

ADMINISTRATIVE NOTICE 98-02

SUBJECT: Property Tax -- State Tax Commissioner's Statement for the Determination of the Capitalization Rates for Producing Coal, Oil and Gas, Other Mined Minerals, and Managed Timberland for Property Tax Purposes for Tax Year 1998, Pursuant to CSR §§110-1H-8, 110-1I-4.1.9, 110-1J-4.7 and 110-1K-4.1.8

On June 30, 1997, the State Tax Commission filed valuation variables to be used in conjunction with legislative regulations for the appraisal of producing natural resource properties. (See: CSR §§ 110 1-H, 1-I, 1-J, and 1-K) This notice will address one of the variables, the capitalization rate, setting forth the generally accepted appraisal procedures used in developing the respective rates and in applying the rates to income streams generated by natural resource properties. To this end, this notice will discuss development of industry capitalization rates for producing coal, oil and gas, other mined minerals, and managed timberland.

DISCUSSION

The International Association of Assessing Officers text "Property Appraisal and Assessment Administration, 1990, defines a capitalization rate as: "Any rate used to convert an estimate of income to an estimate of market value; the ratio of net operating income to market value." In other words a rate used to convert an estimate of future income into an estimate of present value.

Generally, there are three (3) components that must be considered and if appropriate developed and included in an overall capitalization rate. These components are: the discount component, the recapture component, and the property tax component. The development of each of these three (3) components will be discussed in the remainder of this Notice.

DISCOUNT COMPONENT

Of the three (3) generally accepted methods of estimating a discount component, the bands-of-investment method and the summation method have received primary consideration. Consideration was given to use of the comparison method; however, the Tax Commission is of the opinion that the bands-of-investment and summation methods are the more appropriate methods to employ for producing coal, oil and gas, and other mined minerals properties as there are a limited number of sales of these types of producing properties and these methods lend themselves more readily to the conversion of the equity rate portion of the discount component to a pre-tax rate.

The first step in the process is to construct a capital structure. The capital structure of an industry depicts typically the sources of capital financing (i.e.: what portion of the total capital financing is raised through debt and through equity financing). The Tax Commission developed an average industry capital structure based on mining, oil and gas, and timber industries as grouped in Moody's Industrial Manual and the Value Line Investment Survey. The capital structure was segregated into percentages of capital financing generated through debt and through equity financing in order to develop a profile for typical leveraging characteristics by type industry. (Equity financing represents capital acquired through sale of stock and earnings retention and debt financing represents capital acquired through issuance of instruments of debt.)

Once the capital structure had been established a return on investment is developed for each financing band. The Tax Commission analyzed the financial information of companies grouped by industry in the Value Line Investment Survey in order to develop a return by type industry for common stocks. This "after-tax" return was then adjusted to a "pre-tax" return where applicable and used in developing the equity portion of the discount component.

The debt return for the debt finance band was established, for each industry, through analysis of loan rates extracted from questionnaires received from lending institutions. Once a safe rate and a risk rate is developed from the previously mentioned analysis, a management rate (for management of investment portfolios) and a nonliquidity rate (time required to sell the investment) are estimated. A synthesis of these rates (as illustrated in Attachment I) is then used to develop the discount component.

RECAPTURE COMPONENT

The discount component previously discussed provides an investor with a rate of return-on-investment (interest). The second capitalization rate component, recapture, provides the investor with a return-of-investment (principal i.e.: provides an estimate of return necessary for the investor to recover the principal invested). Once a capitalization rate has been developed for coal, oil and gas, and other mined mineral properties, the income series is discounted to present worth through selection of a multiplier(s) from a standard mid-year life Inwood table (see Attachment II). The Inwood table has a factor for recapture built into the table coefficients thus removing the need to separately accommodate for recapture in the capitalization rate.

PROPERTY TAX COMPONENT

The third component, property taxes, was derived by multiplying the assessment rate by the statewide average of tax rates on Class III property. Tax Commission research indicates that in addition to royalty rates negotiated in producing coal property leases, property taxes are paid by the coal producer. Thus the capitalization rate for producing coal properties does not contain a property tax component as the income stream does not contain income to be used to pay property taxes.

