF usage X \$6.50/MCF  
Oil BBL usage X \$85.00/BBL  
NGL BBL usage X \$35.00/BBL

\*(Also includes Department of Environmental Protection reported wells.)

### Non-Filer Pricing

Under W.Va. CSR sec. 110-1J-8 the Tax Commissioner shall now use the average industry price of the producing area and strata multiplied by the production of the well as reported to the WV Department of Environmental Protection in determining the working interest income. The following prices will be used across the state:

Natural Gas	=	\$6.50 per mcf
Oil	=	\$85 per barrel
Natural Gas Liquids	=	\$35 per barrel

### Minimum Pricing

As provided under W.Va. Code sec. 11-1C-10, the following minimum net value (after expenses) are set:

Natural Gas	=	\$0.30 per mcf
Oil	=	\$10.00 per barrel
Natural Gas Liquids	=	\$0.30 per MMBtu

### Valuation

The previously discussed variables are used to establish a future income stream converted to present worth through application of a capitalization rate. The sum of the discounted future net income per year represents a reasonable estimate of market value.

### Lease Rate/Term Survey and Results

The non-producing property value for each county is determined by multiplying the average delay rental by a factor, which represents the average lease term under present economic conditions.

As a result of higher lease terms being inversely proportional to the value of oil and gas (thus counties with little leasing or production activities reflect inflated values) and with the volatile nature of county activity, necessary adjustments in the review have been made.



A compilation of lease terms produced a statewide average of 5 years. This term (5 years) was applied to all county lease rates and compared to the appraisal rates derived from calculations using individual county data as well as regional data. The resulting calculations were reviewed and considered in the assignment of an appraisal rate per acre.

The appraisal rate/acre amounts shown on the next page are preliminary figures, which may change if additional lease data is received. These rates have been applied to all county magisterial districts with either producing wells, lease activity within the past 5 years or both. Tax districts void of activity within the past 5 years have been assigned the minimum value per acre.

COUNTY	CO #	TY 2024 \$/AC BY COUNTY AND DISTRICT									
BARBOUR	1	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$55.00	\$1.00	\$55.00	\$55.00	\$55.00	\$1.00	\$55.00	\$55.00	\$55.00	\$55.00
BARBOUR	1	DIS 11									
		\$55.00									
BERKELEY	2	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8		
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00		
BOONE	3	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	
		\$20.00	\$1.00	\$1.00	\$20.00	\$20.00	\$20.00	\$1.00	\$20.00	\$1.00	
BRAXTON	4	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8		
		\$20.00	\$1.00	\$1.00	\$1.00	\$20.00	\$20.00	\$20.00	\$1.00		
BROOKE	5	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8		
		\$1.00	\$1.00	\$105.00	\$105.00	\$1.00	\$1.00	\$1.00	\$1.00		
CABELL	6	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$25.00	\$1.00	\$25.00	\$25.00	\$1.00	\$1.00	\$1.00	\$25.00	\$1.00	\$25.00
CALHOUN	7	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6				
		\$30.00	\$1.00	\$30.00	\$30.00	\$30.00	\$30.00				
CLAY	8	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6				
		\$20.00	\$1.00	\$20.00	\$20.00	\$20.00	\$20.00				
DODDRIDGE	9	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	
		\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$100.00	\$1.00	
FAYETTE	10	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$20.00	\$20.00	\$20.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
FAYETTE	10	DIS 11	DIS 12	DIS 13							
		\$1.00	\$1.00	\$1.00							
GILMER	11	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6				
		\$25.00	\$25.00	\$25.00	\$1.00	\$1.00	\$25.00				
GRANT	12	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5					
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00					
GREENBRIER	13	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
GREENBRIER	13	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16	DIS 17	DIS 18		
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00		
HAMPSHIRE	14	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
HANCOCK	15	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6				
		\$25.00	\$1.00	\$25.00	\$25.00	\$1.00	\$1.00				
HARDY	16	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6				
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00				
HARRISON	17	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$90.00	\$1.00	\$1.00	\$1.00	\$90.00	\$1.00	\$90.00	\$1.00	\$90.00	\$1.00
HARRISON	17	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16	DIS 17	DIS 18	DIS 19	DIS 20
		\$90.00	\$90.00	\$1.00	\$90.00	\$90.00	\$1.00	\$1.00	\$90.00	\$1.00	\$90.00
HARRISON	17	DIS 21									
		\$1.00									
JACKSON	18	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7			
		\$40.00	\$40.00	\$1.00	\$40.00	\$1.00	\$40.00	\$40.00			
JEFFERSON	19	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00

