



**2022 Capitalization Rate Study
Electric Utilities**

FINAL

Completed: April 21, 2022

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Electric Utilities

2022 Assessment Year

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	8.65%	25%
Capital Asset Pricing Model - Ex Ante ^[2]	7.26%	25%
3 Stage Dividend Discount Model - Dividends ^[3]	8.30%	25%
3 Stage Dividend Discount Model - Earnings ^[3]	8.40%	25%
Weighted Average	<u>8.15%</u>	100%
Selected Cost of Equity	<u>8.15%</u>	

Debt Cost of Capital

		Weighting
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	3.04%	0%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	3.37%	100%
Ba - Avg of MTDOR Study, Bloomberg and Capital IQ ^[5]	5.31%	0%
B - Avg of MTDOR Study, Bloomberg and Capital IQ ^[5]	7.81%	0%
Weighted Average	<u>3.37%</u>	100%
Selected Cost of Debt	<u>3.37%</u>	

Weighted Average Cost of Capital (WACC)

Source of Capital	Capital Structure	Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	60.00%	8.15%		8.15%	4.89%
Debt	40.00%	3.37%	24.00%	2.56%	1.02%
WACC	100.00%				5.91%
WACC (Rounded)					5.95%

Notes

[1] From worksheet: Capital Structure

[2] From worksheet: Capital Asset Pricing Model Summary

[3] From worksheet: Yield Equity Summary

[4] January 2022, Mergent Bond Record

[5] Average corporate bond yields from: Montana Department of Revenue High Yield Debt Study and Kroll Capitalization Rate Study.

MONTANA DEPARTMENT OF REVENUE

**Direct Capitalization Rate Conclusion
Industry: Electric Utilities
2022 Assessment Year**

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Capitalization Rate ^[2]

NOI After-tax	4.90%
GCF	10.40%

Debt Capitalization Rate ^[3]

Calculated Current Yield	3.30%
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NOI After-tax Direct Capitalization Rate - If Using Marginal Tax

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	4.90%		4.90%	2.94%
Debt	40.00%	3.30%	24.00%	2.51%	1.00%
Total	100.00%				3.94%
Total (Rounded)					3.95%

GCF Direct Capitalization Rate - If Using Marginal Tax

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	10.40%		10.40%	6.24%
Debt	40.00%	3.30%	24.00%	2.51%	1.00%
WACC	100.00%				7.24%
Total (Rounded)					7.25%

Notes:

- [1] From worksheet: Capital Structure
- [2] From worksheet: Direct Equity Summary
- [3] From worksheet: Calculated Current Yield

MONTANA DEPARTMENT OF REVENUE

Direct Capitalization Rate Conclusion - Using Regulatory Tax Structure (Pre-Tax Debt)

Industry: Electric Utilities

2022 Assessment Year

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Capitalization Rate ^[2]

NOI After-tax	4.90%
GCF	10.40%

Debt Capitalization Rate ^[3]

Calculated Current Yield	3.30%
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NOI After-tax Direct Capitalization Rate - If Using Regulatory Tax Str.

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	4.90%		4.90%	2.94%
Debt	40.00%	3.30%		3.30%	1.32%
Total	100.00%				4.26%
Total (Rounded)					4.30%

GCF Direct Capitalization Rate - If Using Regulatory Tax Str.

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	10.40%		10.40%	6.24%
Debt	40.00%	3.30%		3.30%	1.32%
WACC	100.00%				7.56%
Total (Rounded)					7.60%

Notes:

[1] From worksheet: Capital Structure

[2] From worksheet: Direct Equity Summary

[3] From worksheet: Calculated Current Yield

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies

Industry: Electric Utilities

2022 Assessment Year

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Electric Utility (West) & (Central) industries.

Companies were then selected using the following screening criteria:

1. Primarily supplies electricity to residential and commercial customers.
2. Headquartered and primarily operated in the United States.
3. Regulated by a state commission.
4. Generation portfolio primarily composed of coal, natural gas, renewables, and/or hydroelectric.
5. Not engaged in material M&A activity.

Ticker Symbol	Residential & Commercial Sales	Primarily in the US	Regulated	Generating portfolio sufficiently compatible	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
AVA	74%	Yes	Yes	Yes	Yes	Yes	Yes	
AEE	75%	Yes	Yes	Yes	Yes	Yes	Yes	
AEP	66%	Yes	Yes	No		No	No	[2]
ALE	20%				No			
BKH	65%	Yes	Yes	Yes	Yes	Yes	Yes	
CMS	81%	Yes	Yes	No	No			
CNP					No			[3]
DTE	80%	Yes	Yes			No		[4]
EIX	82%	Yes	Yes	No	No		No	
ETR	64%							
EVRG	72%	Yes	Yes	Yes	Yes	Yes	Yes	
FTS.TO		No						
HE	68%	Yes	Yes	No	No		No	
IDA	64%	Yes	Yes	Yes	Yes	Yes	Yes	
LNT	61%	Yes	Yes	Yes	Yes	Yes	Yes	
NWE	86%	Yes	Yes	Yes	Yes	Yes	Yes	
OGE	64%	Yes	Yes	No	No			[5]
OTTR	64%	Yes	Yes		No			[6]
PNM	75%					No	No	[1]
PNW	89%	Yes	Yes	No	No		No	
POR	78%	Yes	Yes	Yes	Yes	Yes	Yes	
SRE				No	No		No	
WEC	82%	Yes	Yes	Yes	Yes	Yes	Yes	
XEL	85%	Yes	Yes	Yes	Yes	Yes	Yes	

