



Larry Pack
Secretary of Revenue

STATE TAX DEPARTMENT

Matthew Irby
State Tax Commissioner

July 1, 2024

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 final natural resource property valuation variables for the 2025 Tax Year that have been developed by the State Tax Division 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 Division will accept written public comments on all variables until August 1, 2024. Final valuation variables will be filed on or before September 1, 2024. Public comments concerning the variables should be forwarded to the following address:

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

Sincerely,

A handwritten signature in blue ink, appearing to be "Matthew Irby", is written over a circular blue stamp.

Matthew Irby
State Tax Commissioner

Attachment

OIL AND GAS PROPERTIES ANALYSIS

Tax Year 2025

July 1, 2024
Matthew R. Irby
State Tax Commissioner
Department of Revenue

OIL AND GAS CAPITALIZATION RATE

The Tax Year 2025 cost of capital analysis for West Virginia Oil and Gas was completed on 06/14/2024 using the Q4 2023 Cost of Capital Professional study and the Kroll Cost of Capital Navigator. Returns were selected and calculated for the time period ranging from 1928 to 2023 using a geometric mean. The Capitalization Rate is based on the weighted cost of capital where the equity proportion is set at 80% and the debt portion is set at 20%.

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:

$$\begin{aligned}\text{CoE} &= \text{RFR} + \text{ERP} + \text{IRP} + \text{SP} + \text{RSRP} \\ 13.82\% &= 4.56\% + 5.19\% + 0.78\% + 0.99\% + 2.30\%\end{aligned}$$

5.4.2.a.1 A **4.56%** Risk Free Rate (RFR) was selected, representing the 20-Year Treasury Constant Maturity Rate available on 6/14/2024 at the Federal Reserve Bank.

5.4.2.a.2 A **5.19%** Equity Risk Premium (ERP) was selected, representing the Historical ERP calculated using the S&P 500 average annual return of 10.03% derived from Center for Research in Security Prices (CRSP) data for the 1928 - 2023 period and a 4.84% 20-year T-Bond average annual return (Reconstructed) for the same timeframe.

5.4.2.a.3 An implied **0.78%** Industry Risk Premium (IRP) was calculated using an industry beta of 1.15 selected based on average Beta of West Virginia Exploration & Production firms: Antero Resources, Cabot Corp, Chesapeake Energy, Dominion Resources, EOG Resources, Range Resources, and Southwestern Energy. The Implied Industry Risk Premium is calculated as: $(\text{Industry Beta} * \text{ERP}) - \text{ERP} = (1.15 * 5.19\%) - 5.19\%$.

5.4.2.a.4 A **0.99%** Size Premium (SP) was selected. The Size Premium was based on CRSP decile 3 which included 210 firms with an equity market capitalization size ranging from \$7,493,607,000 to \$14,820,048,000 in Q4 2023. The CRSP decile 3 mean annual return reached 11.02% between 1928 and 2023. The mean annual return for the S&P 500 for the same period was 10.03%.

5.4.2.a.5 A **2.3%** Regional Specific Risk Premium (RSRP) was selected due to the analysis being focused on a single state only market segment.

5.4.2.b Debt Portion:

5.4.2.b.1 A borrowing rate (pre-tax cost of debt) of **7.93%** was selected. Based on average of Prime Lending Rate +2% (8.1%+2%) and BAA Corp Bond Rate 5.75%. (June 14, 2024)

5.4.2.b.2 A tax rate of **5.61%** was selected. Stern, NYU, Damodaran

Equity percentage of 80% was selected. Average of West Virginia Exploration & Production firms: Antero Resources, Cabot Corp, Chesapeake Energy, Dominion Resources, EOG Resources, Range Resources, & Southwestern Energy.

Debt Percentage of 20% was selected.

