



**MISSOURI PUBLIC SERVICE COMMISSION**

**STAFF REPORT**

**COST OF SERVICE**

**APPENDIX 2**

**Support for Staff  
Cost of  
Capital Recommendations**

**THE EMPIRE DISTRICT ELECTRIC COMPANY**

**CASE NO. ER-2019-0374**

*Jefferson City, Missouri  
January 15, 2020*

**\*\* Denotes Confidential Information \*\***

**AN ANALYSIS OF THE COST OF CAPITAL**

**FOR**

**THE EMPIRE DISTRICT ELECTRIC COMPANY**

**CASE NO. ER-2019-0374**

**SCHEDULES**

**BY**

**PETER CHARI**

**FINANCIAL ANALYSIS DEPARTMENT**

**MISSOURI PUBLIC SERVICE COMMISSION**

**The Empire District Electric Company**  
**Case No. ER-2019-0374**

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**The Empire District Electric Company**  
**Case No. ER-2019-0374**

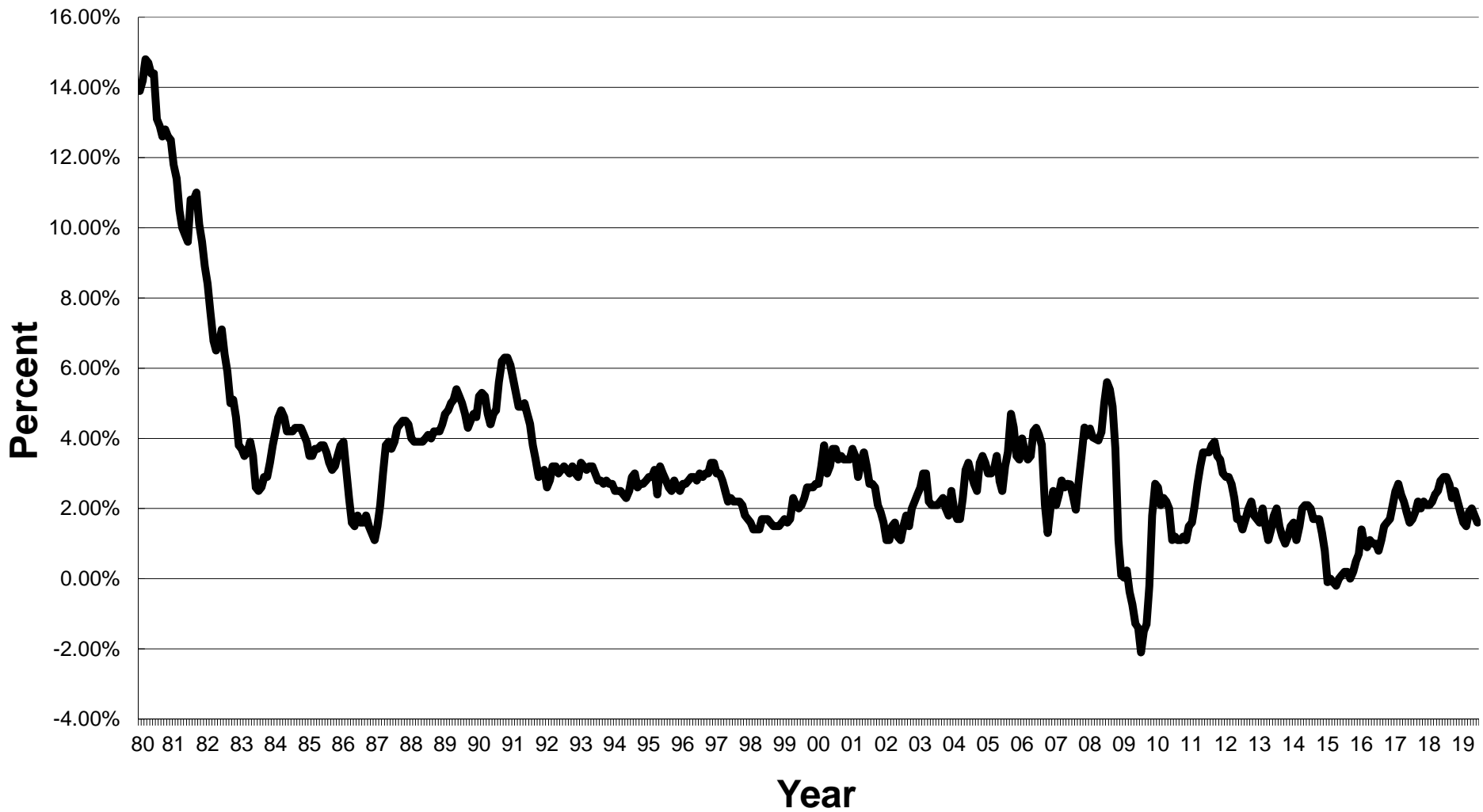
**Rate of Inflation (CPI)**

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1980	13.90	Jun	4.20	Nov	4.20	May	3.20	Nov	1.80	May	1.20	Nov	2.00	May	3.60	Nov	0.50
Feb	14.20	Jul	4.20	Dec	4.40	Jun	3.00	Dec	1.70	Jun	1.10	Dec	2.50	Jun	3.60	Dec	0.70
Mar	14.80	Aug	4.30	Jan 1989	4.70	Jul	2.80	Jan 1998	1.60	Jul	1.50	Jan 2007	2.10	Jul	3.60	Jan 2016	1.40
Apr	14.70	Sep	4.30	Feb	4.80	Aug	2.80	Feb	1.40	Aug	1.80	Feb	2.40	Aug	3.80	Feb	1.10
May	14.40	Oct	4.30	Mar	5.00	Sep	2.70	Mar	1.40	Sep	1.50	Mar	2.80	Sep	3.90	Mar	0.90
Jun	14.40	Nov	4.10	Apr	5.10	Oct	2.80	Apr	1.40	Oct	2.00	Apr	2.60	Oct	3.50	Apr	1.10
Jul	13.10	Dec	3.90	May	5.40	Nov	2.70	May	1.70	Nov	2.20	May	2.70	Nov	3.40	May	1.00
Aug	12.90	Jan 1985	3.50	Jun	5.20	Dec	2.70	Jun	1.70	Dec	2.40	Jun	2.70	Dec	3.00	Jun	1.00
Sep	12.60	Feb	3.50	Jul	5.00	Jan 1994	2.5	Jul	1.70	Jan 2003	2.60	Jul	2.40	Jan 2012	2.90	Jul	0.80
Oct	12.80	Mar	3.70	Aug	4.70	Feb	2.5	Aug	1.60	Feb	3.00	Aug	2.00	Feb	2.90	Aug	1.10
Nov	12.60	Apr	3.70	Sep	4.30	Mar	2.5	Sep	1.50	Mar	3.00	Sep	2.80	Mar	2.70	Sep	1.50
