



Cost of Capital Study January 1, 2015

Industry: Electric Utility Industry			SIC: 4912
Equity:			Reference
Risk Adjusted Models			
	CAPM	8.25%	Page 5
Dividend Growth Models			
	DGM or DCF Model (Dividend Growth)	9.00%	Page 7
	DGM or DCF Model (Earnings Growth)	9.25%	Page 7
	DGM or DCF Model (b * ROE = Growth)	7.75%	Page 7
Estimated Cost of Equity Capital		9.25%	
Debt:			
Estimated Cost of Debt Capital		4.75%	Page 3
<hr/> Cost of Capital Summary <hr/>			
Capital Component	Market Capital Structure	Cost of Capital	Before-Tax Weighted Average Cost of Capital
Debt	37.00%	4.75%	1.76%
Equity	63.00%	9.25%	5.83%
TOTAL	100.00%		7.59%
		Rounded	7.50%

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Staff Recommendation

Industry: Electric Utility Industry			SIC: 4912
Equity:	Direct Rate		Reference
	Estimated Cost of Equity Capital	6.25%	Page 8
Debt:			
	Estimated Cost of Debt Capital	4.83%	Page 9
<hr/> Cost of Capital Summary <hr/>			
Capital Componer	Market Capital Structure	Cost of Capital	Before-Tax Weighted Average Cost of Capital
Debt	37.00%	4.83%	1.79%
Equity	63.00%	6.25%	3.94%
TOTAL	100.00%		5.72%
		Rounded	5.75%

Cost of Capital Study
January 1, 2015
Analysis of the Market Capital Structure

Industry: Electric Utilities - Central								SIC: 4912
Company Name	Stock Symbol	Debt (\$ mil)	Debt %	Stock Price	Shares Outstanding	Equity (\$ mil)	Equity %	Total Capital (\$ mil)
ALLETE	ALE	1,272.8	36.24%	48.80	45.9	2,240	63.76%	3,512.6
Alliant Energy	LNT	3,606.7	36.46%	56.67	110.9	6,285	63.54%	9,891.9
Amer. Elec. Power	AEP	16,181.0	38.92%	51.90	489.4	25,399	61.08%	41,580.0
Ameren Corp.	AEE	5,504.0	36.75%	39.05	242.6	9,473	63.25%	14,976.8
CenterPoint Energy	CNP	7,817.0	43.65%	23.52	429	10,090	56.35%	17,906.6
Cleco Corp.	CNL	1,349.7	30.30%	51.41	60.4	3,105	69.70%	4,454.7
CMS Energy Corp.	CMS	8,139.0	50.06%	29.51	275.2	8,121	49.94%	16,260.1
DTE Energy	DTE	7,214.0	35.41%	74.30	177.1	13,158	64.59%	20,372.3
Empire Dist. Elec.	EDE	803.2	42.99%	24.49	43.5	1,065	57.01%	1,868.4
Energy Corp.	ETR	12,171.4	48.47%	72.55	178.4	12,942	51.53%	25,113.5
Gt Plains Energy	GXP	3,515.7	47.49%	25.26	153.9	3,888	52.51%	7,403.8
Integrus Energy	TEG	2,956.3	37.31%	62.49	79.5	4,968	62.69%	7,924.2
ITC Holdings	ITC	3,412.1	37.51%	36.10	157.5	5,685	62.49%	9,097.1
MGE Energy	MGEE	395.3	22.56%	39.10	34.7	1,357	77.44%	1,752.2
OGE Energy	OGE	2,755.3	27.91%	35.69	199.4	7,116	72.09%	9,871.5
Otter Tail Corp.	OTTR	498.5	32.01%	28.46	37.2	1,059	67.99%	1,557.2
Vectren Corp.	VVC	1,407.3	30.13%	39.52	82.6	3,264	69.87%	4,671.4
Westar Energy	WR	3,301.3	41.62%	35.16	131.7	4,631	58.38%	7,932.5
Wisconsin Energy	WEC	4,186.4	29.20%	45.02	225.5	10,153	70.80%	14,338.9
Mean:			37.10%			7,053	62.90%	11,605
Median:			36.75%				63.25%	
Market Capital Structure Estimate:		Debt:	37.00%			Equity:	63.00%	

Stock Price = 2014 Average Closing Price

Data Source: Value Line Investment Survey

Cost of Capital Study
January 1, 2015
Capital Asset Pricing Model (CAPM)

