



MONTANA
DEPARTMENT OF
REVENUE

**2023 Capitalization Rate Study
Electric Utilities**

Completed: March 24, 2023

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Electric Utilities

2023 Assessment Year

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	10.59%	48%
Capital Asset Pricing Model - Ex Ante ^[2]	9.25%	12%
3 Stage Dividend Discount Model - Dividends ^[3]	8.58%	20%
3 Stage Dividend Discount Model - Earnings ^[3]	8.79%	20%
Weighted Average	<u>9.67%</u>	100%
Selected Cost of Equity	<u>9.67%</u>	

Debt Cost of Capital

		Weighting
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	5.12%	0%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	5.59%	100%
Ba - MTDOR High Yield Debt Study ^[5]	6.97%	0%
B - MTDOR High Yield Debt Study ^[5]	7.71%	0%
Weighted Average	<u>5.59%</u>	100%
Selected Cost of Debt	<u>5.59%</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%	9.67%		9.67%	5.80%
Debt	40.00%	5.59%	24.00%	4.25%	1.70%
WACC	100.00%				7.50%
WACC (Rounded)					7.55%

Notes

- [1] From worksheet: Capital Structure
- [2] From worksheet: Capital Asset Pricing Model Summary
- [3] From worksheet: Yield Equity Summary
- [4] January 2023, Mergent Bond Record
- [5] Montana Department of Revenue High Yield Debt Study

MONTANA DEPARTMENT OF REVENUE

Direct Capitalization Rate Conclusion

Industry: Electric Utilities

2023 Assessment Year

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Capitalization Rate ^[2]

NOI After-tax	5.21%
GCF	11.04%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.07%
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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%	5.21%		5.21%	3.13%
Debt	40.00%	4.07%	24.00%	3.09%	1.24%
Total	100.00%				4.36%

Total (Rounded) 4.40%

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%	11.04%		11.04%	6.62%
Debt	40.00%	4.07%	24.00%	3.09%	1.24%
WACC	100.00%				7.86%

Total (Rounded) 7.90%

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

2023 Assessment Year

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Capitalization Rate ^[2]

NOI After-tax	5.21%
GCF	11.04%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.07%
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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%	5.21%		5.21%	3.13%
Debt	40.00%	4.07%		4.07%	1.63%
Total	100.00%				4.75%
Total (Rounded)					4.80%

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%	11.04%		11.04%	6.62%
Debt	40.00%	4.07%		4.07%	1.63%
WACC	100.00%				8.25%
Total (Rounded)					8.30%

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

2023 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	75%	Yes	Yes	Yes	Yes	Yes	Yes	
AEE	83%	Yes	Yes	Yes	Yes	Yes	Yes	
AEP	66%	Yes	Yes	Yes	Yes	No		[1]
ALE	21%				No			
BKH	65%	Yes	Yes	Yes	Yes	Yes	Yes	
CMS	81%	Yes	No		No			
CNP					No	No		[2]
DTE	83%	Yes	Yes	Yes	Yes	Yes	Yes	
EIX	88%	Yes	Yes	No	No			
ETR	61%	Yes	Yes	No	No			
EVRG	64%	Yes	Yes	Yes	Yes	Yes	Yes	
FTS.TO		No			No			
HE		Yes	Yes	No	No			
IDA	69%	Yes	Yes	Yes	Yes	Yes	Yes	
LNT	61%	Yes	Yes	Yes	Yes	Yes	Yes	
MGEE				No	No			
NWE	92%	Yes	Yes	Yes	Yes	Yes	Yes	
OGE	69%	Yes	Yes	Yes	Yes	No		[3]
OTTR	68%	Yes	Yes		No			[4]
PNM					No	No		[5]
PNW	88%	Yes	Yes	No	No			
POR	76%	Yes	Yes	Yes	Yes	Yes	Yes	
SRE				No	No			
WEC	71%	Yes	Yes	Yes	Yes	Yes	Yes	
XEL	67%	Yes	Yes	Yes	Yes	Yes	Yes	