COUNTY	CO #	TY 2024 \$/AC BY COUNTY AND DISTRICT									
KANAWHA	20	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$30.00	\$1.00	\$30.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
KANAWHA	20	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16	DIS 17	DIS 18	DIS 19	DIS 20
		\$1.00	\$1.00	\$1.00	\$1.00	\$30.00	\$30.00	\$1.00	\$1.00	\$30.00	\$1.00
KANAWHA	20	DIS 21	DIS 22	DIS 23	DIS 24	DIS 25	DIS 26	DIS 27	DIS 28	DIS 29	DIS 30
		\$1.00	\$1.00	\$30.00	\$30.00	\$30.00	\$1.00	\$1.00	\$30.00	\$1.00	\$1.00
KANAWHA	20	DIS 31									
		\$1.00									
LEWIS	21	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	
		\$35.00	\$35.00	\$35.00	\$35.00	\$1.00	\$35.00	\$1.00	\$1.00	\$1.00	
LINCOLN	22	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$25.00	\$25.00	\$1.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$1.00
LOGAN	23	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	
		\$15.00	\$15.00	\$15.00	\$15.00	\$1.00	\$1.00	\$1.00	\$15.00	\$1.00	
MARION	24	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$90.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$90.00	\$1.00
MARION	24	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16	DIS 17	DIS 18	DIS 19	DIS 20
		\$90.00	\$90.00	\$1.00	\$1.00	\$1.00	\$90.00	\$1.00	\$90.00	\$90.00	\$1.00
MARION	24	DIS 21	DIS 22								
		\$1.00	\$1.00								
MARSHALL	25	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$1.00	\$105.00	\$105.00	\$105.00	\$1.00	\$105.00	\$1.00	\$105.00	\$1.00
MARSHALL	25	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16				
		\$1.00	\$105.00	\$105.00	\$105.00	\$105.00	\$1.00				
MASON	26	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$1.00	\$1.00	\$1.00	\$25.00
MASON	26	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16				
		\$1.00	\$1.00	\$1.00	\$25.00	\$25.00	\$25.00				
MCDOWELL	27	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$20.00	\$1.00	\$20.00	\$20.00	\$1.00	\$20.00	\$1.00	\$1.00	\$1.00	\$1.00
MCDOWELL	27	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16				
		\$20.00	\$1.00	\$20.00	\$1.00	\$1.00	\$1.00				
MERCER	28	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$15.00	\$1.00	\$1.00	\$1.00	\$15.00	\$1.00	\$1.00	\$15.00	\$1.00
MERCER	28	DIS 11									
		\$15.00									
MINERAL	29	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
MINERAL	29	DIS 11									
		\$1.00									
MINGO	30	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$1.00	\$1.00	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$1.00	\$20.00	\$20.00
MINGO	30	DIS 11	DIS 12								
		\$20.00	\$1.00								
MONONGALIA	31	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$35.00	\$1.00	\$35.00	\$35.00	\$35.00	\$1.00	\$35.00	\$35.00	\$1.00	\$1.00
MONONGALIA	31	DIS 11	DIS 12	DIS 13	DIS 14	DIS 15	DIS 16	DIS 17	DIS 18	DIS 19	
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$35.00	
MONROE	32	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	
MORGAN	33	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8		
		\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00		