Dec	12.50	May	3.80	Oct	4.50	Apr	2.4	Oct	1.50	Apr	2.20	Oct	3.50	Apr	2.30	Oct	1.60
Jan 1981	11.80	Jun	3.80	Nov	4.70	May	2.3	Nov	1.50	May	2.10	Nov	4.30	May	1.70	Nov	1.70
Feb	11.40	Jul	3.60	Dec	4.60	Jun	2.5	Dec	1.60	Jun	2.10	Dec	4.10	Jun	1.70	Dec	2.10
Mar	10.50	Aug	3.30	Jan 1990	5.20	Jul	2.8	Jan 1999	1.70	Jul	2.10	Jan 2008	4.30	Jul	1.40	Jan-17	2.50
Apr	10.00	Sep	3.10	Feb	5.30	Aug	2.9	Feb	1.60	Aug	2.20	Feb	4.00	Aug	1.70	Feb	2.70
May	9.80	Oct	3.20	Mar	5.20	Sep	3.0	Mar	1.70	Sep	2.30	Mar	4.00	Sep	2.00	Mar	2.40
Jun	9.60	Nov	3.50	Apr	4.70	Oct	2.6	Apr	2.30	Oct	2.00	Apr	3.90	Oct	2.20	Apr	2.20
Jul	10.80	Dec	3.80	May	4.40	Nov	2.7	May	2.10	Nov	1.80	May	4.20	Nov	1.80	May	1.90
Aug	10.80	Jan 1986	3.90	Jun	4.70	Dec	2.7	Jun	2.00	Dec	1.90	Jun	5.00	Dec	1.70	Jun	1.60
Sep	11.00	Feb	3.10	Jul	4.80	Jan 1995	2.90	Jul	2.10	Jan 2004	1.90	Jul	5.60	Jan 2013	1.60	Jul	1.70
Oct	10.10	Mar	2.30	Aug	5.60	Feb	2.90	Aug	2.30	Feb	1.70	Aug	5.40	Feb	2.00	Aug	1.90
Nov	9.60	Apr	1.60	Sep	6.20	Mar	3.10	Sep	2.60	Mar	1.70	Sep	4.90	Mar	1.50	Sep	2.20
Dec	8.90	May	1.50	Oct	6.30	Apr	2.40	Oct	2.60	Apr	2.30	Oct	3.70	Apr	1.10	Oct	2.00
Jan 1982	8.40	Jun	1.80	Nov	6.30	May	3.20	Nov	2.60	May	3.10	Nov	1.10	May	1.40	Nov	2.20
Feb	7.60	Jul	1.60	Dec	6.10	Jun	3.00	Dec	2.70	Jun	3.30	Dec	0.10	Jun	1.80	Dec	2.10
Mar	6.80	Aug	1.60	Jan 1991	5.70	Jul	2.80	Jan 2000	2.70	Jul	3.00	Jan 2009	0.00	Jul	2.00	Jan-18	2.10
Apr	6.50	Sep	1.80	Feb	5.30	Aug	2.60	Feb	3.20	Aug	2.70	Feb	0.20	Aug	1.50	Feb	2.20
May	6.70	Oct	1.50	Mar	4.90	Sep	2.50	Mar	3.70	Sep	2.50	Mar	-0.40	Sep	1.20	Mar	2.40
Jun	7.10	Nov	1.30	Apr	4.90	Oct	2.80	Apr	3.00	Oct	3.30	Apr	-0.70	Oct	1.00	Apr	2.50
Jul	6.40	Dec	1.10	May	5.00	Nov	2.60	May	3.20	Nov	3.50	May	-1.28	Nov	1.20	May	2.80
Aug	5.90	Jan 1987	1.50	Jun	4.70	Dec	2.50	Jun	3.70	Dec	3.30	Jun	-1.40	Dec	1.50	Jun	2.90