[1] Multiple ongoing divestitures

[2] Completed sale of stake in Enegy Transfer LP in 2022

[3] Completed sale of stake in Enegy Transfer LP in 2022

[4] Plastics division is large portion of operating income

[5] AVANGRID merger talks ongoing

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure

Industry: Electric Utilities

2023 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
					Yahoo								
		Value Line	Value Line	10-K	Yahoo	ExF		Note [1]	Note [2]				
AEE	Ameren Corp.	UTILCENT	A	262,029	88.92	23,299,598	0	12,453,000	0	35,752,598	65%	0%	35%
AVA	Avista Corp.	UTILWEST	B++	74,946	44.34	3,323,103	0	1,868,180	68,633	5,259,916	63%	0%	37%
BKH	Black Hills	UTILWEST	A	66,104	70.34	4,649,732	0	3,760,848	0	8,410,580	55%	0%	45%
DTE	DTE Energy	UTILCENT	A	205,632	117.53	24,167,975	0	16,012,000	68,000	40,247,975	60%	0%	40%
EVRG	Evergy Inc.	UTILCENT	B++	229,546	62.93	14,445,336	0	9,160,000	76,100	23,681,436	61%	0%	39%
IDA	IDACORP Inc.	UTILWEST	A+	50,570	107.85	5,453,992	0	1,953,470	0	7,407,462	74%	0%	26%
LNT	Alliant Energy	UTILCENT	A	251,135	55.21	13,865,161	0	7,339,000	16,000	21,220,161	65%	0%	35%
NWE	NorthWestern Corp.	UTILWEST	B++	59,744	59.34	3,545,217	0	2,328,597	0	5,873,814	60%	0%	40%
POR	Portland General	UTILWEST	B++	89,283	49.00	4,374,884	0	3,298,000	22,000	7,694,884	57%	0%	43%
WEC	WEC Energy Group	UTILCENT	A+	315,435	93.76	29,575,142	0	14,104,500	29,400	43,709,042	68%	0%	32%
XEL	Xcel Energy Inc.	UTILWEST	A+	549,578	70.11	38,530,915	0	20,897,000	1,255,000	60,682,915	63%	0%	37%
All Companies						165,231,056	0	93,174,595	1,535,133	259,940,784	64%	0%	36%
Average											63%	0%	37%
Median											63%	0%	37%
Trimmed Average											63%	0%	37%
High											74%	0%	45%
Low											55%	0%	26%
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:

2023 - Added DTE

		<u>Median</u>	
Current Year	63%	0%	37%
Prior Year	57%	0%	43%
2 Years Prior	53%	0%	47%
3 Year Average	58%	0%	42%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Electric Utilities

2023 Assessment Year

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

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	10.59%	9.25%
$R_f =$	Risk Free Rate	4.14%	4.14%
$\beta =$	Beta	0.90	0.90
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.17%	5.68%
$R_m =$	Market Rate of Return	11.31%	9.82%

Risk Free Rate Measures (R_f):

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

January 6, 2023 Page 1465

Selected Yields on Taxable U.S. Treasury Securities as of 12/27/22

10-year	3.84%
30-year	3.93%

Federal Reserve Statistical Release^[2]

U.S. government securities, Treasury constant maturities, Nominal, December 30, 2022

10-year	3.88%
20-year	4.14%
30-year	3.97%

Risk Free Rate Selected 4.14%

Notes

[1] "Value Line Selection & Opinion", Value Line (January 6, 2023)

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

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

Kroll, 2023 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>	11.31%	4.14%	7.17%
ERP "Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	10.49%	4.14%	6.35%
Ex Post Equity Risk Premium Selected		<u><u>11.31%</u></u>	<u><u>4.14%</u></u>	<u><u>7.17%</u></u>

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Electric Utilities

2023 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>	8.81%	4.14%	4.67%

Kroll, 2023 Cost of Capital Navigator

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Conditional" - <i>Ex Ante</i>	9.50%	3.50%	6.00%

Damodaran Implied ERP (Jan 1, 2023)

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium - <i>Ex Ante</i> - Trailing 12 month, with adjusted payout	8.99%	3.88%	5.11%
Implied Premium - <i>Ex Ante</i> - Trailing 12 month cash yields	9.82%	3.88%	5.94%
Implied Premium - <i>Ex Ante</i> - Average CF yield last 10 years	9.73%	3.88%	5.85%
Implied Premium - <i>Ex Ante</i> - Net cash yield	9.56%	3.88%	5.68%
Implied Premium - <i>Ex Ante</i> - Normalized earnings and payout	8.71%	3.88%	4.83%

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>	9.30%		5.44%
<u>Median</u>	9.50%		5.68%
<u>High</u>	9.82%		6.00%
<u>Low</u>	8.71%		4.67%

Ex Ante Equity Risk Premium Selected

9.82%	4.14%	5.68%
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MONTANA DEPARTMENT OF REVENUE