COUNTY	CO #	TY 2024 \$/AC BY COUNTY AND DISTRICT									
NICHOLAS	34	DIS 1 \$1.00	DIS 2 \$15.00	DIS 3 \$15.00	DIS 4 \$15.00	DIS 5 \$1.00	DIS 6 \$1.00	DIS 7 \$15.00	DIS 8 \$1.00	DIS 9 \$1.00	
OHIO	35	DIS 1 \$1.00	DIS 2 \$1.00	DIS 3 \$105.00	DIS 4 \$105.00	DIS 5 \$1.00	DIS 6 \$105.00	DIS 7 \$1.00	DIS 8 \$1.00	DIS 9 \$1.00	DIS 10 \$1.00
PENDLETON	36	DIS 1 \$1.00	DIS 2 \$10.00	DIS 3 \$1.00	DIS 4 \$1.00	DIS 5 \$1.00	DIS 6 \$1.00	DIS 7 \$10.00			
PLEASANTS	37	DIS 1 \$40.00	DIS 2 \$40.00	DIS 3 \$40.00	DIS 4 \$40.00	DIS 5 \$40.00	DIS 6 \$1.00	DIS 7 \$40.00	DIS 8 \$40.00		
POCAHONTAS	38	DIS 1 \$1.00	DIS 2 \$1.00	DIS 3 \$1.00	DIS 4 \$1.00	DIS 5 \$1.00	DIS 6 \$1.00	DIS 7 \$1.00	DIS 8 \$1.00		
PRESTON	39	DIS 1 \$30.00	DIS 2 \$30.00	DIS 3 \$30.00	DIS 4 \$30.00	DIS 5 \$30.00	DIS 6 \$30.00	DIS 7 \$1.00	DIS 8 \$30.00	DIS 9 \$1.00	DIS 10 \$30.00
PRESTON	39	DIS 11 \$1.00	DIS 12 \$1.00	DIS 13 \$1.00	DIS 14 \$1.00	DIS 15 \$1.00	DIS 16 \$1.00	DIS 17 \$1.00	DIS 18 \$1.00	DIS 19 \$1.00	DIS 20 \$1.00
PUTNAM	40	DIS 1 \$25.00	DIS 2 \$25.00	DIS 3 \$1.00	DIS 4 \$25.00	DIS 5 \$1.00	DIS 6 \$1.00	DIS 7 \$1.00	DIS 8 \$25.00	DIS 9 \$1.00	DIS 10 \$25.00
PUTNAM	40	DIS 11 \$25.00	DIS 12 \$25.00	DIS 13 \$1.00							
RALEIGH	41	DIS 1 \$20.00	DIS 2 \$20.00	DIS 3 \$1.00	DIS 4 \$1.00	DIS 5 \$20.00	DIS 6 \$1.00	DIS 7 \$20.00	DIS 8 \$20.00	DIS 9 \$20.00	DIS 10 \$1.00
RALEIGH	41	DIS 11 \$20.00	DIS 12 \$20.00								
RANDOLPH	42	DIS 1 \$20.00	DIS 2 \$20.00	DIS 3 \$1.00	DIS 4 \$20.00	DIS 5 \$1.00	DIS 6 \$1.00	DIS 7 \$1.00	DIS 8 \$1.00	DIS 9 \$1.00	DIS 10 \$20.00
RANDOLPH	42	DIS 11 \$20.00	DIS 12 \$1.00	DIS 13 \$1.00	DIS 14 \$1.00	DIS 15 \$1.00	DIS 16 \$20.00	DIS 17 \$1.00	DIS 18 \$1.00		
RITCHIE	43	DIS 1 \$80.00	DIS 2 \$1.00	DIS 3 \$80.00	DIS 4 \$1.00	DIS 5 \$80.00	DIS 6 \$1.00	DIS 7 \$80.00	DIS 8 \$1.00	DIS 9 \$1.00	DIS 10 \$80.00
ROANE	44	DIS 1 \$35.00	DIS 2 \$35.00	DIS 3 \$35.00	DIS 4 \$35.00	DIS 5 \$1.00	DIS 6 \$35.00	DIS 7 \$35.00	DIS 8 \$1.00	DIS 9 \$35.00	
SUMMERS	45	DIS 1 \$1.00	DIS 2 \$1.00	DIS 3 \$1.00	DIS 4 \$1.00	DIS 5 \$5.00	DIS 6 \$1.00	DIS 7 \$1.00			
TAYLOR	46	DIS 1 \$1.00	DIS 2 \$1.00	DIS 3 \$90.00	DIS 4 \$90.00	DIS 5 \$90.00	DIS 6 \$90.00	DIS 7 \$90.00			
TUCKER	47	DIS 1 \$15.00	DIS 2 \$15.00	DIS 3 \$1.00	DIS 4 \$1.00	DIS 5 \$15.00	DIS 6 \$1.00	DIS 7 \$1.00	DIS 8 \$1.00	DIS 9 \$15.00	DIS 10 \$1.00
TUCKER	47	DIS 11 \$15.00	DIS 12 \$1.00								
TYLER	48	DIS 1 \$100.00	DIS 2 \$100.00	DIS 3 \$1.00	DIS 4 \$100.00	DIS 5 \$100.00	DIS 6 \$100.00	DIS 7 \$1.00	DIS 8 \$1.00	DIS 9 \$1.00	DIS 10 \$100.00
UPSHUR	49	DIS 1 \$70.00	DIS 2 \$70.00	DIS 3 \$1.00	DIS 4 \$70.00	DIS 5 \$70.00	DIS 6 \$70.00	DIS 7 \$70.00			
WAYNE	50	DIS 1 \$20.00	DIS 2 \$20.00	DIS 3 \$1.00	DIS 4 \$1.00	DIS 5 \$1.00	DIS 6 \$1.00	DIS 7 \$1.00	DIS 8 \$20.00	DIS 9 \$20.00	DIS 10 \$20.00
WAYNE	50	DIS 11 \$1.00	DIS 12 \$20.00								
WEBSTER	51	DIS 1 \$1.00	DIS 2 \$1.00	DIS 3 \$1.00	DIS 4 \$15.00	DIS 5 \$15.00	DIS 6 \$15.00	DIS 7 \$1.00			
WETZEL	52	DIS 1 \$100.00	DIS 2 \$100.00	DIS 3 \$100.00	DIS 4 \$100.00	DIS 5 \$100.00	DIS 6 \$1.00	DIS 7 \$1.00	DIS 8 \$100.00	DIS 9 \$1.00	DIS 10 \$1.00
WETZEL	52	DIS 11 \$1.00	DIS 12 \$100.00	DIS 13 \$1.00							