[1] PNM Resources and AVANGRID announced an amendment and extension of their merger agreement to April 20, 2023

[2] Has agreed to sell to Kentucky Power

[3] Owns 53.7% of Enable Midstream Partners, currently divesting

[4] Spun off midstream gas operations

[5] Purchases large amount of generation, trying to exit 25.5% ownership in Enable Midstream Partners

[6] Plastics division accounts for 30% of operating income

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure

Industry: Electric Utilities

2022 Assessment Year

(\$ and Shares Outstanding In Thousands, except per share amounts)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Industry Group	Financial Strength	Shares Outstanding	End of Year Closing Stock Price	MV Common Stock	MV Preferred Stock	MV Long Term Debt	PV of Operating Leases	Total Common, Preferred, LT Debt, & Op Leases	% Common	% Preferred	% Debt & Op Leases
							Note [1]	Note [2]					
AEE	Ameren Corp.	UTILCENT	A	257,725	89.01	22,940,083	0	14,521,000	0	37,461,083	61%	0%	39%
AVA	Avista Corp.	UTILWEST	B++	71,498	42.49	3,037,930	0	2,841,624	70,369	5,949,923	51%	0%	49%
BKH	Black Hills	UTILWEST	A	62,795	70.57	4,431,421	0	4,570,619	0	9,002,040	49%	0%	51%
EVRG	Evergy, Inc.	UTILCENT	B++	229,300	68.61	15,732,266	0	12,236,800	84,000	28,053,066	56%	0%	44%
IDA	IDACORP, Inc.	UTILWEST	A+	50,516	113.31	5,723,968	0	2,381,172	0	8,105,140	71%	0%	29%
LNT	Alliant Energy	UTILCENT	A	250,475	61.47	15,396,670	0	8,845,000	14,000	24,255,670	63%	0%	37%
NWE	NorthWestern Corp.	UTILWEST	B++	57,606	57.16	3,292,773	0	2,842,108	0	6,134,881	54%	0%	46%
POR	Portland General	UTILWEST	B++	89,411	52.92	4,731,609	0	4,124,000	26,000	8,881,609	53%	0%	47%
WEC	WEC Energy Group	UTILCENT	A+	315,435	97.07	30,619,230	0	16,846,100	36,500	47,501,830	64%	0%	36%
XEL	Xcel Energy Inc.	UTILWEST	A+	544,025	67.70	36,830,509	0	26,237,000	1,351,000	64,418,509	57%	0%	43%
All Companies						142,736,460	0	95,445,423	1,581,869	239,763,752	60%	0%	40%
Average											58%	0%	42%
Median											57%	0%	43%
Trimmed Average											58%	0%	42%
High											71%	0%	51%
Low											49%	0%	29%
Selected											60%		40%

Notes

[1] Market value of preferred stock assumed to equal book value

[2] Market value of debt is fair value of long term debt from 10-K notes

MCA 15-1-210, rationale for changes to guideline companies:

Added AEE, EVRG, LNT, WEC from newly considered Utility Central Value Line Industry Group

		Median	
Current Year	57%	0%	43%
Prior Year	53%	0%	47%
2 Years Prior	60%	0%	40%
3 Year Average	57%	0%	43%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Electric Utilities

2022 Assessment Year

$$k_e = R_f + \beta \times ERP$$

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	8.65%	7.26%
$R_f =$	Risk Free Rate	1.94%	1.94%
$\beta =$	Beta	0.90	0.90
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.46%	5.91%
$R_m =$	Market Rate of Return	9.40%	7.85%

Risk Free Rate Measures (R_f):

The Value Line Investment Survey: Selection & Opinion^[1]

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Selected Yields on Taxable U.S. Treasury Securities as of 12/27/21

10-year	1.48%
30-year	1.88%

Federal Reserve Statistical Release^[2]

U.S. government securities, Treasury constant maturities, Nominal, December 31, 2021

10-year	1.52%
20-year	1.94%
30-year	1.90%

Risk Free Rate Selected 1.94%

Notes

[1] "Value Line Selection & Opinion", Value Line (January 7, 2022)

[2] <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15>

Ex Post - Equity Risk Premium Measures ($ERP = R_m - R_f$)

Duff & Phelps, 2022 Cost of Capital Navigator

		<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Historical" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	9.40%	1.94%	7.46%
ERP "Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	8.16%	1.94%	6.22%
Ex Post Equity Risk Premium Selected		<u><u>9.40%</u></u>	<u><u>1.94%</u></u>	<u><u>7.46%</u></u>

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Electric Utilities

2022 Assessment Year

$$k_e = R_f + \beta \times ERP$$

Ex Ante - Equity Risk Premium Measures (ERP = Rm - Rf)

DOR 3 Stage Dividend Growth Model, S & P 500, See Exhibit

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP - <i>Ex Ante</i>	8.05%	1.94%	6.11%