APPLICATION

The summation of the previously discussed components (i.e.: discount, recapture, and property tax components) yields a reasonable estimate for the overall capitalization rate. The overall capitalization rate is used to select the factor(s) from a standard mid-year life Inwood table (i.e.: present worth of one (1) per period) that converts the income stream(s) into an estimate of present worth.

The Bands-of-Investment and summation techniques were employed when developing discount rates for producing coal, oil and gas, and other mined mineral properties. Likewise a combination of the bands-of-investment technique and the summation technique was employed in developing a discount rate for managed timberland properties. An adjustment was then made to the managed timberland discount rate to remove the effects of inflation as the income stream developed for managed timberland is a noninflating perpetual (80 year) income series.

For more information concerning the development of capitalization rates for producing natural resource and managed timberland properties see CSR §§ 110 1-H, 1-I, 1-J, and 1-K, or contact the State Tax Commission at (304) 558-3940.

Issued: January 30, 1998

Rich Boyle
State Tax Commissioner

State Tax Commission
Property Tax Division
P. O. Box 2389
Charleston, WV 25328-2389

Operator on Duty 8:30 am - 4:00 pm
Monday through Friday
Phone: (304) 558-3940
FAX: (304) 558-1843

A. COAL PROPERTIES SURVEY

May 31, 1997
Rich Boyle
State Tax Commission
West Virginia State Tax Commission

1. Capitalization Rate Survey and Results

In developing a capitalization rate for use in valuing income producing properties, consideration should be given to the three approaches generally considered in estimating a discount rate. As a result of a limited number of sales involving producing properties, the Bands-of-Investment and the Summation Techniques will be utilized.

Summation Technique

A. Safe Rate - 90-day Treasury Bills

January - December 1996 = 5.025%
January - December 1995 = 5.513%
January - December 1994 = 4.270%

B. Risk Rate

1) Debt - interest differential between Loan Rates and 90-day Treasury Bills.

<u>Loan Rates</u> *	<u>Risk Rate</u>
1996 - 11.283%	6.258%
1995 - 10.750%	5.237%
1994 - 8.845%	4.575%

* From Questionnaire

2) Equity - differential between Equity Rates and 90-day Treasury Bills.

<u>Equity Rates</u> *	<u>Risk Rate</u>
1996 - $[12.5\% \div (1-.29)] - 5.025 = 12.581\%$	
1995 - $[12.5\% \div (1-.29)] - 5.513 = 12.093\%$	
1994 - $[12.5\% \div (1-.29)] - 4.270 = 13.336\%$	

* *Moody's Handbook on Common Stocks and Value Line Investments Survey Analysis*

3) Risk Rate - composite of Loan and Equity Rates weighted by industry estimated capital structure.*

<u>Equity Rates</u>	<u>Debt Rate</u>	<u>Composite Risk Rate</u>
1996 - 7.549%	2.503%	10.052%
1995 - 7.256%	2.095%	9.351%
1994 - 8.002%	1.830%	9.832%

* Debt Equity Ratio = 40% Debt - 60% Equity

- C. Non-Liquidity Rate - interest differential between 90-day Treasury Bill rates and one year Treasury Bill rates which reflect time necessary to sell active properties.

	1 Yr. <u>T-Bill</u> -	3 Mo. <u>T-Bill</u> =	<u>Non-Liquidity</u> <u>Rate</u>
January-December 1996 =	5.224% -	5.025% =	.199%
January-December 1995 =	5.713% -	5.513% =	.200%
January-December 1994 =	4.978% -	4.270% =	.708%

- D. Management Rate - charges for management of investment portfolios (from questionnaire).

Rates: (1) 5% of gross income
(2) \$5/\$1000 of principal or .500%

Capitalization Rate (Coal)

	<u>1996</u>	<u>1995</u>	<u>1994</u>
Safe Rate	5.025	5.513	4.270
Risk Rate	10.052	9.351	9.832
Non-Liquidity Rate	.199	.200	.708
Management Rate	<u>.500</u>	<u>.500</u>	<u>.500</u>
	15.776	15.564	15.310
* Weight	<u>.40</u>	X <u>.30</u>	X <u>.30</u>
	6.310	4.669	4.593

Weighted Total = 15.572% Round to 15.50%

- * The valuation of an active coal property is dependent on the weighted average of the past three years of production. Therefore, the capitalization rate will be estimated in the same manner.