The Weighted Average Cost of Capital (WACC) computed for WV Oil and Gas TY 2025. Given the components selected the formula used is as follows:

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

$$12.55\% = (13.82\% * 80.00\%) + (7.93\% * (1 - 5.61\%) * 20.00\%)$$

The West Virginia Weighted Average Cost of Capital for oil and gas is calculated as 12.55% WACC.

Cost of Capital = 12.55% WACC for West Virginia Oil and Gas as of 07/01/2024.

CAPITALIZATION RATE -13.10%			
Year	Multiplier	Year	Multiplier
1	0.9426	16	0.1600
2	0.8375	17	0.1422
3	0.7441	18	0.1263
4	0.6611	19	0.1122
5	0.5874	20	0.0997
6	0.5219	21	0.0886
7	0.4637	22	0.0787
8	0.4120	23	0.0699
9	0.3661	24	0.0621
10	0.3253	25	0.0552
11	0.2890	26	0.0491
12	0.2568	27	0.0436
13	0.2281	28	0.0387
14	0.2027	29	0.0344
15	0.1801	30	0.0306

Decline Rates for Natural Gas and Oil Formations: Central					
Central: Braxton, Clay, Fayette, Nicholas, Webster					
Code	Formation	Year 1	Year 2	Year 3 +	
12	Alexander, Benson	-0.31	-0.20	-0.10	Braxton
14	Benson	-0.48	-0.08	-0.08	Clay
16	Benson, Balltown+	-0.45	-0.16	-0.12	Fayette
17	Gordon +	-0.30	-0.07	-0.07	Nicholas
18	Big Injun	-0.34	-0.13	-0.13	Webster
19	Big Injun, Big Lime	-0.36	-0.13	-0.13	
22	Big Lime	-0.34	-0.34	-0.13	
26	Ravenclyff	-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.

Decline Rates for Natural Gas and Oil Formations: East					
East: Berkeley, Grant, Greenbrier, Hampshire, Hardy, Jefferson, Mineral, Monroe, Morgan, Pendleton, Pocahontas, Preston, Randolph, Summers, Tucker					
Code	Formation	Year 1	Year 2	Year 3 +	
1	Oriskany	-0.30	-0.30	-0.19	Berkeley
14	Benson	-0.31	-0.17	-0.12	Grant
20	Benson +	-0.44	-0.20	-0.08	Greenbrier
21	Benson, Fifth	-0.29	-0.28	-0.09	Hampshire
32	Brallier +	-0.48	-0.20	-0.05	Hardy
33	Elk, Benson	-0.39	-0.21	-0.08	Jefferson
34	Elk, Benson, Riley	-0.53	-0.19	-0.05	Mineral
35	Elk, Benson, Riley +	-0.36	-0.19	-0.11	Monroe
36	Elk, Benson, Balltown	-0.34	-0.18	-0.11	Morgan
37	Elk, Alexander, Benson	-0.50	-0.07	-0.07	Pendleton
38	Elk, Alexander, Benson +	-0.40	-0.16	-0.16	Pocahontas
39	Huntermville	-0.31	-0.31	-0.14	Preston
40	Fox, Haverly	-0.36	-0.21	-0.15	Randolph
93	4th Sand	-0.42	-0.32	-0.08	Summers
94	50 Foot	-0.34	-0.26	-0.07	Tucker
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.

Decline Rates for Natural Gas and Oil Formations: South					
South: McDowell, Mercer, Raleigh, Wyoming					
Code	Formation	Year 1	Year 2	Year 3 +	
8	Berea	-0.34	-0.15	-0.15	McDowell
22	Big Lime	-0.31	-0.19	-0.07	Mercer
23	Big Lime, Maxton	-0.31	-0.19	-0.07	Raleigh
24	Big Lime, Ravencloff	-0.29	-0.29	-0.17	Wyoming
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.