Support for Beta Selection in CAPM

Industry: Electric Utilities

2023 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	0.85
AVA	Avista Corp.	UTILWEST	B++	0.90
BKH	Black Hills	UTILWEST	A	0.95
DTE	DTE Energy	UTILCENT	A	0.95
EVRG	Evergy Inc.	UTILCENT	B++	0.90
IDA	IDACORP Inc.	UTILWEST	A+	0.80
LNT	Alliant Energy	UTILCENT	A	0.85
NWE	NorthWestern Corp.	UTILWEST	B++	0.90
POR	Portland General	UTILWEST	B++	0.85
WEC	WEC Energy Group	UTILCENT	A+	0.80
XEL	Xcel Energy Inc.	UTILWEST	A+	0.80
Average				0.87
Median				0.85
Trimmed Average				0.87
High				0.95
Low				0.80
Selected				0.90

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth
Industry: Electric Utilities
2023 Assessment Year

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.55%	1.97%	4.52%		
Survey of Professional Forecasters ^[2]	2.44%	1.96%	4.40%		
Congressional Budget Office ^[3]	2.30%	1.80%	4.10%		
Average	2.43%	1.91%	4.34%		
Median	2.44%	1.96%	4.40%		
High	2.55%	1.97%	4.52%		
Low	2.30%	1.80%	4.10%		
Selected	2.45%	2.00%	4.45%	4.10%	4.52%

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%	1.3152	224.939	3.1%	1.3010
2012	229.601	1.7%	1.2927	229.594	2.0%	1.2747
2013	233.049	1.5%	1.2735	232.957	1.4%	1.2563
2014	234.812	0.8%	1.2640	236.736	1.6%	1.2362
2015	236.525	0.7%	1.2548	237.017	0.1%	1.2347
2016	241.432	2.0%	1.2293	240.007	1.2%	1.2194
2017	246.524	2.1%	1.2039	245.120	2.1%	1.1939
2018	251.233	1.9%	1.1814	251.107	2.4%	1.1655
2019	256.974	2.2%	1.1550	255.657	1.8%	1.1447
2020	260.474	1.3%	1.1394	258.811	1.2%	1.1308
2021	278.802	6.6%	1.0645	270.970	4.5%	1.0800
2022	296.797	6.1%	1.0000	292.655	7.4%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 16, 2023 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 10, 2023 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] The Budget and Economic Outlook: 2023 To 2033, Table B-1

<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-202212.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

2023 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	2022 Year End Stock Price	2023 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.	88.92	2.52	2.83%	5.59%	5.28%	8.42%	8.11%
AVA	Avista Corp.	44.34	1.83	4.13%	4.16%	5.61%	8.29%	9.73%
BKH	Black Hills	70.34	2.53	3.60%	4.82%	6.09%	8.42%	9.68%
DTE	DTE Energy	117.53	3.84	3.27%	5.42%	5.40%	8.69%	8.67%
EVRG	Evergy Inc.	62.93	2.48	3.94%	5.85%	6.45%	9.79%	10.39%
IDA	IDACORP Inc.	107.85	3.25	3.01%	5.64%	4.87%	8.66%	7.88%
LNT	Alliant Energy	55.21	1.81	3.28%	5.10%	5.08%	8.38%	8.36%
NWE	NorthWestern Corp.	59.34	2.56	4.31%	3.10%	4.25%	7.42%	8.57%
POR	Portland General	49.00	1.88	3.84%	5.23%	5.15%	9.06%	8.98%
WEC	WEC Energy Group	93.76	3.11	3.32%	5.59%	4.86%	8.91%	8.18%
XEL	Xcel Energy Inc.	70.11	2.07	2.95%	5.44%	5.13%	8.40%	8.09%
Average							8.58%	8.79%
Median							8.42%	8.57%
Trimmed Average							8.58%	8.71%
High							9.79%	10.39%
Low							7.42%	7.88%
Selected							8.58%	8.79%

Notes

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

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Short Term Growth Rate Calculations