B. OIL AND GAS PROPERTIES SURVEY

May 31, 1997
Rich Boyle
State Tax Commissioner
West Virginia State Tax Commission

1. Capitalization Rate Survey and Results

In developing a capitalization rate for use in valuing income producing properties, consideration should be given to the three approaches generally considered in estimating a discount rate. As a result of a limited number of sales involving producing properties, the Bands-of-Investment and the Summation Techniques will be utilized.

Summation Technique

A. Safe Rate - 90-day Treasury Bills

$$\text{January - December 1996} = 5.025\% \div (.95) = 5.289$$

B. Risk Rate

- 1) Debt - interest differential between Loan Rates and 90-day Treasury Bills.

<u>Loan Rates</u> *	<u>Risk Rate</u>
1996 - 10.25%	$5.225\% \div (.95) = 5.500\%$

* From Questionnaire

- 2) Equity - differential between Equity Rates and 90-day Treasury Bills.

<u>Equity Rates</u> *	<u>Risk Rate</u>
1996 - [12.50% \div (1-.37)] - 5.025	= 14.816%

* *Moody's Handbook on Common Stocks and Value Line Investments Survey Analysis*

- 3) Risk Rate - composite of Loan and Equity Rates weighted by industry estimated capital structure.*

<u>Equity Rates</u>	<u>Debt Rate</u>	<u>Composite Risk Rate</u>
1996 - 8.149%	2.475%	10.624%

* Debt Equity Ratio = 45% Debt - 55% Equity

- C. Non-Liquidity Rate - interest differential between 90-day Treasury Bill rates and one year Treasury Bill rates which reflect time necessary to sell active properties.

	1 Yr. <u>T-Bill</u>	-	3 Mo. <u>T-Bill</u>	=	<u>Non-Liquidity Rate</u>
January-December 1996 =	5.224%	-	5.025%	=	.199%

- D. Management Rate - charges for management of investment portfolios (from questionnaire).

Rate: .500%

- E. Property Tax Rate - sixty percent (60%) of the Statewide average of tax rates on Class III properties.

$$1996 = 60\% \text{ of } \underline{2.2234} = \underline{1.334} \%*$$

Capitalization Rate (Oil/Gas)

	<u>1996</u>
Safe Rate	= 5.289
Risk Rate	= 10.624
Non-Liquidity Rate	= .199
Management Rate	= .500
Property Tax Rate	= <u>1.334</u>

17.946 = Capitalization Rate

18.00% (Rounded)

C. OTHER ACTIVE NATURAL RESOURCE
PROPERTIES SURVEY

May 31, 1997
Rich Boyle
State Tax Commissioner
West Virginia State Tax Commission

1. Capitalization Rate Survey and Results

In developing a capitalization rate for use in valuing income producing properties, consideration should be given to the three approaches generally considered in estimating a discount rate. As a result of a limited number of sales involving producing properties, the Bands-of-Investment and the Summation Techniques will be utilized.

Summation Technique

A. Safe Rate - 90-day Treasury Bills

January - December 1996 = 5.025%
January - December 1995 = 5.513%
January - December 1994 = 4.270%

B. Risk Rate

1) Debt - interest differential between Loan Rates and 90-day Treasury Bills.

<u>Loan Rates</u> *	<u>Risk Rate</u>
1996 - 10.250%	5.225%
1995 - 11.000%	5.487%
1994 - 9.569%	5.299%

* From Questionnaire

2) Equity - differential between Equity Rates and 90-day Treasury Bills.