Decline Rates for Natural Gas and Oil Formations: South West					
South West: Cabell, Lincoln, Logan, Mingo, Wayne					
Code	Formation	Year 1	Year 2	Year 3 +	
3	Devonian Shale	-0.31	-0.15	-0.04	Cabell
8	Berea	-0.36	-0.11	-0.11	Lincoln
18	Big Injun	-0.38	-0.22	-0.04	Logan
22	Big Lime	-0.19	-0.19	-0.19	Mingo
43	Berea, Big Lime	-0.18	-0.18	-0.18	Wayne
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 *	-0.38	-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.

Decline Rates for Natural Gas and Oil Formations: South Central					
South Central: Boone, Kanawha					
Code	Formation	Year 1	Year 2	Year 3 +	
3	Devonian Shale	-0.23	-0.08	-0.05	Boone
4	Huron	-0.31	-0.15	-0.04	Kanawha
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.

Decline Rates for Natural Gas and Oil Formations: North					
North: Brooke, Hancock, Marshall, Ohio, Tyler, Wetzel					
Code	Formation	Year 1	Year 2	Year 3 +	
11	Gordon	-0.47	-0.31	-0.09	Brooke
13	Alexander, Benson, Riley	-0.26	-0.16	-0.15	Hancock
15	Benson, Riley	-0.18	-0.16	-0.06	Marshall
93	4th Sand	-0.42	-0.32	-0.08	Ohio
94	50 Foot	-0.34	-0.26	-0.07	Tyler
95	Injun/Weir	-0.51	-0.26	-0.09	Wetzel
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.

Decline Rates for Natural Gas and Oil Formations: North West					
North West: Pleasants, Ritchie, Wood					
Code	Formation	Year 1	Year 2	Year 3 +	
2	Huron, Rhinestreet	-0.41	-0.26	-0.07	Pleasants
4	Huron	-0.42	-0.24	-0.14	Ritchie
5	Huron, Shales above Huron	-0.39	-0.25	-0.14	Wood
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.

North Central: Barbour, Doddridge, Gilmer, Harrison, Lewis, Marion, Monongalia, Taylor, Upshur					
Code	Formation	Year 1	Year 2	Year 3 +	
11	Gordon	-0.41	-0.14	-0.12	Barbour
12	Alexander, Benson	-0.37	-0.19	-0.11	Doddridge
13	Alexander, Benson, Riley	-0.40	-0.28	-0.05	Gilmer
14	Benson	-0.31	-0.17	-0.12	Harrison
15	Benson, Riley	-0.34	-0.17	-0.14	Lewis
18	Big Injun	-0.36	-0.16	-0.13	Marion
21	Benson, Fifth	-0.31	-0.20	-0.14	Monongalia
28	Weir	-0.34	-0.34	-0.07	Taylor
29	Weir +	-0.28	-0.28	-0.23	Upshur
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.

Decline Rates for Natural Gas and Oil Formations: West					
West: Jackson, Mason, Putnam					
Code	Formation	Year 1	Year 2	Year 3 +	
1	Oriskany	-0.40	-0.40	-0.29	Jackson
2	Huron, Rhinestreet	-0.13	-0.12	-0.03	Mason
3	Devonian Shale	-0.31	-0.15	-0.04	Putnam
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.

Decline Rates for Natural Gas and Oil Formations: West Central					
West Central: Calhoun, Roane, Wirt					
Code	Formation	Year 1	Year 2	Year 3 +	
2	Huron, Rhinestreet	-0.49	-0.11	-0.06	Calhoun
4	Huron	-0.33	-0.22	-0.14	Roane
27	Huron, Shales above Huron	-0.42	-0.23	-0.12	Wirt
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 \$2.65/MCF
Oil BBL usage X \$70.00/BBL
NGL BBL usage X \$32.00/BBL

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

Non-Filer Pricing

Under W.Va. CSR § 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 West Virginia Department of Environmental Protection in determining the working interest income. The following prices will be used across the state:

Natural Gas	= \$2.65 per MCF
Oil	= \$70 per barrel
Natural Gas Liquids	= \$32 per barrel