COUNTY	CO #	TY 2024 \$/AC BY COUNTY AND DISTRICT									
WIRT	53	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8		
		\$35.00	\$35.00	\$35.00	\$1.00	\$35.00	\$35.00	\$35.00	\$35.00		
WOOD	54	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$35.00	\$35.00	\$35.00	\$35.00	\$1.00	\$35.00	\$35.00	\$35.00	\$35.00	\$1.00
WOOD	54	DIS 11	DIS 12	DIS 13	DIS 14						
		\$35.00	\$35.00	\$1.00	\$1.00						
WYOMING	55	DIS 1	DIS 2	DIS 3	DIS 4	DIS 5	DIS 6	DIS 7	DIS 8	DIS 9	DIS 10
		\$20.00	\$20.00	\$20.00	\$20.00	\$20.00	\$1.00	\$20.00	\$1.00	\$1.00	\$20.00

**FILED**

2023 JUN 30 P 3:55

OFFICE OF WEST VIRGINIA  
SECRETARY OF STATE

**MANAGED TIMBER  
PROPERTY ANALYSIS**

**Tax Year 2024**

July 1, 2023  
Matthew R. Irby  
State Tax Commissioner  
Department of Revenue

# TIMBERLAND APPRAISAL RATES

## TAX YEAR 2024

(based on market 2017-2022)

### Tentative Rates Per Acre

Class II Parcels					
	<u>Grade 1</u>	<u>Grade 2</u>	<u>Grade 3</u>		
Region 1	\$200	\$140	\$50		
Region 2	\$200	\$140	\$50		
Region 3	\$200	\$140	\$50		
Region 4	\$200	\$140	\$50		
Region 5	\$200	\$140	\$50		

Class III/IV Parcels					
	<u>Grade 1</u>	<u>Grade 2</u>	<u>Grade 3</u>		
Region 1	\$225	\$150	\$75		
Region 2	\$225	\$150	\$75		
Region 3	\$225	\$150	\$75		
Region 4	\$225	\$150	\$75		
Region 5	\$225	\$150	\$75		

- Region 1 = Brooke, Cabell, Hancock, Jackson, Marshall, Mason, Ohio, Pleasants, Putnam, Tyler, Wetzel, and Wood Counties
- Region 2 = Braxton, Calhoun, Clay, Doddridge, Gilmer, Harrison, Lewis, Marion, Monongalia, Ritchie, Roane, Taylor, and Wirt Counties
- Region 3 = Barbour, Greenbrier, Monroe, Nicholas, Pendleton, Pocahontas, Preston, Randolph, Tucker, Upshur, and Webster Counties
- Region 4 = Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral and Morgan Counties
- Region 5 = Boone, Fayette, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo Raleigh, Summers, Wayne, and Wyoming Counties

### Harvest Volumes per Acre

Harvest Interval <u>Grades</u>	<u>35 yrs.</u>	<u>45 yrs.</u>	<u>55 yrs.</u>	<u>80 yrs.</u>	-	<u>Total</u>
1 - Site Index 75 or more	4.6 cords 1.5 Mbf	-- --	2.6 cords 4.4 Mbf	3.3 cords 8.6 Mbf		10.5 cords 14.5 Mbf
2 - Site Index 65 - 75	3.3 cords 1.0 Mbf	-- --	7.0 cords 3.2 Mbf	4.6 cords 5.5 Mbf		14.9 cords 9.7 Mbf
3 - Site Index less than 65	-- --	3.1 cords 0.8 Mbf	-- --	15.4 cords 3.7 Mbf		18.5 cords 4.5 Mbf