Sep	5.00	Feb	2.10	Jul	4.40	Jan 1996	2.70	Jul	3.70	Jan 2005	3.00	Jul	-2.10	Jan 2014	1.60	Jul	2.90
Oct	5.10	Mar	3.00	Aug	3.80	Feb	2.70	Aug	3.40	Feb	3.00	Aug	-1.50	Feb	1.10	Aug	2.70
Nov	4.60	Apr	3.80	Sep	3.40	Mar	2.80	Sep	3.50	Mar	3.10	Sep	-1.30	Mar	1.50	Sep	2.30
Dec	3.80	May	3.90	Oct	2.90	Apr	2.90	Oct	3.40	Apr	3.50	Oct	-0.20	Apr	2.00	Oct	2.50
Jan 1983	3.70	Jun	3.70	Nov	3.00	May	2.90	Nov	3.40	May	2.80	Nov	1.80	May	2.10	Nov	2.20
Feb	3.50	Jul	3.90	Dec	3.10	Jun	2.80	Dec	3.40	Jun	2.50	Dec	2.70	Jun	2.10	Dec	1.90
Mar	3.60	Aug	4.30	Jan 1992	2.60	Jul	3.00	Jan 2001	3.70	Jul	3.20	Jan 2010	2.60	Jul	2.00	Jan.-19	1.60
Apr	3.90	Sep	4.40	Feb	2.80	Aug	2.90	Feb	3.50	Aug	3.60	Feb	2.10	Aug	1.70	Feb	1.50
May	3.50	Oct	4.50	Mar	3.20	Sep	3.00	Mar	2.90	Sep	4.70	Mar	2.30	Sep	1.70	Mar	1.90
Jun	2.60	Nov	4.50	Apr	3.20	Oct	3.00	Apr	3.30	Oct	4.30	April	2.20	Oct	1.70	Apr	2.00
Jul	2.50	Dec	4.40	May	3.00	Nov	3.30	May	3.60	Nov	3.50	May	2.00	Nov	1.30	May	1.80
Aug	2.60	Jan 1988	4.00	Jun	3.10	Dec	3.30	Jun	3.20	Dec	3.40	Jun	1.10	Dec	0.80	Jun	1.60
Sep	2.90	Feb	3.90	Jul	3.20	Jan 1997	3.00	Jul	2.70	Jan 2006	4.00	Jul	1.20	Jan 2015	-0.10	Jul	1.80
Oct	2.90	Mar	3.90	Aug	3.10	Feb	3.00	Aug	2.70	Feb	3.60	Aug	1.10	Feb	0.00	Aug	1.70
Nov	3.30	Apr	3.90	Sep	3.00	Mar	2.80	Sep	2.60	Mar	3.40	Sep	1.10	Mar	-0.10	Sep	1.70
Dec	3.80	May	3.90	Oct	3.20	Apr	2.50	Oct	2.10	Apr	3.50	Oct	1.20	Apr	-0.20	Oct	1.80
Jan 1984	4.20	Jun	4.00	Nov	3.00	May	2.20	Nov	1.90	May	4.20	Nov	1.10	May	0.00	Nov	2.10
Feb	4.60	Jul	4.10	Dec	2.90	Jun	2.30	Dec	1.60	June	4.30	Dec	1.50	Jun	0.10	Dec	
Mar	4.80	Aug	4.00	Jan 1993	3.30	Jul	2.20	Jan 2002	1.10	July	4.10	Jan 2011	1.60	Jul	0.20		
Apr	4.60	Sep	4.20	Feb	3.20	Aug	2.20	Feb	1.10	Aug	3.80	Feb	2.10	Aug	0.20		
May	4.20	Oct	4.20	Mar	3.10	Sep	2.20	Mar	1.50	Sep	2.10	Mar	2.70	Sep	0.00		
				Apr	3.20	Oct	2.10	Apr	1.60	Oct	1.30	Apr	3.20	Oct	0.20		