Duff & Phelps, 2022 Cost of Capital Navigator

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Conditional" - <i>Ex Ante</i>	8.00%	2.50%	5.50%

Damodaran Implied ERP (Jan 5, 2022)

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium (FCFE) - <i>Ex Ante</i>	5.76%	1.52%	4.24%
Implied Premium (FCFE with sustainable payout) - <i>Ex Ante</i>	6.42%	1.52%	4.90%

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>	7.06%		5.19%
<u>Median</u>	7.21%		5.20%
<u>High</u>	8.05%		6.11%
<u>Low</u>	5.76%		4.24%

Equity Risk Premium Selected

7.85%	1.94%	5.91%
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Notes

[4] R_m estimated using selected Risk Free Rate (R_f)

MONTANA DEPARTMENT OF REVENUE

Support for Beta Selection in CAPM

Industry: Electric Utilities

2022 Assessment Year

A	B	C	D	E
Ticker	Company	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
AEE	Ameren Corp.	UTILCENT	A	0.80
AVA	Avista Corp.	UTILWEST	B++	0.95
BKH	Black Hills	UTILWEST	A	1.00
EVRG	Evergy, Inc.	UTILCENT	B++	0.95
IDA	IDACORP, Inc.	UTILWEST	A+	0.80
LNT	Alliant Energy	UTILCENT	A	0.85
NWE	NorthWestern Corp.	UTILWEST	B++	0.95
POR	Portland General	UTILWEST	B++	0.85
WEC	WEC Energy Group	UTILCENT	A+	0.80
XEL	Xcel Energy Inc.	UTILWEST	A+	0.80
	Average			0.88
	Median			0.85
	Trimmed Average			0.87
	High			1.00
	Low			0.80
	Selected			0.90

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth
Industry: Electric Utilities
2022 Assessment Year

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.44%	2.21%	4.65%		
Survey of Professional Forecasters ^[2]	2.49%	2.25%	4.74%		
Congressional Budget Office ^[3]					
Average	2.47%	2.23%	4.70%		
Median	2.47%	2.23%	4.70%		
High	2.49%	2.25%	4.74%		
Low	2.44%	2.21%	4.65%		
Selected	2.45%	2.25%	4.70%	4.65%	4.74%

Inflationary Trend Factors						
Year	Dec. CPI-U Index	Percent Change From Previous	Dec. to Dec. Conversion Factor	Annual Avg. CPI-U Index	Percent Change From Previous	Annual Conversion Factor
	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>
2011	225.672	2.9%	1.2354	224.939	3.1%	1.2046
2012	229.601	1.7%	1.2143	229.594	2.0%	1.1802
2013	233.049	1.5%	1.1963	232.957	1.4%	1.1632
2014	234.812	0.8%	1.1873	236.736	1.6%	1.1446
2015	236.525	0.7%	1.1787	237.017	0.1%	1.1433
2016	241.432	2.0%	1.1548	240.007	1.2%	1.1290
2017	246.524	2.1%	1.1309	245.120	2.1%	1.1055
2018	251.233	1.9%	1.1097	251.107	2.4%	1.0791
2019	256.974	2.2%	1.0849	255.657	1.8%	1.0599
2020	260.474	1.3%	1.0704	258.811	1.2%	1.0470
2021	278.802	6.6%	1.0000	270.970	4.5%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 17, 2021 Table 3 Inflation Rate and Real GDP mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

[2] Federal Reserve Bank of Philadelphia Survey of Professional Forecasters February 11, 2022 Table 8 and Table 9 Average over next 10-Year mean

<https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters>

[3] Not available at study date

<https://www.cbo.gov/about/products/budget-economic-data#4>

[5] Historical Consumer Price Index for All Urban Consumers (CPI-U): U.S. city average, all items, index averages (1982-84=100, unless otherwise noted)