## Estimation of Required Rate of Return

<b>A. Safe Rate of Return (5 Year T-Bill or 5 Year Corp Bond Rate)</b>				
Year	Rate	W/A %	W/A Rate	
2022	2.9992	33.33%	0.9996	
2021	1.2600	26.67%	0.3360	
2020	2.0700	20.00%	0.4140	
2019	1.9575	13.33%	0.2609	
2018	2.7480	6.67%	0.1833	2.194 %
<hr/>				
<b>B. Nonliquidity Rate (20 yr T-Bill vs. 3 Month T-Bills)</b>				
Year	Rate	W/A %	W/A Rate	
2022	1.8200	20.00%	0.1422	
2021	1.8200	33.33%	0.6066	
2020	1.0100	26.67%	0.2694	
2019	0.5000	13.33%	0.0667	
2018	0.3583	6.67%	0.0239	1.109 %
<hr/>				
<b>C. Risk Rate (30 yr T-bills or 5 year Corp Bond vs 30 day T-bills)</b>				
Year	Rate	W/A %	W/A Rate	
2022	1.1580	33.33%	0.3860	
2021	1.7000	26.67%	0.4534	
2020	0.6250	20.00%	0.1250	
2019	0.3642	13.33%	0.0485	
2018	0.9850	6.67%	0.0657	1.079 %
<hr/>				
<b>D. Management Factor of 1.0%</b>				
<b>E. Property Tax Component (60% of Blended III&amp;IV Rates)</b>				
Year	Rate	W/A %	W/A Rate	
2022	0.720	33.33%	0.2400	
2021	0.720	26.67%	0.1920	
2020	0.720	20.00%	0.1440	
2019	0.720	13.33%	0.0944	
2018	0.708	6.67%	0.0476	0.718 %
<hr/>				
<b>F. Inflation Rate: (BLS -- 20 yr average)</b>				
Year	Rate	W/A %	W/A Rate	
2022	2.480	13.33%	0.3306	
2021	2.560	6.67%	0.1908	
2020	1.360	33.33%	0.4533	
2019	1.810	26.67%	0.4827	
2018	1.910	20.00%	0.3820	(1.839) %
<hr/>				
<b>TOTAL REQUIRED RATE OF RETURN (REAL)</b>				<b>4.260 %</b>
<b>LESS: PROPERTY TAX COMPONENT</b>				<b>(0.718)</b>
<b>TOTAL DISCOUNT COMPONENT</b>				<b>3.452 %</b>



**Management Costs:**

---

<b>Region</b>	<b><u>\$/acre (1)</u></b>
1	3.25
2	3.25
3	3.25
4	3.25
5	3.25
<b>State</b>	

**Tax Rates:**

Effective Federal Income Tax Rate		<u>21.00%</u>
Effective WV State Income Tax Rate	(6.5% * (1-.21))	<u>5.14%</u>
Effective WV Severance Tax Rate	(0% * (1-.21))	<u>0.00%</u>

**Yield (Volumes) (80 year rotation)**

Timberland Productivity Grades	Site Index	Yield - MBF	Yield - Cords
<b>Grade I</b>	<b>75 or more</b>	<b>14.5</b>	<b>10.5</b>
<b>Grade II</b>	<b>65-74</b>	<b>9.7</b>	<b>14.9</b>
<b>Grade III</b>	<b>less than 65</b>	<b>4.5</b>	<b>18.5</b>

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OFFICE OF WEST VIRGINIA  
SECRETARY OF STATE

**COAL PROPERTIES ANALYSIS**

**Tax Year 2024**

July 1, 2023  
Matthew R. Irby  
State Tax Commissioner  
Department of Revenue

# COAL CAPITALIZATION RATE

## Capitalization rate Analysis and Results:

In developing a capitalization rate for use in valuing specific income-producing properties consideration is given to the three approaches generally employed in estimating a discount rate. As a matter of practicality, the Bands-of-Investment and Summation Technique approaches are utilized in establishing discount rates for active coal. Data for analysis has been derived in accordance with current Legislative Rule Title 110, Series11.