Source: U.S. Dept of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers,

The Empire District Electric Company  
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Rate of Inflation (CPI)  
1980 - 2019

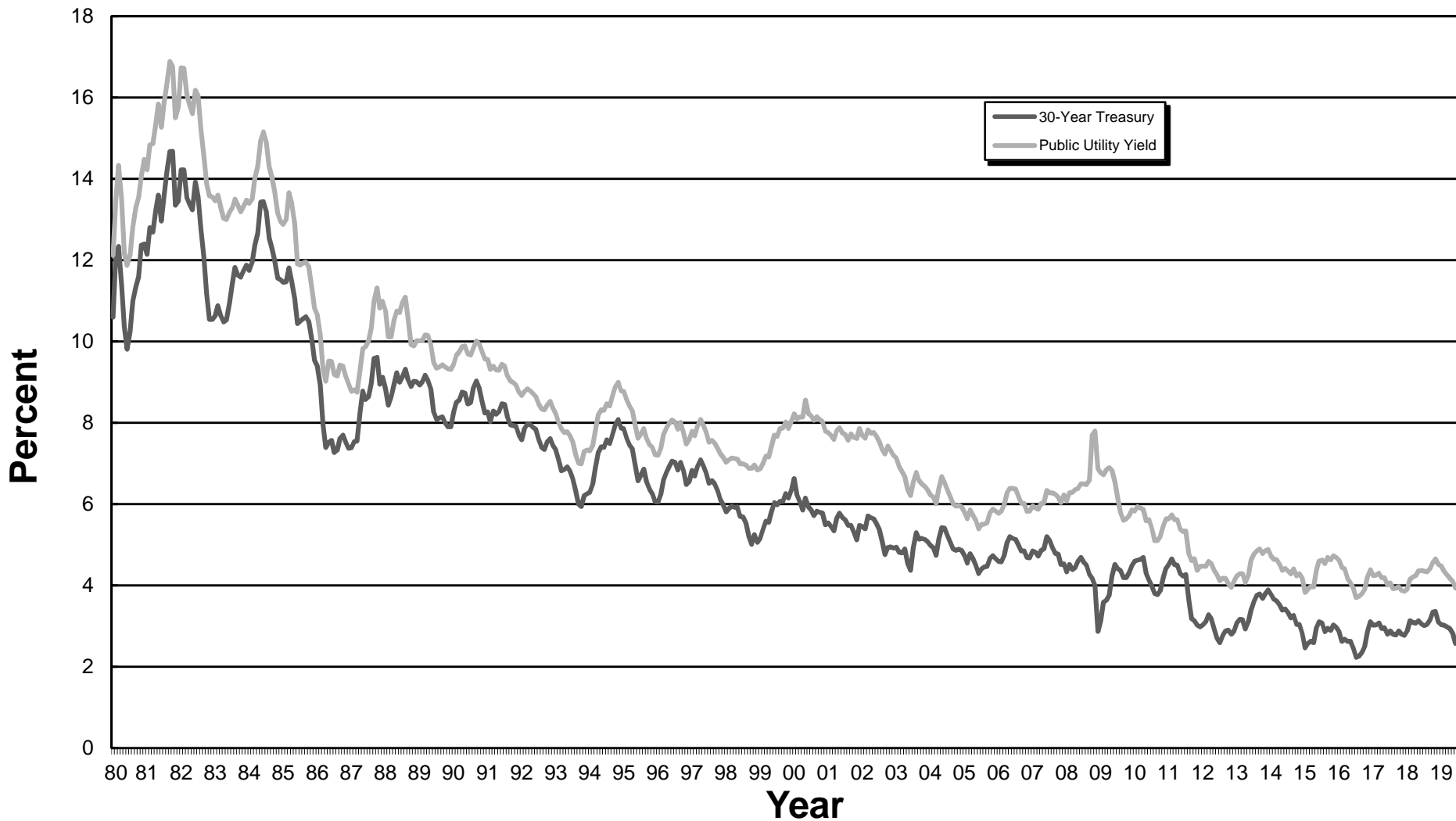






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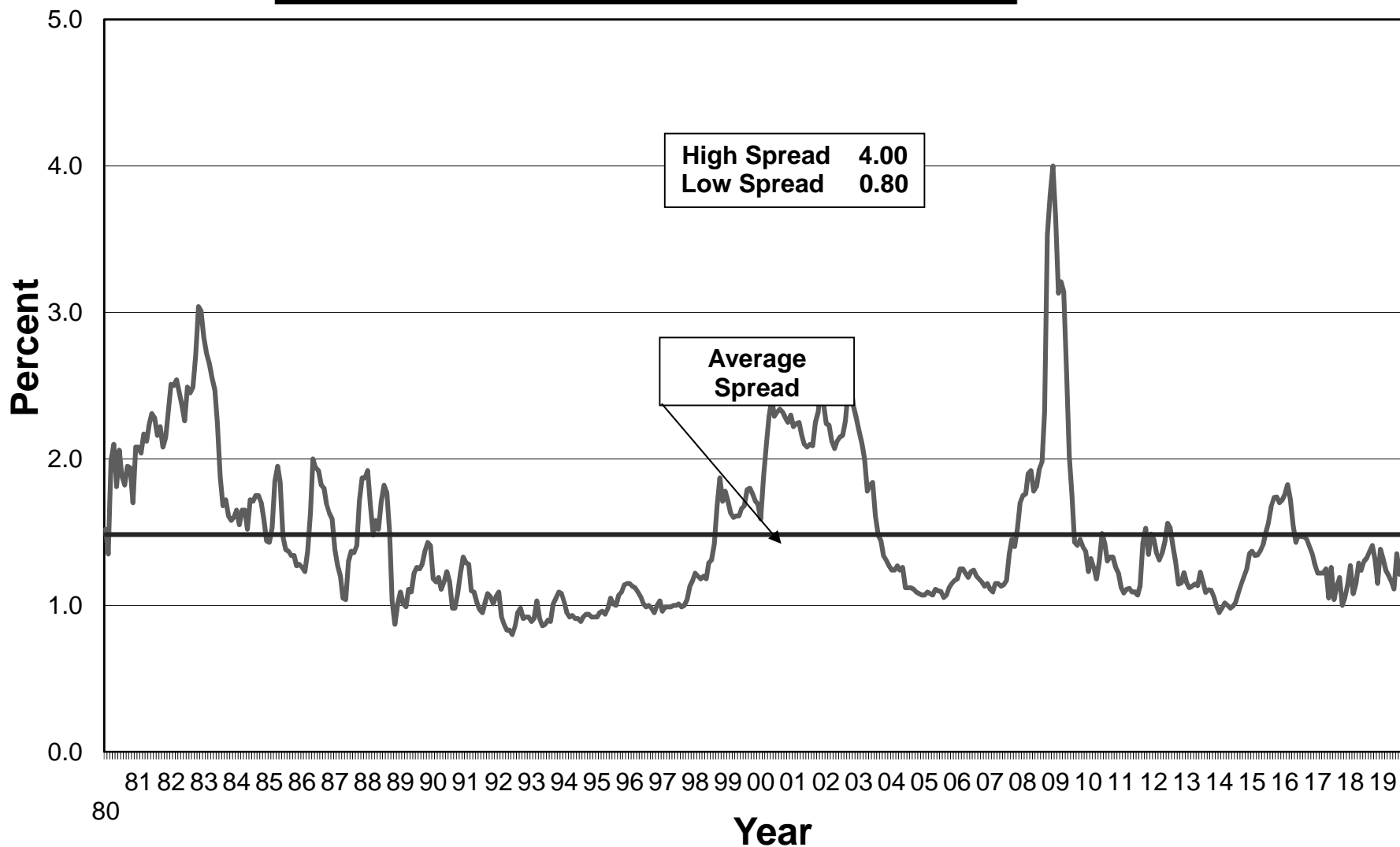
Average Yields on Public Utility Bonds and  
Thirty-Year U.S. Treasury Bonds (1980 - 2019)