<https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-202001.pdf>

[6] (Row year - Previous Year) / Row Year

[7] Most current year / Row year

MONTANA DEPARTMENT OF REVENUE

3 Stage Dividend Discount Model (DDM)

Industry: Electric Utilities

2022 Assessment Year

$$k_e = (D_1 / P_0) + g$$

k_e = Cost of Equity

D_1 = Expected Dividend

P_0 = Current Price Per Share

g = Sustainable Long-Term Growth

A	B	C	D	E	F	G	H	I
Ticker	Company	2021 Year End Stock Price	2022 Est Div'ds Decl'd per sh	Expected Equity Payout Yield	Sustainable Long-Term Growth Rate ^[1]	Sustainable Long-Term Growth Rate ^[1]	Cost of Equity Dividend Growth	Cost of Equity Earnings Growth
		<i>Yahoo</i>	<i>Value Line</i>	<i>D/C</i>	<i>Dividends</i>	<i>Earnings</i>	<i>E+F</i>	<i>E+G</i>
		P_0	D_1	D_1/P_0	g	g	k_e	k_e
AEE	Ameren Corp.	89.01	2.34	2.63%	5.78%	5.53%	8.41%	8.16%
AVA	Avista Corp.	42.49	1.76	4.14%	4.53%	7.89%	8.67%	12.03%
BKH	Black Hills	70.57	2.41	3.42%	4.89%	5.04%	8.30%	8.45%
EVRG	Evergy, Inc.	68.61	2.33	3.40%	5.75%	5.38%	9.14%	8.77%
IDA	IDACORP, Inc.	113.31	3.05	2.69%	5.47%	4.48%	8.16%	7.17%
LNT	Alliant Energy	61.47	1.71	2.78%	5.31%	5.10%	8.09%	7.88%
NWE	NorthWestern Corp.	57.16	2.52	4.41%	3.29%	4.26%	7.70%	8.67%
POR	Portland General	52.92	1.80	3.40%	4.95%	4.35%	8.35%	7.75%
WEC	WEC Energy Group	97.07	2.89	2.98%	5.27%	5.44%	8.25%	8.42%
XEL	Xcel Energy Inc.	67.70	1.94	2.87%	5.15%	5.46%	8.02%	8.33%
Average							8.31%	8.56%
Median							8.28%	8.37%
Trimmed Average							8.28%	8.31%
High							9.14%	12.03%
Low							7.70%	7.17%
Selected							8.30%	8.40%

Notes

[1] From worksheet: DDM Sustainable Long-Term Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Short Term Growth Rate Calculations

Industry: Electric Utilities

2022 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2022 Est	Expected Dividend Yield	Div'ds Decl'd per sh 2024-2026 Est	Short-Term Growth Rate
		<i>Yahoo</i>	<i>Value Line</i>	<i>D / C</i>	<i>Value Line</i>	<i>Note [1]</i>
AEE	Ameren Corp.	89.01	2.34	2.63%	2.90	7.41%
AVA	Avista Corp.	42.49	1.76	4.14%	2.00	4.35%
BKH	Black Hills	70.57	2.41	3.42%	2.80	5.13%
EVRG	Evergy, Inc.	68.61	2.33	3.40%	2.85	6.95%
IDA	IDACORP, Inc.	113.31	3.05	2.69%	3.70	6.65%
LNT	Alliant Energy	61.47	1.71	2.78%	2.05	6.23%
NWE	NorthWestern Corp.	57.16	2.52	4.41%	2.65	1.69%
POR	Portland General	52.92	1.80	3.40%	2.10	5.27%
WEC	WEC Energy Group	97.07	2.89	2.98%	3.45	6.08%
XEL	Xcel Energy Inc.	67.70	1.94	2.87%	2.30	5.84%

A	B	C	D	E
Ticker	Company	Earnings per share 2022 Est	Earnings per share 2024-2026 Est	Short-Term Growth Rate
		<i>Value Line</i>	<i>Value Line</i>	<i>Note [1]</i>
AEE	Ameren Corp.	4.10	5.00	6.84%
AVA	Avista Corp.	2.05	2.75	10.29%
BKH	Black Hills	4.05	4.75	5.46%
EVRG	Evergy, Inc.	3.55	4.25	6.18%
IDA	IDACORP, Inc.	5.10	5.75	4.08%
LNT	Alliant Energy	2.75	3.25	5.73%
NWE	NorthWestern Corp.	3.35	3.75	3.83%
POR	Portland General	2.90	3.25	3.87%
WEC	WEC Energy Group	4.35	5.25	6.47%
XEL	Xcel Energy Inc.	3.10	3.75	6.55%

Notes

[1] 4 year compound annual growth rate (CAGR) - 3 periods

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Electric Utilities

2022 Assessment Year

Dividend Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Dividend Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1 : D_{500}$	$g = IRR - Div. \text{ Yield}$						
AEE	Ameren Corp.	89.01	7.41%	4.70%	2.63%	8.41%	5.78%	(89.01)	2.34	2.51	2.70	2.90	3.12
AVA	Avista Corp.	42.49	4.35%	4.70%	4.14%	8.67%	4.53%	(42.49)	1.76	1.84	1.92	2.00	2.09
BKH	Black Hills	70.57	5.13%	4.70%	3.42%	8.30%	4.89%	(70.57)	2.41	2.53	2.66	2.80	2.94
EVRG	Evergy, Inc.	68.61	6.95%	4.70%	3.40%	9.14%	5.75%	(68.61)	2.33	2.49	2.66	2.85	3.05
IDA	IDACORP, Inc.	113.31	6.65%	4.70%	2.69%	8.16%	5.47%	(113.31)	3.05	3.25	3.47	3.70	3.95
LNT	Alliant Energy	61.47	6.23%	4.70%	2.78%	8.09%	5.31%	(61.47)	1.71	1.82	1.93	2.05	2.18
NWE	NorthWestern Corp.	57.16	1.69%	4.70%	4.41%	7.70%	3.29%	(57.16)	2.52	2.56	2.61	2.65	2.69
POR	Portland General	52.92	5.27%	4.70%	3.40%	8.35%	4.95%	(52.92)	1.80	1.89	1.99	2.10	2.21
WEC	WEC Energy Group	97.07	6.08%	4.70%	2.98%	8.25%	5.27%	(97.07)	2.89	3.07	3.25	3.45	3.66
XEL	Xcel Energy Inc.	67.70	5.84%	4.70%	2.87%	8.02%	5.15%	(67.70)	1.94	2.05	2.17	2.30	2.43