Industry: Electric Utilities

2023 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2023 Est	Expected Dividend Yield	Div'ds Decl'd per sh 2025-2027 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.	88.92	2.52	2.83%	3.10	7.15%
AVA	Avista Corp.	44.34	1.83	4.13%	2.05	3.86%
BKH	Black Hills	70.34	2.53	3.60%	2.95	5.25%
DTE	DTE Energy	117.53	3.84	3.27%	4.65	6.59%
EVRG	Evergy Inc.	62.93	2.48	3.94%	3.05	7.14%
IDA	IDACORP Inc.	107.85	3.25	3.01%	4.00	7.17%
LNT	Alliant Energy	55.21	1.81	3.28%	2.15	5.91%
NWE	NorthWestern Corp.	59.34	2.56	4.31%	2.68	1.54%
POR	Portland General	49.00	1.88	3.84%	2.24	6.01%
WEC	WEC Energy Group	93.76	3.11	3.32%	3.80	6.91%
XEL	Xcel Energy Inc.	70.11	2.07	2.95%	2.52	6.78%

A	B	C	D	E
Ticker	Company	Earnings per share 2023 Est	Earnings per share 2025-2027 Est	Short-Term Growth Rate
		<i>Value Line</i>	<i>Value Line</i>	<i>Note [1]</i>
AEE	Ameren Corp.	4.35	5.25	6.47%
AVA	Avista Corp.	2.35	2.85	6.64%
BKH	Black Hills	4.20	5.25	7.72%
DTE	DTE Energy	6.20	7.50	6.55%
EVRG	Evergy Inc.	3.75	4.75	8.20%
IDA	IDACORP Inc.	5.20	6.10	5.47%
LNT	Alliant Energy	2.95	3.50	5.86%
NWE	NorthWestern Corp.	3.55	4.00	4.06%
POR	Portland General	2.95	3.50	5.86%
WEC	WEC Energy Group	4.70	5.50	5.38%
XEL	Xcel Energy Inc.	3.35	4.00	6.09%

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

2023 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	$K_e = IRR \text{ of } D_1 \cdot D_{500}$	$g = IRR - Div. \text{ Yield}$						
AEE	Ameren Corp.	88.92	7.15%	4.45%	2.83%	8.42%	5.59%	(88.92)	2.52	2.70	2.89	3.10	3.32
AVA	Avista Corp.	44.34	3.86%	4.45%	4.13%	8.29%	4.16%	(44.34)	1.83	1.90	1.97	2.05	2.13
BKH	Black Hills	70.34	5.25%	4.45%	3.60%	8.42%	4.82%	(70.34)	2.53	2.66	2.80	2.95	3.10
DTE	DTE Energy	117.53	6.59%	4.45%	3.27%	8.69%	5.42%	(117.53)	3.84	4.09	4.36	4.65	4.96
EVRG	Evergy Inc.	62.93	7.14%	4.45%	3.94%	9.79%	5.85%	(62.93)	2.48	2.66	2.85	3.05	3.27
IDA	IDACORP Inc.	107.85	7.17%	4.45%	3.01%	8.66%	5.64%	(107.85)	3.25	3.48	3.73	4.00	4.29
LNT	Alliant Energy	55.21	5.91%	4.45%	3.28%	8.38%	5.10%	(55.21)	1.81	1.92	2.03	2.15	2.28
NWE	NorthWestern Corp.	59.34	1.54%	4.45%	4.31%	7.42%	3.10%	(59.34)	2.56	2.60	2.64	2.68	2.72
POR	Portland General	49.00	6.01%	4.45%	3.84%	9.06%	5.23%	(49.00)	1.88	1.99	2.11	2.24	2.37
WEC	WEC Energy Group	93.76	6.91%	4.45%	3.32%	8.91%	5.59%	(93.76)	3.11	3.32	3.55	3.80	4.06
XEL	Xcel Energy Inc.	70.11	6.78%	4.45%	2.95%	8.40%	5.44%	(70.11)	2.07	2.21	2.36	2.52	2.69