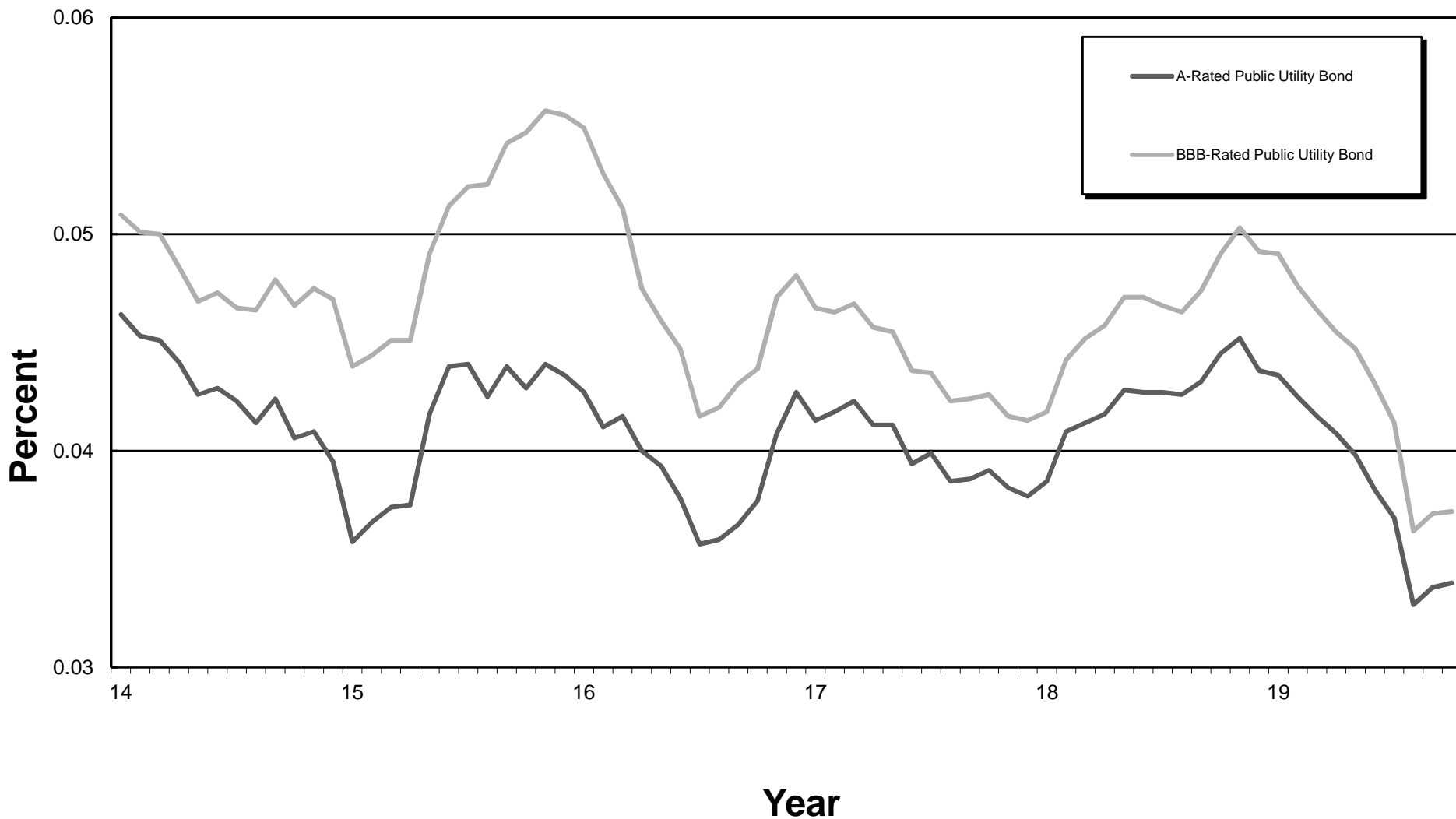
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Monthly Spreads Between Yields on Public Utility Bonds and  
Thirty-Year U.S. Treasury Bonds (1980 - 2019)



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**Average Yields on A-rated and  
BBB-rated Public Utility Bonds (2014-present)**



**The Empire District Electric Company**  
**Case No. ER-2019-0374**

**Capital Structure As of September 30, 2019**

**Algonquin Power & Utilities Company**

**Figures in (000)**

	<b>December 31, 2018</b>	<b>March 31, 2019</b>	<b>June 30, 2019</b>	<b>September 30, 2019</b>
Long-Term Debt	\$ 3,323,747	\$ 3,644,253	\$ 3,773,477	\$ 4,065,649
Short-Term Debt	\$ 184,299	\$ 184,299	\$ 184,299	\$ 210,565
Common Equity	\$ 3,513,223	\$ 3,548,472	\$ 3,163,726	\$ 3,964,313
<b>Total</b>	<b>\$ 7,021,269</b>	<b>\$ 7,377,024</b>	<b>\$ 7,121,502</b>	<b>\$ 8,240,527</b>