<u>Equity Rates</u> *	<u>Risk Rate</u>
1996 - [12.50% ÷ (1-.29)] - 5.025 = 12.581%	
1995 - [12.50% ÷ (1-.29)] - 5.513 = 12.093%	
1994 - [12.50% ÷ (1-.29)] - 4.270 = 13.336%	

* *Moody's Handbook on Common Stocks and Value Line Investments Survey Analysis*

3) Risk Rate - composite of Loan and Equity Rates weighted by industry estimated capital structure.*

<u>Equity Rates</u> *	<u>Debt Rate</u>	<u>Composite Risk Rate</u>
1996 - 7.549%	+ 2.090%	= 9.639%
1995 - 7.256%	+ 2.195%	= 9.451%
1994 - 8.002%	+ 2.120%	= 10.122%

* Debt Equity Ratio = 40% Debt - 60% Equity

- C. Non-Liquidity Rate - interest differential between 90-day Treasury Bill rates and one year Treasury Bill rates which reflect time necessary to sell active properties.

	1 Yr. <u>T-Bill</u> -	3 Mo. <u>T-Bill</u> =	Non-Liquidity <u>Rate</u>
January-December 1996 =	5.224% -	5.025% =	.199%
January-December 1995 =	5.713% -	5.513% =	.200%
January-December 1994 =	4.978% -	4.270% =	.708%

- D. Management Rate - charges for management of investment portfolios (from questionnaire).

Rates: (1) 5% of gross income
(2) \$5/\$1000 of principal or .500%

- E. Property Tax Rate - sixty percent (60%) of the statewide average of tax rates on Class III properties.

1996 = 60% of 2.2234 = 1.334 %
 1995 = 60% of 2.2339 = 1.340 %*
 1994 = 60% of 2.2320 = 1.339 %

- * Tax Year 1996 rate is being used in this calculation. When the Tax Year 1997 rate is available, the necessary adjustment will be made.

Capitalization Rate (Other Natural Resources)

	<u>1996</u>	<u>1995</u>	<u>1994</u>
Safe Rate	5.025	5.513	4.270
Risk Rate	9.639	9.451	10.122
Non-Liquidity Rate	.199	.200	.708
Management Rate	.500	.500	.500
Property Rate Tax	<u>1.334</u>	<u>1.340</u>	<u>1.339</u>
	16.697	17.004	16.939
** Weight	<u>.40</u>	X <u>.30</u>	X <u>.30</u>
	6.679	5.101	5.082

Weighted Total = 16.862% Round to 16.75%

- ** The valuation of an active natural resource property is dependent on the weighted average of the past three years of production. Therefore, the capitalization rate will be estimated in the same manner.

D. TIMBERLAND PROPERTIES SURVEY

May 31, 1997
Rich Boyle
State Tax Commissioner
West Virginia State Tax Commission

1. Capitalization Rate Survey and Results

A single Statewide capitalization rate for timberland has been determined using the following format(s):

- The rate will be based on the assumption of a level, terminal (80 year) income series.
- The rate, because of the use of a level, non-inflationary income series, will be void of any expected inflation rate.
- The rate will be determined by the Summation Technique.

A. Safe Rate:

(Long Term U. S. Securities)

(30 yr. T-Bills)

1996	=	6.701	X	5/15	=	2.234
1995	=	6.885	X	4/15	=	1.836
1994	=	7.370	X	3/15	=	1.474
1993	=	6.598	X	2/15	=	0.880
1992	=	7.667	X	1/15	=	0.511

6.935%

B. Risk Rate:

Debt (Long Term Loan Rates - Safe Rate)

1996	9.930	-	6.701	=	3.229	X	5/15	=	1.076
1995	9.920	-	6.885	=	3.035	X	4/15	=	.809
1994	10.258	-	7.370	=	2.888	X	3/15	=	.578
1993	9.433	-	6.598	=	2.835	X	2/15	=	.378
1992	9.711	-	7.667	=	2.044	X	1/15	=	.136

2.977

Equity: (Equity Rate - Safe Rate)

1996	12.50	-	6.701	=	5.799	X	5/15	=	1.933
1995	12.50	-	6.885	=	5.615	X	4/15	=	1.497
1994	12.50	-	7.370	=	5.130	X	3/15	=	1.026
1993	12.00	-	6.598	=	5.402	X	2/15	=	.720
1992	13.00	-	7.667	=	5.333	X	1/15	=	.356

5.532

Risk Rate (Debt and Equity Rates Weighted by Industry Estimated Capital Structure*)