Earnings Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Earnings Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1 : D_{500}$	$g = IRR - Div. \text{ Yield}$						
AEE	Ameren Corp.	89.01	6.84%	4.70%	2.63%	8.16%	5.53%	(89.01)	2.34	2.50	2.67	2.85	3.05
AVA	Avista Corp.	42.49	10.29%	4.70%	4.14%	12.03%	7.89%	(42.49)	1.76	1.94	2.14	2.36	2.60
BKH	Black Hills	70.57	5.46%	4.70%	3.42%	8.45%	5.04%	(70.57)	2.41	2.54	2.68	2.83	2.98
EVRG	Evergy, Inc.	68.61	6.18%	4.70%	3.40%	8.77%	5.38%	(68.61)	2.33	2.47	2.63	2.79	2.96
IDA	IDACORP, Inc.	113.31	4.08%	4.70%	2.69%	7.17%	4.48%	(113.31)	3.05	3.17	3.30	3.44	3.58
LNT	Alliant Energy	61.47	5.73%	4.70%	2.78%	7.88%	5.10%	(61.47)	1.71	1.81	1.91	2.02	2.14
NWE	NorthWestern Corp.	57.16	3.83%	4.70%	4.41%	8.67%	4.26%	(57.16)	2.52	2.62	2.72	2.82	2.93
POR	Portland General	52.92	3.87%	4.70%	3.40%	7.75%	4.35%	(52.92)	1.80	1.87	1.94	2.02	2.10
WEC	WEC Energy Group	97.07	6.47%	4.70%	2.98%	8.42%	5.44%	(97.07)	2.89	3.08	3.28	3.49	3.71
XEL	Xcel Energy Inc.	67.70	6.55%	4.70%	2.87%	8.33%	5.46%	(67.70)	1.94	2.07	2.20	2.35	2.50

Notes

[1] From worksheet: DDM Short Term Growth Rate Calculations

[2] From worksheet: Inflation & Real Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Electric Utilities

2022 Assessment Year

Dividend	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
AEE	3.34	3.58	3.84	4.12	4.42	4.74	5.08	5.45	5.84	6.26	6.72	7.20	7.72	8.28	8.88	9.30	9.73	33,326,855,627
AVA	2.18	2.27	2.37	2.48	2.59	2.70	2.82	2.94	3.07	3.20	3.34	3.49	3.64	3.80	3.97	4.15	4.35	14,892,676,490
BKH	3.09	3.25	3.42	3.59	3.77	3.97	4.17	4.38	4.61	4.84	5.09	5.35	5.62	5.90	6.21	6.50	6.80	23,292,720,409
EVRG	3.26	3.48	3.71	3.96	4.23	4.52	4.83	5.16	5.51	5.88	6.28	6.71	7.17	7.65	8.17	8.56	8.96	30,671,439,319
IDA	4.20	4.48	4.77	5.08	5.41	5.76	6.14	6.54	6.97	7.42	7.91	8.42	8.97	9.56	10.18	10.66	11.16	38,206,195,447
LNT	2.31	2.45	2.60	2.76	2.93	3.11	3.30	3.50	3.72	3.95	4.19	4.45	4.72	5.01	5.32	5.57	5.83	19,949,823,217
NWE	2.75	2.80	2.85	2.90	2.96	3.02	3.07	3.13	3.19	3.25	3.31	3.37	3.44	3.50	3.57	3.74	3.91	13,396,774,366
POR	2.33	2.45	2.58	2.71	2.85	3.00	3.16	3.33	3.50	3.68	3.88	4.08	4.29	4.52	4.75	4.98	5.21	17,836,644,272
WEC	3.88	4.11	4.36	4.62	4.90	5.19	5.50	5.83	6.18	6.55	6.94	7.36	7.80	8.26	8.76	9.17	9.60	32,871,078,059
XEL	2.57	2.72	2.88	3.05	3.22	3.41	3.60	3.81	4.03	4.26	4.51	4.77	5.04	5.33	5.64	5.91	6.18	21,170,731,775

Earnings	Stage 2															Stage 3		
Ticker	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
AEE	3.25	3.47	3.70	3.95	4.22	4.50	4.80	5.12	5.46	5.83	6.22	6.64	7.08	7.55	8.06	8.44	8.84	30,253,039,973
AVA	2.86	3.15	3.46	3.80	4.18	4.59	5.05	5.55	6.10	6.70	7.37	8.10	8.90	9.78	10.75	11.26	11.79	40,353,317,266
BKH	3.14	3.31	3.49	3.68	3.88	4.09	4.31	4.54	4.79	5.05	5.32	5.61	5.91	6.23	6.57	6.88	7.20	24,649,775,765
EVRG	3.14	3.33	3.54	3.75	3.98	4.22	4.48	4.75	5.04	5.35	5.67	6.02	6.38	6.77	7.18	7.52	7.87	26,959,583,691
IDA	3.73	3.88	4.04	4.21	4.38	4.56	4.75	4.94	5.15	5.36	5.58	5.81	6.05	6.30	6.56	6.87	7.19	24,617,667,847
LNT	2.26	2.39	2.52	2.66	2.81	2.97	3.14	3.32	3.51	3.70	3.91	4.14	4.37	4.62	4.88	5.11	5.35	18,309,363,028
NWE	3.04	3.16	3.28	3.41	3.54	3.68	3.83	3.97	4.13	4.29	4.46	4.63	4.81	5.00	5.19	5.44	5.69	19,484,411,404
POR	2.18	2.26	2.35	2.44	2.54	2.64	2.74	2.85	2.96	3.08	3.20	3.33	3.46	3.59	3.73	3.91	4.09	14,013,654,366
WEC	3.95	4.20	4.47	4.75	5.05	5.37	5.71	6.08	6.46	6.87	7.31	7.77	8.27	8.79	9.35	9.79	10.25	35,101,738,878
XEL	2.66	2.83	3.01	3.21	3.41	3.63	3.87	4.12	4.38	4.66	4.96	5.28	5.62	5.98	6.37	6.66	6.98	23,891,035,472