<u>Safe Rate</u>	90 day Treasury Bills	<u>Safe Rate</u>
2022	December	4.360%
2021	December	0.060%
2020	December	0.370%

<u>Risk Rate</u>	Interest differential between Loan Rate and 90 day Treasury Bills	
	<u>Loan Rate*</u>	<u>Debt Risk Rate</u>
2022	9.50%	5.140%
2021	5.54%	5.480%
2020	5.54%	5.170%

\*Prime plus 2%

<u>Equity</u>	Differential between Equity Rates and 90 day Treasury Bills	
	<u>Equity Rate**</u>	<u>Equity Risk Rate</u>
2022**	12.93%	19.048%
2021**	11.04%	16.264%
2020	11.44%	14.761%

\*\*COE – BVR Cost of Capital Professional (CRSP, Center for Research in security Prices, Salvador Partners, Damodaran, Stem School)

<u>Composite Risk Rate</u>	Loan and Equity Rates weighted by industry estimated capital structure.			
	<u>Equity Rate</u>	<u>Debt/(Debt+Equity)</u>	<u>Debt Rate</u>	<u>Composite Risk</u>
2022	13.333%	30.0%	1.542%	14.875%
2021	12.198%	25.0%	1.370%	13.568%
2020	11.071%	25.0%	1.293%	12.364%

Non-Liquidity Rate Interest differential between a 90 day Treasury Bill and a 1 year Treasury Bill which reflects a reasonable time necessary to sell active property.

		<u>1yr T Bill</u>	<u>90d T Bill</u>	<u>Non-Liquidity Rate</u>
2022	December	4.680%	4.360%	0.320%
2021	December	0.320%	0.060%	0.260%
2020	December	0.380%	0.370%	0.010%

**Management Rate** Charges for the management of investment portfolios.

Fixed Rate (by Rule) 0.500%

**Inflation Rate**

2022	December	2.790%
2021	December	2.560%
2020	December	1.360%

**Capitalization Rate**

Since the valuation of active coal property is predicated on a three-year production average, the capitalization rate is considered in a similar manner.

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Inflation Rate	-2.790%	-2.560%	-1.360%
Safe Rate	4.360%	0.060%	0.370%
Composite Risk Rate	14.875%	13.568%	12.364%
Non Liquidity Rate	0.320%	0.260%	0.010%
Management Rate	0.500%	0.500%	0.500%
Property Tax	N/A	N/A	N/A
Total	17.265%	11.828%	11.884%

Three Yr Average: 13.66 Rounded to: 13.70%

<b><u>CAPITALIZATION RATE -</u></b>		<b>13.70%</b>	
<b><u>MULTIPLIERS:</u></b>			
1YR	0.880	9YR	5.001
2YR	1.653	10YR	5.278
3YR	2.333	11YR	5.521
4YR	2.932	12YR	5.736
5YR	3.458	13YR	5.924
6YR	3.921	14YR	6.090
7YR	4.328	15YR	6.235
8YR	4.686		

**COAL SALE PRICES FOR TY24 APPLICATION**

**Price and Royalty Rate Analysis**

The development of royalty rates for the various categories of mines and markets involves information collection and review from a variety of sources. Coal lease rates have been derived from transaction information provided by active operations, assessors, tax auditors, and by individual lessors/lessees involved in the specific transaction. The prices for mined coal, as per 110-CSR-11, have been calculated from information provided by the WV Public Service Commission and U.S. Energy Information Administration concerning power plant fuel purchases. Prices provided by producers as part of tax filing and from data obtained from market summaries are included for comparison. Because a large portion of the data used in this analysis is, by law, considered confidential, only a summary of the results are published.

<b>GRAND SUMMARY ALL SOURCES</b>	<b>STEAM SPOT</b>	<b>STEAM TERM</b>	<b>MET</b>
PSC (2022)	\$62.30	\$51.25	
FERC (2022)	\$66.91	\$52.77	
Active Return (AR) Summary (2022)	in progress	in progress	in progress
Coal Market Publication (3 year average – Platts)	\$78.14 PGH (13/3) Rail		\$211.54 Low Vol HCC
(3 year average Platts – minus transportation)	\$85.65 CAPP (12/1.67) Barge		\$213.82 High Vol A
	\$157.59 High Vol B		\$193.59 High Vol B

**STATE STEAM PRICE**  
**STATE MET PRICE**

\$57.27 FERC & PSC, 3 Yr Ave SPOT  
\$103.19 Shown; TY24 in progress

	Spot Sales	Term Sales	Total
2022 WV-PSC Reported Tons	6,785,378	6,795,222	13,580,600