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

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

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 \$35.00	DIS 2 \$35.00	DIS 3 \$35.00	DIS 4 \$1.00	DIS 5 \$35.00	DIS 6 \$35.00	DIS 7 \$35.00	DIS 8 \$35.00		
WOOD	54	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 \$35.00	DIS 9 \$35.00	DIS 10 \$1.00
WOOD	54	DIS 11 \$35.00	DIS 12 \$35.00	DIS 13 \$1.00	DIS 14 \$1.00						
WYOMING	55	DIS 1 \$20.00	DIS 2 \$20.00	DIS 3 \$20.00	DIS 4 \$20.00	DIS 5 \$20.00	DIS 6 \$1.00	DIS 7 \$20.00	DIS 8 \$1.00	DIS 9 \$1.00	DIS 10 \$20.00

**MANAGED TIMBER
PROPERTY ANALYSIS**

Tax Year 2025

July 1, 2024
Matthew R. Irby
State Tax Commissioner
Department of Revenue

TIMBERLAND APPRAISAL RATES
TAX YEAR 2025

(Based on Market 2019-2023)

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

Grades

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

Estimation of Required Rate of Return

A. Safe Rate of Return (5 Year T-Bill or 5 Year Corp Bond Rate)

Year	Rate	W/A %	W/A Rate
2023	4.2400	33.33%	1.4132
2022	2.9992	26.67%	0.7999
2021	1.2600	20.00%	0.2520
2020	2.0700	13.33%	0.2759
2019	1.9575	6.67%	0.1306

2.872 %

B. Nonliquidity Rate (20 Year T-Bill vs. 3 Month T-Bills)

Year	Rate	W/A %	W/A Rate
2023	0.9700	33.33%	0.3233
2022	0.7108	26.67%	0.1896
2021	1.8200	20.00%	0.3640
2020	1.0100	13.33%	0.1346
2019	0.5000	6.67%	0.0334

1.045 %

C. Risk Rate (30 Year T-bills or 5 Year Corp Bond vs. 30 day T-bills)

Year	Rate	W/A %	W/A Rate
2023	1.4900	33.33%	0.3860
2022	1.1580	26.67%	0.3200
2021	1.2000	20.00%	0.3400
2020	1.7000	13.33%	0.0832
2019	0.6240	6.67%	0.0243

1.314 %

D. Management Factor of 1.0%

1.000 %

E. Property Tax Component (60% of Blended III&IV Rates)

Year	Rate	W/A %	W/A Rate
2023	0.720	33.33%	0.2400
2022	0.720	26.67%	0.1920
2021	0.720	20.00%	0.1440
2020	0.720	13.33%	0.0960
2019	0.720	6.67%	0.0480

0.720 %

F. Inflation Rate (BLS – 20 Year Average)

Year	Rate	W/A %	W/A Rate
2023	2.541	33.33%	0.8469
2022	2.480	26.67%	0.6614
2021	2.560	20.00%	0.5120
2020	1.360	13.33%	0.1813
2019	1.810	6.67%	0.1207

(2.322) %

TOTAL REQUIRED RATE OF RETURN (REAL)

4.280 %

LESS: PROPERTY TAX COMPONENT

(0.720)

TOTAL DISCOUNT COMPONENT

3.909 %

Management Costs:

Region	<u>\$/Acre (1)</u>
1	6.75
2	6.75
3	6.75
4	6.75
5	6.75
State	

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
Grade I	75 or More	14.5	10.5
Grade II	65-74	9.7	14.9
Grade III	Less Than 65	4.5	18.5

COAL PROPERTIES ANALYSIS

Tax Year 2025

July 1, 2024
Matthew R. Irby
State Tax Commissioner
Department of Revenue

COAL CAPITALIZATION RATE

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 1I.