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	$K_e = IRR \text{ of } D_1 \cdot D_{500}$	$g = IRR - Div. \text{ Yield}$						
AEE	Ameren Corp.	88.92	6.47%	4.45%	2.83%	8.11%	5.28%	(88.92)	2.52	2.68	2.86	3.04	3.24
AVA	Avista Corp.	44.34	6.64%	4.45%	4.13%	9.73%	5.61%	(44.34)	1.83	1.95	2.08	2.22	2.37
BKH	Black Hills	70.34	7.72%	4.45%	3.60%	9.68%	6.09%	(70.34)	2.53	2.73	2.94	3.16	3.41
DTE	DTE Energy	117.53	6.55%	4.45%	3.27%	8.67%	5.40%	(117.53)	3.84	4.09	4.36	4.65	4.95
EVRG	Evergy Inc.	62.93	8.20%	4.45%	3.94%	10.39%	6.45%	(62.93)	2.48	2.68	2.90	3.14	3.40
IDA	IDACORP Inc.	107.85	5.47%	4.45%	3.01%	7.88%	4.87%	(107.85)	3.25	3.43	3.61	3.81	4.02
LNT	Alliant Energy	55.21	5.86%	4.45%	3.28%	8.36%	5.08%	(55.21)	1.81	1.92	2.03	2.15	2.27
NWE	NorthWestern Corp.	59.34	4.06%	4.45%	4.31%	8.57%	4.25%	(59.34)	2.56	2.66	2.77	2.88	3.00
POR	Portland General	49.00	5.86%	4.45%	3.84%	8.98%	5.15%	(49.00)	1.88	1.99	2.11	2.23	2.36
WEC	WEC Energy Group	93.76	5.38%	4.45%	3.32%	8.18%	4.86%	(93.76)	3.11	3.28	3.45	3.64	3.84
XEL	Xcel Energy Inc.	70.11	6.09%	4.45%	2.95%	8.09%	5.13%	(70.11)	2.07	2.20	2.33	2.47	2.62

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

2023 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	3.55	3.80	4.07	4.35	4.65	4.98	5.32	5.69	6.09	6.52	6.97	7.45	7.97	8.53	9.12	9.53	9.95	10,870,764,614
AVA	2.21	2.30	2.39	2.48	2.58	2.68	2.78	2.89	3.00	3.12	3.24	3.37	3.50	3.64	3.78	3.95	4.12	4,500,243,596
BKH	3.27	3.44	3.61	3.80	4.00	4.21	4.43	4.66	4.90	5.15	5.42	5.70	6.00	6.31	6.64	6.94	7.25	7,912,305,774
DTE	5.28	5.62	5.98	6.36	6.77	7.21	7.67	8.17	8.70	9.26	9.85	10.49	11.16	11.88	12.65	13.21	13.80	15,069,748,909
EVRG	3.50	3.74	4.00	4.28	4.57	4.89	5.23	5.60	5.99	6.40	6.85	7.33	7.84	8.38	8.97	9.36	9.78	10,681,503,311
IDA	4.59	4.91	5.25	5.62	6.01	6.43	6.88	7.36	7.87	8.42	9.01	9.64	10.31	11.03	11.80	12.33	12.88	14,061,688,489
LNT	2.41	2.55	2.70	2.85	3.02	3.20	3.38	3.58	3.78	4.00	4.24	4.48	4.74	5.02	5.31	5.55	5.79	6,327,589,235
NWE	2.77	2.82	2.87	2.91	2.97	3.02	3.07	3.12	3.18	3.23	3.29	3.34	3.40	3.46	3.52	3.68	3.84	4,195,019,061
POR	2.52	2.66	2.82	2.99	3.16	3.35	3.55	3.76	3.98	4.22	4.47	4.73	5.01	5.31	5.62	5.87	6.13	6,694,299,834
WEC	4.34	4.63	4.94	5.27	5.63	6.01	6.41	6.85	7.31	7.80	8.33	8.89	9.49	10.13	10.81	11.29	11.80	12,881,612,062
XEL	2.87	3.06	3.26	3.48	3.71	3.95	4.21	4.49	4.79	5.11	5.45	5.81	6.19	6.60	7.04	7.35	7.68	8,387,083,877