COAL TY24 ROYALTY RATES	2022- ACTIVE RETURN		2021		2020		2019		2018	
	1 YR		2YR		3YR		4YR		5YR	
	%S	%D	%S	%D	%S	%D	%S	%D	\$\$	%D
TOTAL RECORDS	In Progress		36	26	27	25	77	25	76	47
SUM of PERCENT	84.31	212.51	156.90	126.05	528.27	133.33	517.21	268.47		
STRAIGHT AVERAGE	6.21	6.25	5.81	5.04	6.86	5.33	6.81	5.71		
MEDIAN	6.20	6.19	5.04	5.04	7.00	6.00	6.00	5.00		
WEIGHTED AVERAGE	6.11	4.63	6.68	5.39	6.70	3.68	6.36	5.83		
ROYALTY RATE DEEP (%)	4.88									
ROYALTY RATE SURFACE (%)	6.46									
ROYALTY RATE CALCULATIONS										
Steam Coal/ Deep Mine	\$57.27	per ton X	4.88%	=	\$2.80	per ton				
Metallurgical Coal/Deep Mine	\$103.19	per ton X	4.88%	=	\$5.04	per ton				
Steam Coal/Surface Mine	\$57.27	per ton X	6.46%	=	\$3.70	per ton				
Meallurgical Coal/Surface Mine	\$103.19	per ton X	6.46%	=	\$6.67	per ton				

## **Explanation of Reserve Coal Valuation**

The RCVM consists of a computer model, which utilizes a database consisting of coal beds and characteristics, property locations, mine locations, sales, transportation, etc., for the entire state. An extensive algorithm calculates in-place tonnage, expected time of mining and present value for all the mineable coal on every property.

There are, therefore, no set "rates" available on reserve coal under the Rule. The RCVM values on each property will not be available until all data has been entered, after October 15 of each year. Please refer to the State Register, Legislative Rules, Title 110 Series 11 for details.

## Title 110, Series 11

### Valuation of Active and Reserve Coal Property for Ad Valorem Property Tax Purposes

The above Legislative Rule was modified during the 2005 Legislative Session requiring biennial (every other year) updating of the geostatistical basis for several valuation factors used in the Reserve Coal Valuation Model. To satisfy that requirement, maps and data files concerning the Market Interest Factor, the Market Mineability Factor, the Use Conflict Factor and the Environmental Factor were revised for Tax Year 2023 (next update in TY25). Preliminary research has been conducted to determine the effects of the factors on coal valuation. The results are as follows:

#### Market Interest Factor

This is the relationship between transactions (sales, leases, prospects, permit applications, etc.) and mining as it relates to properties and locations. Trans\_Ct is the number of transactions counted within the radius. Radius = 5 miles

```
If Trans_Ct >= 30 Then TransFactor = 20
If Trans_Ct < 30 And Trans_Ct >= 28 Then TransFactor = 40
Else TransFactor = 80
```

#### Market Mineability Factor

This is the relationship between property location and mining, through time. Determining feature is count of mines within the radius. Radius = 2.5 miles

```
Surface Mines: Smine
Deep Mines: Dmine
Boom Mines: Bmine
Historic Mines: Omine
Current Mines: Cmine
To assign MineFactor:
If Cmine > 0 Then MineFactor = 20
If Cmine = 0 And (Omine > 0 Or Bmine > 0) Then MineFactor= 40
Else MineFactor = 80
```

#### Use Conflict Factor

This is the relationship between oil & gas well drilling and mining as it relates to property location. Well density is in wells per square mile.

```
WellDensity < 5 Then WellFactor = 0
WellDensity >= 5 And WellDensity < 10 Then WellFactor = 20
WellDensity >= 10 And WellDensity < 12 Then WellFactor = 40
WellDensity > 12 Then WellFactor = 80
```

#### Environmental Factor

This is the relationship of known environmental hazards and impediments to the likelihood of mining occurring at this location. The rates are compiled from maps and represent densities of problems mapped.

```
Envrate <= 10 or Null Then EnvFactor = 0
Envrate > 10 and Envrate <= 20 Then EnvFactor = 20
Envrate > 20 and Envrate <= 30 Then EnvFactor = 40
Envrate > 30 Then EnvFactor = 80
```

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**OTHER MINED MINERAL  
PROPERTY ANALYSIS** OFFICE OF WEST VIRGINIA  
SECRETARY OF STATE

**TAX YEAR 2023**

**July 1, 2023  
Matthew R. Irby  
State Tax Commissioner  
Department of Revenue**



## NON-COAL MINERALS CAPITALIZATION RATE TY 24

### Capitalization Rate Analysis and Results:

In developing a capitalization rate for use in valuing specific income-producing properties consideration is given to the three approaches generally employed in estimating a discount rate. As a matter of practicality, the Bands-of -Investment and Summation Technique approaches are utilized in establishing discount rates for active coal. Data for analysis has been derived in accordance with current Legislative Rule Title 110, Series 11.