<u>Safe Rate</u>	90 Day Treasury Bills	<u>Safe Rate</u>
2023	December	4.560%
2022	December	4.360%
2021	December	0.060%

<u>Risk Rate</u>	Interest differential between Loan Rate and 90 Day Treasury Bills	<u>Debt Risk Rate</u>
	<u>Loan Rate*</u>	
2023	10.10%	5.540%
2022	9.50%	5.140%
2021	5.54%	5.480%
	*Prime plus 2%	

<u>Equity</u>	Differential between Equity Rates and 90 Day Treasury Bills	<u>Equity Risk Rate</u>
	<u>Equity Rate</u>	
2023	12.57%	17.072%
2022	12.93%	19.048%
2021	11.04%	16.264%

** 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>
2023	13.658%	20.0%	1.108%	14.766%
2022	13.333%	30.0%	1.542%	14.875%
2021	12.198%	25.0%	1.370%	13.568%

<u>Non Liquidity Rate</u>	Interest differential between 90 Day Treasury Bills 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>
2023	December	4.790%	4.560%	0.230%
2022	December	4.680%	4.360%	0.320%
2021	December	0.320%	0.060%	0.260%

<u>Management Rate</u>	Charges for the management of investment portfolios.
Fixed Rate (by Rule)	0.500%

Inflation Rate (5 Breakeven Year)

2023	December	20 year average as of 12/30/2023	2.540%
2022	December		2.480%
2021	December		2.560%

Property Tax

2023		1.380%
2022		1.380%
2021		1.380%

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>2023</u>	<u>2022</u>	<u>2021</u>
Inflation Rate	-2.540%	-2.480%	-2.560%
Safe Rate	4.560%	4.360%	0.060%
Composite Risk Rate	14.766%	14.875%	13.568%
Non Liquidity Rate	0.230%	0.320%	0.260%
Management Rate	0.500%	0.500%	0.500%
Property Tax	N/A	N/A	N/A
Total	17.516%	17.575%	11.828%

Rounded Three Yr Average: 15.60

<u>CAPITALIZATION RATE – 15.60%</u>	Year	Multiplier	Year	Multiplier
	1	0.865	9	4.671
	2	1.613	10	4.906
	3	2.261	11	5.109
	4	2.821	12	5.285
	5	3.305	13	5.437
	6	3.724	14	5.568
	7	4.087	15	5.682
	8	4.400		

COAL SALE PRICES FOR TY25 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.

GRAND SUMMARY ALL SOURCES	STEAM SPOT	STEAM TERM	MET
PSC (2022)	\$77.45	\$51.44	
FERC (2022)	\$71.97	\$76.56	
Active Return (AR) Summary (2022)	\$92.38	\$45.88	\$151.23 (as of 6/1)
Coal Market Publication (3 year average – Platts) (Includes transportation)	\$67.32 PGH (13/3) Rail \$64.27 UOR (12/6) Barge \$83.08 CAPP (12/1.67) Barge \$82.85 Thacker/Kenova (12.5/1.2)		\$237.36 Low Vol HCC \$249.27 High Vol A \$217.70 High Vol B \$221.90 Beckley

State Steam Price State Met Price

\$67.31 FERC & PSC, 3 Year Average SPOT
\$159.24

	Spot Sales	Term Sales	Total
2023 WV-PSC Reported Tons	9,155,086	6,952,884	16,107,970

COAL TY25 ROYALTY RATES	2023 - Active Return		2022		2021		2020		2019	
	1YR		2YR		3YR		4YR		5YR	
	%S	%D	%S	%D	%S	%D	%S	%D	S	%D
TOTAL RECORDS	152	31	142	38	36	26	27	25	77	25
SUM of PERCENT	1061.5	186.75	892.90	234.2	384.31	212.5	156.90	126.1	528.3	133.3
STRAIGHT AVERAGE	7.00	6.02	6.29	6.16	6.21	6.25	5.81	5.04	6.86	5.33
MEDIAN	8.00	6.00	6.00	6.00	6.20	6.19	6.50	6.00	7.00	6.00
WEIGHTED AVERAGE	6.03	5.51	5.81	6.43	6.11	4.63	6.68	5.39	6.70	3.68
ROYALTY RATE DEEP (%)	5.13									
ROYALTY RATE SURFACE (%)	6.27									