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	3.44	3.66	3.89	4.14	4.40	4.68	4.98	5.29	5.63	5.98	6.36	6.77	7.20	7.65	8.14	8.50	8.88	9,692,959,928
AVA	2.52	2.68	2.86	3.04	3.24	3.45	3.68	3.92	4.17	4.44	4.73	5.04	5.36	5.71	6.08	6.35	6.64	7,247,056,402
BKH	3.66	3.94	4.23	4.55	4.89	5.26	5.65	6.08	6.53	7.02	7.55	8.12	8.73	9.38	10.09	10.53	11.00	12,015,266,402
DTE	5.27	5.60	5.96	6.35	6.75	7.19	7.65	8.14	8.66	9.21	9.80	10.43	11.10	11.81	12.57	13.13	13.71	14,975,808,822
EVRG	3.67	3.96	4.28	4.62	4.98	5.38	5.81	6.27	6.77	7.30	7.88	8.51	9.19	9.92	10.70	11.18	11.68	12,753,718,977
IDA	4.24	4.47	4.71	4.96	5.23	5.51	5.81	6.12	6.45	6.80	7.17	7.56	7.96	8.39	8.85	9.24	9.65	10,539,570,928
LNT	2.40	2.54	2.69	2.85	3.01	3.18	3.37	3.56	3.77	3.98	4.21	4.46	4.71	4.99	5.27	5.51	5.75	6,282,796,165
NWE	3.12	3.25	3.38	3.52	3.67	3.82	3.97	4.13	4.30	4.48	4.66	4.85	5.05	5.26	5.47	5.72	5.97	6,519,201,031
POR	2.50	2.64	2.79	2.96	3.13	3.31	3.50	3.70	3.91	4.14	4.38	4.63	4.90	5.18	5.48	5.72	5.98	6,525,777,232
WEC	4.04	4.25	4.48	4.72	4.97	5.23	5.51	5.80	6.11	6.44	6.78	7.14	7.52	7.92	8.34	8.71	9.10	9,938,639,830
XEL	2.78	2.95	3.12	3.31	3.51	3.72	3.94	4.17	4.42	4.69	4.97	5.26	5.58	5.91	6.27	6.55	6.84	7,465,726,888

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Electric Utilities

2023 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
DTE	DTE Energy	UTILCENT	A	Baa2	9
EVRG	Evergy Inc.	UTILCENT	B++	Baa2	9
IDA	IDACORP Inc.	UTILWEST	A+	Baa2	9
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					9
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
2023 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.	88.92	4.14	4.45	21.48	19.98	4.66%	5.00%	8.89	9.50	10.00	9.36	10.00%	10.68%	23,299,598	9,829,000	2.37
AVA	Avista Corp.	44.34	2.12	2.35	20.92	18.87	4.78%	5.30%	5.34	5.25	8.30	8.45	12.04%	11.84%	3,323,103	2,154,700	1.54
BKH	Black Hills	70.34	3.99	4.20	17.63	16.75	5.67%	5.97%	7.41	7.80	9.49	9.02	10.53%	11.09%	4,649,732	2,787,100	1.67
DTE	DTE Energy	117.53	5.52	6.25	21.29	18.80	4.70%	5.32%	11.94	14.05	9.84	8.37	10.16%	11.95%	24,167,975	8,705,000	2.78
EVRG	Evergy Inc.	62.93	3.26	3.60	19.30	17.48	5.18%	5.72%	8.18	7.95	7.69	7.92	13.00%	12.63%	14,445,336	9,244,400	1.56
IDA	IDACORP Inc.	107.85	5.11	5.20	21.11	20.74	4.74%	4.82%	8.41	8.70	12.82	12.40	7.80%	8.07%	5,453,992	2,668,400	2.04
LNT	Alliant Energy	55.21	2.73	2.90	20.22	19.04	4.94%	5.25%	5.40	5.55	10.22	9.95	9.78%	10.05%	13,865,161	6,276,000	2.21
NWE	NorthWestern Corp.	59.34	3.29	3.55	18.04	16.72	5.54%	5.98%	6.93	6.70	8.56	8.86	11.68%	11.29%	3,545,217	2,339,700	1.52
POR	Portland General	49.00	2.60	2.95	18.85	16.61	5.31%	6.02%	7.25	7.65	6.76	6.41	14.80%	15.61%	4,649,732	2,707,000	1.72
WEC	WEC Energy Group	93.76	4.46	4.60	21.02	20.38	4.76%	4.91%	8.02	8.60	11.69	10.90	8.55%	9.17%	29,575,142	11,407,300	2.59
XEL	Xcel Energy Inc.	70.11	3.17	3.35	22.12	20.93	4.52%	4.78%	7.08	7.75	9.90	9.05	10.10%	11.05%	38,530,915	15,612,000	2.47
Average					20.18	18.75	4.98%	5.37%			9.57	9.15	10.77%	11.22%			2.04
Median					20.92	18.87	4.78%	5.30%			9.84	9.02	10.16%	11.09%			2.04
Trimmed Average					20.25	18.75	4.96%	5.36%			9.52	9.10	10.65%	11.09%			2.02
High					22.12	20.93	5.67%	6.02%			12.82	12.40	14.80%	15.61%			2.78
Low					17.63	16.61	4.52%	4.78%			6.76	6.41	7.80%	8.07%			1.52
Selected					19.19		5.21%				9.06		11.04%				1.98