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Electric Utilities

2022 Assessment Year

A	B	C	D	E	F
Ticker	Company	Industry Group	Financial Strength	Moody's Long Term Rating	Numeric Rating
		<i>Value Line</i>	<i>Value Line</i>	<i>Moodys.com</i>	
AEE	Ameren Corp.	UTILCENT	A	Baa1	8
AVA	Avista Corp.	UTILWEST	B++	Baa2	9
BKH	Black Hills	UTILWEST	A	Baa2	9
EVRG	Evergy, Inc.	UTILCENT	B++	Baa2	9
IDA	IDACORP, Inc.	UTILWEST	A+	Baa1	8
LNT	Alliant Energy	UTILCENT	A	Baa2	9
NWE	NorthWestern Corp.	UTILWEST	B++	Baa2	9
POR	Portland General	UTILWEST	B++	A3	7
WEC	WEC Energy Group	UTILCENT	A+	Baa1	8
XEL	Xcel Energy Inc.	UTILWEST	A+	Baa1	8
Average					8
Median					9
Trimmed Average					9
High					9
Low					7
Selected				Baa2	9

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Equity Capitalization Rates

Industry: Electric Utilities

2022 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Ticker	Company	End of Year Closing Stock Price	VL Historic EPS	VL Est EPS	VL Historic P/E Ratio	VL Est P/E Ratio	Ke Estimate - Earnings (Hist. P/E)	Ke Estimate - Earnings (Est. P/E)	VL Historic Cash Flow Per Share	VL Est Cash Flow Per Share	VL Historic P/CF Ratio	VL Est P/CF Ratio	Ke Estimate Cash Flow (Hist. P/CF)	Ke Estimate Cash Flow (Est. P/CF)	Market Value of Equity	Book Value of Equity	MTBR
		Yahoo	Value Line	Value Line	C/D	C/E	1/F	1/G	Value Line	Value Line	C/J	C/K	1/L	1/M	Price x Shrs	Value Line	P/Q
AEE	Ameren Corp.	89.01	3.84	4.10	23.18	21.71	4.31%	4.61%	8.89	9.15	10.01	9.73	9.99%	10.28%	22,940,083	9,829,000	2.33
AVA	Avista Corp.	42.49	2.09	2.05	20.33	20.73	4.92%	4.82%	5.16	5.25	8.23	8.09	12.14%	12.36%	3,037,930	2,029,730	1.50
BKH	Black Hills	70.57	3.75	4.05	18.82	17.42	5.31%	5.74%	7.41	7.65	9.52	9.22	10.50%	10.84%	4,431,421	2,561,390	1.73
EVRG	Evergy, Inc.	68.61	3.83	3.55	17.91	19.33	5.58%	5.17%	7.06	8.15	9.72	8.42	10.29%	11.88%	15,732,266	8,733,400	1.80
IDA	IDACORP, Inc.	113.31	4.85	5.10	23.36	22.22	4.28%	4.50%	8.19	8.50	13.84	13.33	7.23%	7.50%	5,723,968	2,559,980	2.24
LNT	Alliant Energy	61.47	2.62	2.75	23.46	22.35	4.26%	4.47%	5.25	5.65	11.71	10.88	8.54%	9.19%	15,396,670	5,990,000	2.57
NWE	NorthWestern Corp.	57.16	3.60	3.35	15.88	17.06	6.30%	5.86%	6.72	7.05	8.51	8.11	11.76%	12.33%	3,292,773	2,079,090	1.58
POR	Portland General	52.92	2.73	2.90	19.38	18.25	5.16%	5.48%	6.80	7.50	7.78	7.06	12.85%	14.17%	4,431,421	2,613,000	1.70
WEC	WEC Energy Group	97.07	4.11	4.35	23.62	22.31	4.23%	4.48%	6.90	7.45	14.07	13.03	7.11%	7.67%	30,619,230	10,500,100	2.92
XEL	Xcel Energy Inc.	67.70	2.96	3.10	22.87	21.84	4.37%	4.58%	6.61	7.10	10.24	9.54	9.76%	10.49%	36,830,509	14,575,000	2.53
Average					20.88	20.32	4.87%	4.97%			10.36	9.74	10.02%	10.67%			2.09
Median					21.60	21.22	4.65%	4.72%			9.87	9.38	10.14%	10.66%			2.02
Trimmed Average					21.17	20.48	4.78%	4.92%			10.22	9.63	10.03%	10.63%			2.06
High					23.62	22.35	6.30%	5.86%			14.07	13.33	12.85%	14.17%			2.92
Low					15.88	17.06	4.23%	4.47%			7.78	7.06	7.11%	7.50%			1.50
Selected							4.90%						10.40%				2.05