<u>Safe Rate</u>	90 day Treasury Bills	<u>Safe Rate</u>
2022	December	4.360%
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<u>Risk Rate</u>	Interest differential between Loan Rate and 90 day Treasury Bills	
	<u>Loan Rate*</u>	<u>Debt Risk Rate</u>
2022	9.50%	5.140%
2021	5.54%	5.480%
2020	5.54%	5.170%

\*Prime plus 2%

<u>Equity</u>	Differential between Equity Rates and 90 day Treasury Bills	
	<u>Equity Rate**</u>	<u>Equity Risk Rate</u>
2022**	11.53%	16.985%
2021**	11.97%	17.634%
2020	12.00%	16.298%

\*\*COE – BVR Cost of Capital Professional (CRSP, Center for Research in security Prices, Salvador Partners, Damodaran, Stern School)

<u>Composite Risk Rate</u>	Loan and Equity Rates weighted by industry estimated capital structure.			
	<u>Equity Rate</u>	<u>Debt/(Debt+Equity)</u>	<u>Debt Rate</u>	<u>Composite Risk</u>
2022	13.25%	22.0%	1.131%	14.379%
2021	13.23%	25.0%	1.370%	14.600%
2020	11.00%	25.0%	1.680%	12.680%

Non-Liquidity Rate Interest differential between a 90 day Treasury Bill and a 1 year Treasury Bill which reflects a reasonable time necessary to sell active property.

		<u>1yr T Bill</u>	<u>90d T Bill</u>	<u>Non-Liquidity Rate</u>
2022	December	4.680%	4.360%	0.320%
2021	December	0.320%	0.060%	0.260%
2020	December	0.380%	0.370%	0.010%

**Management Rate** Charges for the management of investment portfolios.

Fixed Rate (by Rule) 0.500%

**Inflation Rate**

2022 December 2.790%  
2021 December 2.560%  
2020 December 1.360%

**Capitalization Rate**

Since the valuation of active coal property is predicated on a three-year production average, the capitalization rate is considered in a similar manner.

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Inflation Rate	-2.790%	-2.560%	-1.360%
Safe Rate	4.360%	0.060%	0.370%
Composite Risk Rate	14.379%	14.600%	12.680%
Non Liquidity Rate	0.320%	0.260%	0.010%
Management Rate	0.500%	0.500%	0.500%
Total	16.769%	12.860%	12.200%

Three Yr Average: 13.943 Rounded to: 13.90%

<b><u>CAPITALIZATION RATE -</u></b>		<b>13.90%</b>	
<b><u>MULTIPLIERS:</u></b>			
1YR	0.878	9YR	4.964
2YR	1.649	10YR	5.237
3YR	2.326	11YR	5.475
4YR	2.920	12YR	5.685
5YR	3.441	13YR	5.869
6YR	3.899	14YR	6.031
7YR	4.301	15YR	6.173
8YR	4.654		

## Other Mined Minerals Royalty Rate Survey

The determination of royalty rates for other mined minerals within the State of West Virginia is dependent upon the availability of leasehold information. Since this information is limited, the Department has chosen to review data for the most recent thirty-year period. A Summary only of this review is shown below to protect the confidentiality of parties involved.

<b>Resource</b>	<b># of Data Sources</b>	<b>Ave Royalty</b>	<b>Median Royalty</b>	<b>TY2023 Rate</b>
LIMESTONE	15	\$0.22	\$0.20	\$0.22
SANDSTONE	8	\$0.31	\$0.25	\$0.30
CLAY/SHALE	34	\$0.12	\$0.10	\$0.11
SAND/GRAVEL	10	\$0.35	\$0.40	\$0.40
SALT BRINE	1	N/A	N/A	NA

<b>Reserve Values</b>	<b># of Sales</b>	<b>\$/AC</b>
LIMESTONE	5	\$3,000
SANDSTONE	8	\$2,300
CLAY/SHALE	16	\$850
SAND/GRAVEL	6	\$4,000
SALT	2	\$1,140