	<b>December 31, 2018</b>	<b>March 31, 2019</b>	<b>June 30, 2019</b>	<b>September 30, 2019</b>
Long-Term Debt	<b>47.34%</b>	<b>49.40%</b>	<b>52.99%</b>	<b>49.34%</b>
Short-Term Debt	<b>2.62%</b>	<b>2.50%</b>	<b>2.59%</b>	<b>2.56%</b>
Common Equity	<b>50.04%</b>	<b>48.10%</b>	<b>44.42%</b>	<b>48.11%</b>

**Liberty Utilities Co.**

	<b>December 31, 2018</b>	<b>March 31, 2019</b>	<b>June 30, 2019</b>	<b>September 30, 2019</b>
Long-Term Debt	\$ 1,985,625	\$ 2,005,176	\$ 2,022,861	\$ 1,879,252
Short-Term Debt	\$ -	\$ -	\$ -	\$ 208,500
Common Equity	\$ 2,273,821	\$ 2,326,276	\$ 2,339,211	\$ 2,354,587
<b>Total</b>	<b>\$ 4,259,446</b>	<b>\$ 4,331,452</b>	<b>\$ 4,362,072</b>	<b>\$ 4,442,339</b>

	<b>December 31, 2018</b>	<b>March 31, 2019</b>	<b>June 30, 2019</b>	<b>September 30, 2019</b>
Long-Term Debt	<b>46.62%</b>	<b>46.29%</b>	<b>46.37%</b>	<b>42.30%</b>
Short-Term Debt	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>4.69%</b>
Common Equity	<b>53.38%</b>	<b>53.71%</b>	<b>53.63%</b>	<b>53.00%</b>

**The Empire District Electric Company**

	<b>December 31, 2018</b>	<b>March 31, 2019</b>	<b>June 30, 2019</b>	<b>September 30, 2019</b>
Long-Term Debt	\$ 780,000	\$ 780,000	\$ 780,000	\$ 780,000
Common Equity	\$ 820,496	\$ 842,108	\$ 842,509	\$ 877,206
<b>Total</b>	<b>\$ 1,600,496</b>	<b>\$ 1,622,108</b>	<b>\$ 1,622,509</b>	<b>\$ 1,657,206</b>

	<b>December 31, 2018</b>	<b>March 31, 2019</b>	<b>June 30, 2019</b>	<b>September 30, 2019</b>
Long-Term Debt	<b>48.73%</b>	<b>48.09%</b>	<b>48.07%</b>	<b>47.07%</b>
Common Equity	<b>51.27%</b>	<b>51.91%</b>	<b>51.93%</b>	<b>52.93%</b>

Source: DR. Nos. 0185 and 0173

**Schedule PC-6**

**HAS BEEN DEEMED**

**CONFIDENTIAL**

**IN ITS ENTIRETY**

**The Empire District Electric Company  
Case No. ER-2019-0374**

**Selection Criteria**

		At Least 80% Assets U.S. Regulated	At Least Investment Grade Credit Rating (2 of 3 Agencies)	L-T Growth Coverage at least 2 equity Analysts and L- T Growth Available	No Pending Merger or Acquisition	At Least 25% of Electric Plant Generation	No Reduced Dividends Since 2016	At Least 50% of Plant From Electric Utility	At Least 80% of Income From U.S Regulated Utility Operations	Comparabl e Company Met All Criteria
<b>Edison Electric Institute Power Company</b>										
ALLETE, Inc.	ALE	NO								
Alliant Energy Corporation	LNT	YES	YES	YES	YES	YES	YES	YES	YES	YES
Ameren Corporation	AEE	YES	YES	YES	YES	YES	YES	YES	YES	YES
American Electric Power Company, Inc.	AEP	YES	YES	YES	YES	YES	YES	YES	YES	YES
Avangrid, Inc.	AGR	NO								
Avista Corporation	AVA	YES	YES	YES	YES	YES	YES	YES	YES	YES
Black Hills Corporation	BKH	YES	YES	YES	YES	YES	YES	YES	YES	YES
Broadwind Energy, Inc.	BWEN	NO								
Capstone Turbine Corp.	CPST	NO								
CenterPoint Energy, Inc.	CNP	NO								
CMS Energy Corporation	CMS	YES	YES	YES	YES	YES	YES	YES	YES	YES
Consolidated Edison, Inc.	ED	YES	YES	YES	YES	YES	YES	YES	YES	YES
Dominion Energy, Inc.	D	NO								
DTE Energy Company	DTE	NO								
Duke Energy Corporation	DUK	YES	YES	YES	YES	YES	YES	YES	YES	YES
Edison International	EIX	YES	YES	YES	YES	NO				
El Paso Electric Company	EE	YES	YES	YES	NO					
Entergy Corporation	ETR	YES	YES	YES	YES	YES	YES	YES	YES	Very Volatile
Evergy, Inc.	EVRG	YES	YES	YES	YES	YES	YES	YES	YES	YES
Eversource Energy	ES	YES	YES	YES	NO					
Exelon Corporation	EXC	NO								
FirstEnergy Corp.	FE	YES	NO							
Hawaiian Electric Industries, Inc.	HE	NO								
IDACORP, Inc.	IDA	YES	YES	YES	YES	YES	YES	YES	YES	YES
MDU Resources Group Inc.	MDU	NO								
MGE Energy, Inc.	MGEE	NO								
NextEra Energy, Inc.	NEE	NO								
NiSource Inc.	NI	YES	YES	YES	YES	YES	YES	YES	YES	YES
NorthWestern Corporation	NWE	YES	YES	YES	YES	YES	YES	YES	YES	YES
OGE Energy Corp.	OGE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Otter Tail Corporation	OTTR	YES	YES	NO						
PG&E Corporation	PCG	YES	NO							
Pinnacle West Capital Corporation	PNW	YES	YES	YES	YES	YES	YES	YES	YES	YES
PNM Resources, Inc.	PNM	YES	YES	YES	YES	YES	YES	YES	YES	YES
Portland General Electric Company	POR	YES	YES	YES	YES	YES	YES	YES	YES	YES
PPL Corporation	PPL	YES	YES	YES	YES	YES	YES	YES	NO	
Public Service Enterprise Group Incorporated	PEG	NO								
SCANA Corporation	SCG	YES	NO							
Sempra Energy	SRE	NO								
Southern Company	SO	YES	YES	YES	YES	YES	YES	YES	YES	YES
Unitil Corporation	UTL	YES	YES	YES	YES	NO(.84%)				
Vectren Corporation	WC	YES	NO							
WEC Energy Group, Inc.	WEC	YES	YES	YES	YES	YES	NO			
Xcel Energy Inc.	XEL	YES	YES	YES	YES	YES	YES	YES	YES	YES