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Debt Capitalization Rate

Industry: Electric Utilities

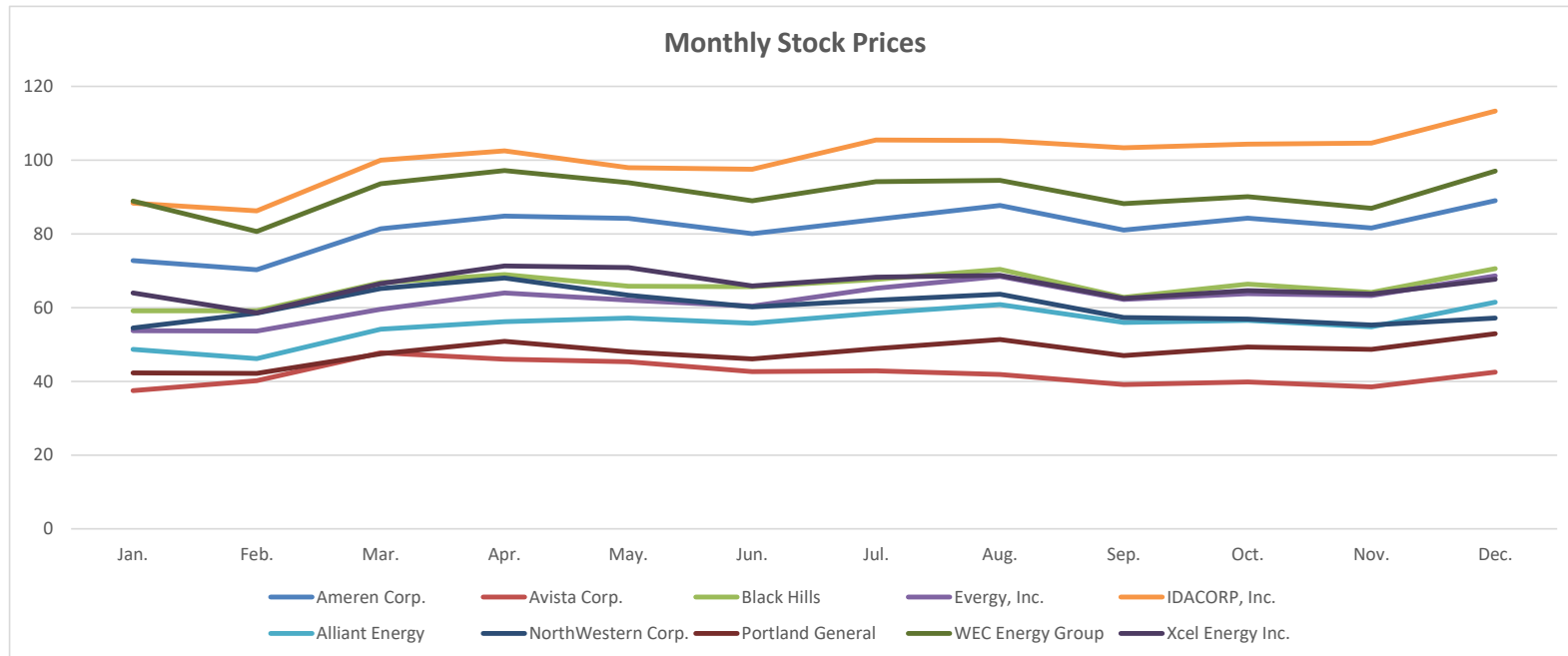
2022 Assessment Year

(\$ in Thousands)

A	B	C	D	E	F	G	H	I	J
Ticker	Company	Current Year Interest Exp.	Previous Year MV LT Debt	Previous Year BV LT Debt	Current Year MV LT Debt	Current Year BV LT Debt	Average MV LT Debt	Current Yield	MTBR
		10-K	10-K	10-K	10-K	10-K	(D+F)/2	(C/H)	(F/G)
AEE	Ameren Corp.	383,000	13,315,000	11,086,000	14,521,000	13,067,000	13,918,000	2.75%	1.11
AVA	Avista Corp.	106,152	2,663,871	2,263,081	2,841,624	2,483,917	2,752,748	3.86%	1.14
BKH	Black Hills	154,112	4,208,167	3,536,536	4,570,619	4,126,923	4,389,393	3.51%	1.11
EVRG	Evergy, Inc.	372,600	11,968,000	10,321,100	12,236,800	11,165,500	12,102,400	3.08%	1.10
IDA	IDACORP, Inc.	84,145	2,466,967	2,000,414	2,381,172	2,000,640	2,424,070	3.47%	1.19
LNT	Alliant Energy	277,000	8,498,000	7,166,000	8,845,000	7,883,000	8,671,500	3.19%	1.12
NWE	NorthWestern Corp.	93,674	2,747,194	2,432,700	2,842,108	2,556,250	2,794,651	3.35%	1.11
POR	Portland General	137,000	4,103,000	3,341,000	4,124,000	3,578,000	4,113,500	3.33%	1.15
WEC	WEC Energy Group	471,100	16,183,500	14,290,800	16,846,100	15,590,100	16,514,800	2.85%	1.08
XEL	Xcel Energy Inc.	842,000	24,996,000	20,650,000	26,237,000	23,385,000	25,616,500	3.29%	1.12
All Companies		2,920,783			95,445,423	85,836,330	93,297,561	3.13%	1.11
Average								3.27%	1.12
Median								3.31%	1.12
Trimmed Average								3.26%	1.12
High								3.86%	1.19
Low								2.75%	1.08
Selected								3.30%	1.12