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Debt Capitalization Rate

Industry: Electric Utilities

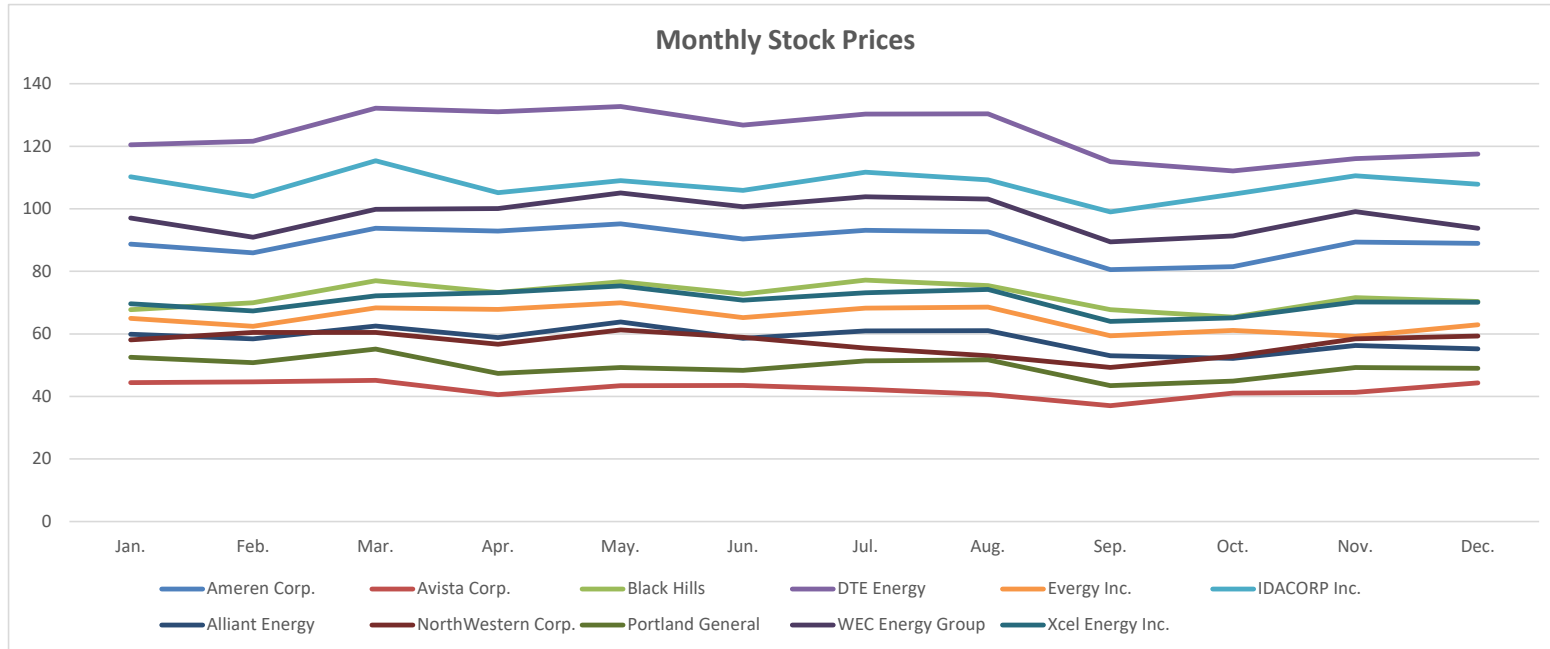
2023 Assessment Year

(\$ 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.	486,000	14,521,000	13,067,000	12,453,000	14,025,000	13,487,000	3.60%	0.89
AVA	Avista Corp.	118,692	2,557,624	2,199,917	1,868,180	2,346,060	2,212,902	5.36%	0.80
BKH	Black Hills	162,584	4,570,619	4,126,923	3,760,848	4,132,340	4,165,734	3.90%	0.91
DTE	DTE Energy	675,000	18,943,000	17,405,000	16,012,000	17,997,000	17,477,500	3.86%	0.89
EVRG	Evergy Inc.	404,000	10,758,500	9,687,200	9,160,000	10,344,800	9,959,250	4.06%	0.89
IDA	IDACORP Inc.	87,259	2,381,172	2,000,640	1,953,470	2,194,145	2,167,321	4.03%	0.89
LNT	Alliant Energy	325,000	8,330,000	7,368,000	7,339,000	8,076,000	7,834,500	4.15%	0.91
NWE	NorthWestern Corp.	100,110	2,842,108	2,556,250	2,328,597	2,630,779	2,585,353	3.87%	0.89
POR	Portland General	156,000	4,124,000	3,578,000	3,298,000	3,960,000	3,711,000	4.20%	0.83
WEC	WEC Energy Group	515,100	14,949,100	13,693,100	14,104,500	15,647,400	14,526,800	3.55%	0.90
XEL	Xcel Energy Inc.	953,000	25,232,000	22,380,000	20,897,000	23,964,000	23,064,500	4.13%	0.87
All Companies		3,982,745			93,174,595	105,317,524	101,191,859	3.94%	0.88
Average								4.07%	0.88
Median								4.03%	0.89
Trimmed Average								3.98%	0.88
High								5.36%	0.91
Low								3.55%	0.80
Selected								4.07%	0.88