**The Empire District Electric Company**  
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**Credit Ratings**

**Electric Proxy Group**

			S&P Corporate Credit Rating
Number	Ticker Symbol	Company Name	
1	LNT	Alliant Energy	A-
2	AEE	Ameren Corp.	BBB+
3	AEP	American Electric Power Company, Inc.	A-
4	AVA	Avista Corporation	BBB
5	CMS	CMS Energy Corporation	BBB+
6	DUK	Duke Energy Corporation	A-
7	EVRG	Evergy, Inc.	A-
8	IDA	IDACORP	BBB
9	NWE	NorthWestern Corporation	BBB
10	OGE	OGE Energy Corp.	BBB+
11	PNW	Pinnacle West Capital	A-
12	PNM	PNM Resources, Inc.	BBB+
13	POR	Portland General Electric Company	BBB+
14	SO	Southern Company	A-
15	XEL	Xcel Energy	A-
		<b>Average</b>	<u>BBB+</u>
		Empire District Electric Company	BBB

**Gas Proxy Group**

1	ATO	Atmos Energy Corporation	A
2	NWN	Northwest Natural Gas Company	A+
3	OGS	ONE Gas, Inc.	A
4	SWX	Southwest Gas Holdings, Inc.	BBB+
5	SR	Spire Missouri Inc.	A-
		<b>Average</b>	<u>A-</u>

**The Empire District Electric Company  
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**Ten-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates  
for the Fifteen Comparable Companies**

Company Name	DPS	EPS	BVPS	Average of 10 Year Annual Compound Growth Rates
Alliant Energy Corporation	7.05%	2.38%	4.83%	4.75%
Ameren Corporation	-3.49%	-0.39%	-0.36%	-1.42%
American Electric Power Company, Inc.	4.30%	0.28%	4.40%	2.99%
Avista Corporation	8.75%	5.37%	4.33%	6.15%
CMS Energy Corporation	21.73%	NM	5.16%	13.45%
Duke Energy Corporation	1.47%	2.29%	1.09%	1.62%
Evergy, Inc.	NM	NM	NM	NM
IDACORP, Inc.	6.44%	7.11%	5.81%	6.45%
NorthWestern Corporation	5.08%	9.56%	6.24%	6.96%
OGE Energy Corp.	6.42%	6.12%	7.91%	6.82%
Pinnacle West Capital Corporation	2.70%	4.78%	3.02%	3.50%
PNM Resources, Inc.	2.17%	NM	0.05%	1.11%
Portland General Electric Company	4.57%	3.19%	3.07%	3.61%
Southern Company	3.72%	-1.75%	3.98%	1.98%
Xcel Energy Inc.	4.67%	5.05%	4.87%	4.86%
<b>Average without Evergy</b>	<b>5.40%</b>	<b>3.66%</b>	<b>3.89%</b>	<b>4.49%</b>

Source: SNL Financial.

**The Empire District Electric Company  
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**Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates  
for the Fifteen Comparable Companies**

Company Name	----- 5-Year Annual Compound Growth Rates -----			Average of 5 Year Annual Compound Growth Rates
Company Name	DPS	EPS	BVPS	
Alliant Energy Corporation	7.01%	4.99%	5.10%	5.70%
Ameren Corporation	2.35%	6.31%	0.73%	3.13%
American Electric Power Company, Inc.	4.83%	0.34%	3.25%	2.81%
Avista Corporation	4.27%	4.75%	4.67%	4.56%
CMS Energy Corporation	7.24%	4.47%	5.25%	5.65%
Duke Energy Corporation	2.90%	2.42%	1.26%	2.19%
Evergy, Inc.	NM	NM	NM	NM
IDACORP, Inc.	10.17%	3.85%	5.12%	6.38%
NorthWestern Corporation	7.25%	6.84%	7.80%	7.29%
OGE Energy Corp.	9.67%	4.66%	5.95%	6.76%
Pinnacle West Capital Corporation	3.06%	4.73%	4.25%	4.01%
PNM Resources, Inc.	11.11%	-4.94%	0.83%	2.33%
Portland General Electric Company	4.54%	5.12%	3.63%	4.43%
Southern Company	3.44%	-4.80%	3.01%	0.55%
Xcel Energy Inc.	6.10%	4.80%	4.42%	5.11%
<b>Average</b>	<b>6.00%</b>	<b>3.11%</b>	<b>3.95%</b>	<b>4.35%</b>

Source: SNL Financial.