ROYALTY RATE CALCULATIONS

Steam Coal/ Deep Mine	\$67.31	per ton X	5.13%	=	\$3.45	per ton
Metallurgical Coal/ Deep Mine	\$159.24	per ton X	5.13%	=	\$8.17	per ton
Steam Coal/ Surface Mine	\$67.31	per ton X	6.27%	=	\$4.22	per ton
Metallurgical Coal/ Surface Mine	\$159.24	per ton X	6.27%	=	\$9.98	per ton

Explanation of Reserve Coal Valuation

The Reserve Coal Valuation Method (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 1I for details.

Title 110, Series 1I

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 2025 (next update in TY27). 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 >= 100 Then TransFactor = 20
If Trans_Ct < 100 And Trans_Ct >= 70 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 < 3 Then WellFactor = 0
WellDensity >= 3 And WellDensity < 5 Then WellFactor = 20
WellDensity >= 5 And WellDensity < 7 Then WellFactor = 40
WellDensity > 7 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

**OTHER MINED MINERAL
PROPERTY ANALYSIS**

Tax Year 2025

July 1, 2024
Matthew R. Irby
State Tax Commissioner
Department of Revenue

NON-COAL MINERALS CAPITALIZATION RATE TY 25

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>
2023	December	4.560%
2022	December	4.360%
2021	December	0.060%

<u>Risk Rate</u>	Interest differential between Loan Rate and 90 Day Treasury Bills	
	<u>Loan Rate*</u>	<u>Debt Risk Rate</u>
2023	10.10%	5.540%
2022	9.50%	5.140%
2021	5.54%	5.480%
	*Prime plus 2%	

<u>Equity</u>	Differential between Equity Rates and 90 Day Treasury Bills	
	<u>Equity Rate</u>	<u>Equity Risk Rate</u>
2023	12.57%	17.072%
2022	11.53%	16.985%
2021	11.97%	17.634%

** 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>
2023	13.658%	20.0%	1.108%	14.766%
2022	13.250%	22.0%	1.131%	14.379%
2021	13.230%	25.0%	1.370%	14.600%

<u>Non Liquidity Rate</u>		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>
2023	December	4.790%	4.560%	0.230%
2022	December	4.680%	4.360%	0.320%
2021	December	0.320%	0.060%	0.260%

<u>Management Rate</u>	Charges for the management of investment portfolios.
Fixed Rate (by Rule)	0.500%

Inflation Rate (5 Breakeven Year)

2023	December	20 Year Average as of 12/30/2023	2.540%
2022	December		2.480%
2021	December		2.560%

Property Tax

2023		1.380%
2022		1.380%
2021		1.380%

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>2023</u>	<u>2022</u>	<u>2021</u>
Inflation Rate	-2.540%	-2.480%	-2.560%
Safe Rate	4.560%	4.360%	0.060%
Composite Risk Rate	14.766%	14.379%	14.600%
Non Liquidity Rate	0.230%	0.320%	0.260%
Management Rate	0.500%	0.500%	0.500%
Property Tax	N/A	N/A	N/A
Total	17.516%	17.079%	12.860%

Rounded Three Year Average: 15.80

<u>CAPITALIZATION RATE – 15.80%</u>	Year	Multiplier	Year	Multiplier
	1	0.864	9	4.639
	2	1.609	10	4.869
	3	2.253	11	5.069
	4	2.809	12	5.241
	5	3.290	13	5.389
	6	3.704	14	5.517
	7	4.062	15	5.628
	8	4.372		

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 State Tax Division 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.

Resource	# of Data Sources	Average Royalty	Median Royalty	TY2025 Rate
LIMESTONE	9	\$0.61	\$0.20	\$0.61
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	N/A

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