MONTANA DEPARTMENT OF REVENUE
Support of Stock Price - From YAHOO Finance
Industry: Electric Utilities
2023 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.	88.74	85.95	93.76	92.90	95.19	90.36	93.12	92.62	80.55	81.52	89.32	88.92
AVA	Avista Corp.	44.46	44.63	45.15	40.57	43.44	43.51	42.26	40.63	37.05	41.03	41.28	44.34
BKH	Black Hills	67.74	69.99	77.02	73.24	76.66	72.77	77.20	75.48	67.73	65.37	71.63	70.34
DTE	DTE Energy	120.43	121.59	132.21	131.04	132.71	126.75	130.30	130.34	115.05	112.11	116.01	117.53
EVRG	Evergy Inc.	64.96	62.41	68.34	67.85	69.94	65.25	68.26	68.53	59.40	61.13	59.21	62.93
IDA	IDACORP Inc.	110.22	103.95	115.36	105.18	109.02	105.92	111.72	109.24	99.01	104.70	110.53	107.85
LNT	Alliant Energy	59.86	58.40	62.48	58.81	63.82	58.61	60.93	61.04	52.99	52.17	56.30	55.21
NWE	NorthWestern Corp.	58.12	60.48	60.49	56.69	61.27	58.93	55.45	52.98	49.28	52.83	58.41	59.34
POR	Portland General	52.54	50.77	55.15	47.33	49.25	48.33	51.34	51.67	43.46	44.94	49.23	49.00
WEC	WEC Energy Group	97.04	90.88	99.81	100.05	105.07	100.64	103.81	103.14	89.43	91.33	99.14	93.76
XEL	Xcel Energy Inc.	69.66	67.33	72.17	73.26	75.34	70.76	73.18	74.25	64.00	65.11	70.22	70.11



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies

Industry: Electric Utilities

2023 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*I/(1-J)	K/G
AEE	Ameren Corp.	2.45%	45,727,000	43,475,000	44,601,000	1,289,000	35	0.85	0.43	1,926,476	149.46%
AVA	Avista Corp.	2.45%	7,725,835	7,371,985	7,548,910	253,017	30	0.73	0.49	359,613	142.13%
BKH	Black Hills	2.45%	8,374,790	7,856,573	8,115,682	250,909	32	0.79	0.46	366,229	145.96%
DTE	DTE Energy	2.45%	39,346,000	37,083,000	38,214,500	1,468,000	26	0.64	0.53	2,002,876	136.44%
EVRG	Evergy Inc.	2.45%	34,833,500	32,910,200	33,871,850	929,400	36	0.89	0.41	1,415,897	152.35%
IDA	IDACORP Inc.	2.45%	6,828,467	6,509,316	6,668,892	170,077	39	0.96	0.39	266,579	156.74%
LNT	Alliant Energy	2.45%	22,383,000	20,662,000	21,522,500	671,000	32	0.79	0.46	976,614	145.55%
NWE	NorthWestern Corp.	2.45%	7,843,783	7,317,269	7,580,526	195,020	39	0.95	0.39	304,612	156.20%
POR	Portland General	2.45%	12,888,000	12,151,000	12,519,500	417,000	30	0.74	0.48	593,865	142.41%
WEC	WEC Energy Group	2.45%	39,497,600	36,871,700	38,184,650	1,122,600	34	0.83	0.44	1,667,530	148.54%
XEL	Xcel Energy Inc.	2.45%	68,647,000	65,290,000	66,968,500	2,413,000	28	0.68	0.51	3,353,968	139.00%
Average											146.80%
Median											145.96%
Trimmed Average											146.84%
High											156.74%
Low											136.44%
Selected											146.80%

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.