MONTANA DEPARTMENT OF REVENUE
Support of Stock Price - From YAHOO Finance
Industry: Electric Utilities
2022 Assessment Year

		End of Period Closing Stock Price											
1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
AEE	Ameren Corp.	72.72	70.27	81.36	84.84	84.2	80.04	83.92	87.72	81	84.29	81.59	89.01
AVA	Avista Corp.	37.48	40.21	47.75	46.02	45.33	42.67	42.83	41.85	39.12	39.81	38.51	42.49
BKH	Black Hills	59.12	59.16	66.77	68.98	65.79	65.63	67.65	70.33	62.76	66.38	64.12	70.57
EVRG	Evergy, Inc.	53.73	53.63	59.53	63.97	61.99	60.43	65.22	68.45	62.2	63.75	63.3	68.61
IDA	IDACORP, Inc.	88.3	86.24	99.97	102.48	97.95	97.5	105.45	105.35	103.38	104.32	104.62	113.31
LNT	Alliant Energy	48.65	46.16	54.16	56.17	57.15	55.76	58.53	60.79	55.98	56.57	54.79	61.47
NWE	NorthWestern Corp.	54.47	58.48	65.2	68.03	63.35	60.22	61.99	63.6	57.3	56.86	55.3	57.16
POR	Portland General	42.29	42.16	47.47	50.86	47.94	46.08	48.9	51.35	46.99	49.31	48.67	52.92
WEC	WEC Energy Group	88.9	80.64	93.59	97.17	93.91	88.95	94.14	94.48	88.2	90.06	86.93	97.07
XEL	Xcel Energy Inc.	63.99	58.59	66.51	71.3	70.88	65.88	68.25	68.75	62.5	64.59	63.73	67.7



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies

Industry: Electric Utilities

2022 Assessment Year

(\$ In Thousands)

1	2	3	4	5	6	7	8	9	10	11	
A	B	C	D	E	F	G	H	I	J	K	L
Ticker	Company	Inflation	PP&E, Gross	PP&E, Gross	Average PP&E	Depreciation Expense	Average Life of Assets			Replacement Cost (RC)	RC as % of Depreciation
			Current Year	Previous Year		Current Year		Note [1]	Note [1]	Note [1]	
		MTDOR (CPI)	10-K, Notes	10-K, Notes	(D+E)/2	10-K	F/G	C*H	1/(1+C)^H	G*/(1-J)	K/G
AEE	Ameren Corp.	2.45%	42,871,000	40,580,000	41,725,500	1,146,000	36	0.89	0.41	1,745,241	152.29%
AVA	Avista Corp.	2.45%	7,371,985	6,985,564	7,178,775	231,915	31	0.76	0.47	333,564	143.83%
BKH	Black Hills	2.45%	4,172,546	3,970,823	4,071,685	235,953	17	0.42	0.66	292,172	123.83%
EVRG	Evergy, Inc.	2.45%	32,569,500	31,007,700	31,788,600	896,400	35	0.87	0.42	1,351,784	150.80%
IDA	IDACORP, Inc.	2.45%	6,509,316	6,283,790	6,396,553	175,555	36	0.89	0.41	267,426	152.33%
LNT	Alliant Energy	2.45%	20,562,000	19,477,000	20,019,500	657,000	30	0.75	0.48	940,131	143.09%
NWE	NorthWestern Corp.	2.45%	7,317,269	6,916,107	7,116,688	187,467	38	0.93	0.40	290,101	154.75%
POR	Portland General	2.45%	12,151,000	11,403,000	11,777,000	404,000	29	0.71	0.49	570,024	141.10%
WEC	WEC Energy Group	2.45%	36,871,700	35,072,100	35,971,900	1,074,300	33	0.82	0.44	1,586,944	147.72%
XEL	Xcel Energy Inc.	2.45%	65,290,000	62,266,000	63,778,000	2,121,000	30	0.74	0.48	3,022,105	142.48%
Average											145.22%
Median											145.77%
Trimmed Average											146.71%
High											154.75%
Low											123.83%
Selected											145.80%

Notes

[1] Cornell, B. & Gerger, R. (2017). Estimating Terminal Values with Inflation: The Inputs Matter-It Is Not a Formulaic Exercise. *Business Valuation Review*, Volume 36, Number 4, 117-123.