Debt	2.977	X	.45	=	1.340
Equity	5.532	X	.55	=	<u>3.043</u>

Composite Risk Rate 4.383%

* Capital Structure: 45% Debt; 55% Equity

C. Non-Liquidity Rate:

(12 Mo. T-Bills vs. 3 Mo. T-Bills)

1996	5.224	-	5.025	=	.199	X	5/15	=	.066
1995	5.713	-	5.513	=	.200	X	4/15	=	.053
1994	4.978	-	4.270	=	.708	X	3/15	=	.142
1993	3.434	-	3.019	=	.415	X	2/15	=	.055
1992	3.757	-	3.460	=	.297	X	1/15	=	.020

.336%

D. Management Rate:

0.500%

E. Property Tax Rate: 60% of Class III Rate

1996	1.334	X	5/15	=	.445
1995	1.340	X	4/15	=	.357
1994	1.339	X	3/15	=	.268
1993	1.433	X	2/15	=	.191
1992	1.462	X	1/15	=	.097

1.358%

F. Inflation Rate: Bureau of Labor Statistics

1996	3.3	X	5/15	=	1.100
1995	2.5	X	4/15	=	.667
1994	2.7	X	3/15	=	.540
1993	2.7	X	2/15	=	.360
1992	2.9	X	1/15	=	.193

(2.860%)

Capitalization Rate: Managed Timberland = 10.652%

Rounded to 10.75%

Midyear Factors for Present Worth of 1 and
Present Worth of 1 Per Annum (Coal)

Percent 15.50

<u>Period</u>	<u>Present Worth of 1</u>	<u>Present Worth of 1 Per Annum</u>
1	0.930	0.930
2	0.806	1.736
3	0.698	2.434
4	0.603	3.037
5	0.523	3.560
6	0.453	4.013
7	0.392	4.405
8	0.339	4.744
9	0.294	5.038
10	0.254	5.292
11	0.221	5.513
12	0.190	5.703
13	0.166	5.869
14	0.142	6.011
15	0.124	6.135

Midyear Factors for Present Worth of 1 and
Present Worth of 1 Per Annum (Oil/Gas)*

Percent 18.25

<u>Period</u>	<u>Present Worth of 1</u>	<u>Present Worth of 1 Per Annum</u>
1	0.919601	0.919601
2	0.777675	1.697276
3	0.657653	2.354930
4	0.556155	2.911085
5	0.470321	3.381406
6	0.397735	3.779141
7	0.336351	4.115492
8	0.284440	4.399933
9	0.240542	4.640474
10	0.203418	4.843892
11	0.173034	5.015916
12	0.145474	5.161390
13	0.123023	5.284413
14	0.104036	5.388449
15	0.087980	5.476429
16	0.074402	5.550831
17	0.062919	5.613749
18	0.053208	5.666958
19	0.044997	5.711954
20	0.038052	5.750006
21	0.032179	5.782186
22	0.027213	5.809399
23	0.023013	5.832412
24	0.019461	5.851873
25	0.016458	5.868331
26	0.013918	5.882249
27	0.011770	5.894018
28	0.009953	5.903972
29	0.008417	5.912389
30	0.007118	5.919507
31	0.006020	5.925527
32	0.005091	5.930617
33	0.004305	5.934922
34	0.003641	5.938562
35	0.003079	5.941641
36	0.002604	5.944245
37	0.002202	5.946446
38	0.001862	5.948308
39	0.001575	5.949883
40	0.001332	5.951214

*ROUNDED TO 2 DECIMAL PLACES FOR DISPLAY ONLY

Midyear Factors for Present Worth of 1 and
Present Worth of 1 Per Annum (Other Mined Minerals)

Percent 16.75

<u>Period</u>	<u>Present Worth of 1</u>	<u>Present Worth of 1 Per Annum</u>
1	0.925	0.925
2	0.793	1.718
3	0.679	2.397
4	0.582	2.979
5	0.498	3.477
6	0.427	3.904
7	0.365	4.269
8	0.313	4.582
9	0.268	4.850
10	0.230	5.080
11	0.197	5.276
12	0.168	5.445
13	0.144	5.589
14	0.124	5.713
15	0.106	5.819