CAPM ==> $K_e = R_f + (\beta * ERP)$

Industry: Electric Utilities - Central	SIC: 4912
Risk-Free Rate (R_f)	3.00%
Beta (β)	0.75
Equity Risk Premium (ERP): ($R_m - R_f$)	7.00%
Adjusted Equity Risk Premium: ($\beta * ERP$)	5.25%
Cost of Equity Capital - CAPM	8.25%
Ibbotson SBBI 2015 Market Report	
Long-Term Government Bonds - Income Return ¹	6.10%
Intermediate Term US Treasury Coupon Note Yield (5-Year) ¹	5.40%
Short-Term US Treasury Bill Yield (30-Day) ¹	3.50%
Long-Term Horizon Expected Equity Risk Premium ² (Large Compay Stock Total Return - Long-Term US Government Bond Income)	7.00%
¹ Table 7: Basic Series, Summary Statistics of Annual Total Returns, Arithmetic Mean, p. 13	
² Table 10: Long-Horizon Expected Equity Risk Premium (historical), p. 16	
Federal Interest Rates - IRS.gov, January 2015 Weighted Average Rates	
Long Term Treasury (30 year) ¹	3.35%
Composite Corporate Bonds ²	4.48%
¹ http://www.irs.gov/Retirement-Plans/Weighted-Average-Interest-Rate-Table	
² http://www.irs.gov/Retirement-Plans/Composite-Corporate-Bond-Rate-Table	
The ValueLine Investment Survey, Selected Yields, Page 4445, January 9, 2015	
U.S. Treasury Securities:	
5-year	1.68%
10-year	2.19%
30-year	2.76%
30-year Zero	2.86%
Federal Reserve Statistical Release (http://www.federalreserve.gov/Releases/H15/20150105/) 1/2015	
Treasury constant Maturities:	
5-year	1.67%
10-year	2.18%
20-year	2.47%
30-year	2.75%
Risk-Free Rate of Return R_f Estimate:	3.00%

Cost of Capital Study
January 1, 2015
Beta (β) Analysis

Industry: Electric Utilities - Central		SIC: 4912
Company Name	Stock Symbol	Beta "β"
ALLETE	ALE	0.80
Alliant Energy	LNT	0.80
Amer. Elec. Power	AEP	0.70
Ameren Corp.	AEE	0.75
CenterPoint Energy	CNP	0.80
Cleco Corp.	CNL	0.75
CMS Energy Corp.	CMS	0.75
DTE Energy	DTE	0.75
Empire Dist. Elec.	EDE	0.70
Entergy Corp.	ETR	0.70
G't Plains Energy	GXP	0.85
Integrus Energy	TEG	0.80
ITC Holdings	ITC	0.65
MGE Energy	MGEE	0.70
OGE Energy	OGE	0.90
Otter Tail Corp.	OTTR	0.90
Vectren Corp.	VVC	0.80
Westar Energy	WR	0.75
Wisconsin Energy	WEC	0.65
Mean:		0.76
Median:		0.75
Beta (β) Estimate:		0.75

NMF = Not Meaningful

Data Source: Value Line Investment Survey

Cost of Capital Study
January 1, 2015
Dividend Growth Model (DGM or DCF)

$$\text{DGM or DCF Model} \implies K_e = \frac{D_1}{P_0} + g$$

where
K_e = Cost of Equity
D₁ = Expected Dividends
P₀ = Current Price
g = Sustainable Growth

Industry: Electric Utilities - Central												SIC: 4912
Company Name	Stock Symbol	Stock Price P ₀	Expected Dividend D ₁	Dividend Yield (D ₁ / P ₀)	Dividend Growth g	Earnings Growth g				(Dividends) K _e	(Earnings) K _e	g=(b * ROE) K _e
							b	ROE	g=(b * ROE)			
ALLETE	ALE	48.80	2.04	4.18%	4.00%	6.50%	32.85%	7.75%	2.55%	8.18%	10.68%	6.73%
Alliant Energy	LNT	56.67	2.20	3.88%	7.00%	4.50%	38.78%	10.88%	4.22%	10.88%	8.38%	8.10%
Amer. Elec. Power	AEP	51.90	2.18	4.20%	5.00%	5.50%	38.92%	9.71%	3.78%	9.20%	9.70%	7.98%
Ameren Corp.	AEE	39.05	1.66	4.25%	2.00%	5.00%	23.94%	7.82%	1.87%	6.25%	9.25%	6.12%
CenterPoint Energy	CNP	23.52	1.00	4.25%	5.00%	1.50%	33.77%	12.38%	4.18%	9.25%	5.75%	8.43%
Cleco Corp.	CNL	51.41	1.60	3.11%	6.00%	0.50%	38.58%	9.50%	3.67%	9.11%	3.61%	6.78%
CMS Energy Corp.	CMS	29.51	1.18	4.00%	6.50%	5.50%	38.41%	12.99%	4.99%	10.50%	9.50%	8.99%
DTE Energy	DTE	74.30	2.87	3.86%	5.50%	6.00%	9.00%	8.34%	0.75%	9.36%	9.86%	4.61%
Empire Dist. Elec.	EDE	24.49	1.05	4.29%	3.00%	3.00%	33.86%	8.56%	2.90%	7.29%	7.29%	7.19%
Entergy Corp.	ETR	72.55	3.32	4.58%	2.00%	-0.50%	32.35%	9.19%	2.97%	6.58%	4.08%	7.55%
G't Plains Energy	GXP	25.26	1.01	4.00%	5.00%	5.00%	45.12%	7.15%	3.23%	9.00%	9.00%	7.22%
Integrus Energy	TEG	62.49	2.72	4.35%	0.50%	2.00%	3.35%	6.78%	0.23%	4.85%	6.35%	4.58%
ITC Holdings	ITC	36.10	0.71	1.97%	12.00%	12.00%	63.97%	14.47%	9.26%	13.97%	13.97%	11.22%
MGE Energy	MGEE	39.10	1.16	2.97%	4.00%	7.50%	52.15%	12.18%	6.35%	6.97%	10.47%	9.32%
OGE Energy	OGE	35.69	1.08	3.03%	10.00%	3.00%	53.49%	12.19%	6.52%	13.03%	6.03%	9.55%
Otter Tail Corp.	OTTR	28.46	1.23	4.32%	1.50%	10.00%	22.19%	9.93%	2.20%	5.82%	14.32%	6.53%
Vectren Corp.	VVC	39.52	1.56	3.95%	4.00%	9.50%	27.86%	10.38%	2.89%	7.95%	13.45%	6.84%
Westar Energy	WR	35.16	1.44	4.10%	3.50%	5.00%	45.25%	9.50%	4.30%	7.60%	9.10%	8.39%
Wisconsin Energy	WEC	45.02	1.72	3.82%	8.00%	6.00%	40.08%	13.31%	5.33%	11.82%	9.82%	9.15%
Mean:				3.85%	4.97%	5.13%	35.47%	10.16%	3.80%	8.82%	8.98%	7.65%
Median:				4.00%	5.00%	5.00%	38.41%	9.71%	3.67%	9.00%	9.25%	7.55%
Cost of Equity Capital - DCF K_e Estimate:										9.00%	9.25%	7.75%

NMF = Not Meaningful
b = (1 - payout ratio) = Retention Ratio
ROE = Return on Book Equity
Stock Price = 2014 Average Closing Price

Data Source: Value Line Investment Survey

**Support for Market Multiples
Electric Utilities - Central
2015 Assessment Year**

Industry Overall				
Company Name	Ticker	\$Stock\$ Average	Earnings	P/E Multiple
ALLETE	ALE	48.80	2.88	16.94
Alliant Energy	LNT	56.67	3.55	15.96
Amer. Elec. Power	AEP	51.90	3.34	15.54
Ameren Corp.	AEE	39.05	2.49	15.68
CenterPoint Energy	CNP	23.52	1.16	20.27
Cleco Corp.	CNL	51.41	2.15	23.91
CMS Energy Corp.	CMS	29.51	1.88	15.70
DTE Energy	DTE	74.30	5.08	14.63
Empire Dist. Elec.	EDE	24.49	1.41	52.69
Entergy Corp.	ETR	72.55	5.09	4.81
G't Plains Energy	GXP	25.26	1.47	49.35
Integrus Energy	TEG	62.49	2.86	8.83
ITC Holdings	ITC	36.10	1.8	34.72
MGE Energy	MGEE	39.10	2.39	15.10
OGE Energy	OGE	35.69	1.94	20.16
Otter Tail Corp.	OTTR	28.46	1.63	21.89
Vectren Corp.	VVC	39.52	2.41	11.81
Westar Energy	WR	35.16	2.33	16.96
Wisconsin Energy	WEC	45.02	2.54	13.84
Mean:				20.46
Median:				15.96
Weighted Mean:				16.92
P/E Estimate:				16.0
Equity Rate:				6.25%

Stock Price = 2014 Average Closing Price

Note: Units per share comparisons

Data Source: ValueLine Investment Survey

Cost of Capital Study
January 1, 2015
Direct Debt Rate Calculation

Industry: Electric Utilities - Central		
Direct Capitalization Debt Rate		
Interest Expense		\$ 4,177.5
Total Value of Debt (TVD)		\$ 86,487.0
Current Yield = Interest Expense/TVD		4.83%

\$ (millions)

Data Source: ValueLine Investment Survey