**The Empire District Electric Company  
Case No. ER-2019-0374**

**Historical and Projected Growth Rates for the  
Fifteen Comparable Electric Companies**

	(1)	(2)	(3)
	10-Year Historical Growth Rate EPS	5-Year Historical Growth Rate EPS	Projected 5-Year EPS Growth SNL (Mean) (%)
Company Name			
Alliant Energy Corporation	2.38%	4.99%	5.66%
Ameren Corporation	-0.39%	6.31%	6.28%
American Electric Power Company, Inc.	0.28%	0.34%	5.82%
Avista Corporation	5.37%	4.75%	3.98%
CMS Energy Corporation	NM	4.47%	6.89%
Duke Energy Corporation	2.29%	2.42%	4.57%
Evergy, Inc.	NM	NM	6.17%
IDACORP, Inc.	7.11%	3.85%	3.50%
NorthWestern Corporation	9.56%	6.84%	3.41%
OGE Energy Corp.	6.12%	4.66%	5.18%
Pinnacle West Capital Corporation	4.78%	4.73%	5.29%
PNM Resources, Inc.	NM	-4.94%	6.05%
Portland General Electric Company	3.19%	5.12%	4.63%
Southern Company	-1.75%	-4.80%	4.52%
Xcel Energy Inc.	5.05%	4.80%	5.43%
<b>Average</b>	<b>3.66%</b>	<b>3.11%</b>	<b>5.16%</b>

Sources: Column 1 = Schedule 10-4

Column 2 = Schedule 10-5.

Column 3 = SNL Financial

**The Empire District Electric Company  
Case No. ER-2019-0374**

**Constant-Growth Discounted Cash Flow (DCF) Estimated Costs of Common Equity  
for the Comparable Electric Utility Companies**

	(1)	(2)	(3)
Company Name	Expected Annual Dividend	Average High/Low Stock Price	Projected Dividend Yield
Alliant Energy Corporation	\$1.50	\$52.87	2.83%
Ameren Corporation	\$2.00	\$76.78	2.60%
American Electric Power Company, Inc.	\$2.79	\$92.32	3.02%
Avista Corporation	\$1.59	\$47.66	3.34%
CMS Energy Corporation	\$1.60	\$62.68	2.55%
Duke Energy Corporation	\$3.89	\$93.24	4.18%
Evergy, Inc.	\$3.74	\$116.65	3.21%
IDACORP, Inc.	\$2.62	\$108.32	2.42%
NorthWestern Corporation	\$2.37	\$72.90	3.25%
OGE Energy Corp.	\$1.57	\$43.46	3.62%
Pinnacle West Capital Corporation	\$3.15	\$92.74	3.40%
PNM Resources, Inc.	\$1.58	\$50.54	3.12%
Portland General Electric Company	\$1.60	\$56.13	2.85%
Southern Company	\$2.53	\$61.35	4.12%
Xcel Energy Inc.	\$1.64	\$63.11	2.59%
<b>Average</b>	<b>\$2.28</b>	<b>\$72.72</b>	<b>3.14%</b>

**Proposed Dividend Yield: 3.14%**

**Proposed Range of Growth: 4.20%-5.00%**

**Estimated Proxy Cost of Common Equity: 7.34% - 8.14%**

Notes: Column 1 = Expected Annual Dividend based on the sum of equity analysts' expected next four quarters of DPS.  
FactSet projected dividends per share according to SNL Financial.

Sources: Column 1 = SNL Financial  
Column 2 = Schedule 11.  
Column 3 = Column 1/Column 2

**The Empire District Electric Company  
Case No. ER-2019-0374**

**Reproduced Constant-Growth Discount Cash Flow (DCF)  
Estimated Costs of Common Equity for the Comparable  
Gas Utility Companies**

	(1)	(2)	(3)
	Expected	Last 3-Months Ending Nov. 30, 2019	Expected
	Dividend	Stock Price	Dividend Yield
Atmos Energy Corporation	2.39	83.59	2.85%
Northwest Gas Holding	1.90	69.19	2.75%
ONE Gas, Inc.	2.14	110.60	1.93%
Southwest Gas Holdings, Inc.	2.00	91.94	2.18%
Spire Missouri Inc.	2.17	86.30	2.51%
Average Dividend Yield			<b>2.45%</b>
<b>Proposed Dividend Yield</b>			<b>2.45%</b>
<b>Proposed Range of Growth</b>			<b><u>4.20%-5.00%</u></b>
<b>Estimated Proxy Cost of Equity</b>			<b><u><u>6.65% - 7.45%</u></u></b>

Source:

Column: 1	SNL Analyst Projected Dividends
Column: 2	3 Month Ending November 30 Stock Price Average
Column: 3	Column 1 divide by Column 2

**The Empire District Electric Company**  
**Case No. ER-2019-0374**

**Reproduced Constant-Growth Discounted Cash Flow (DCF) for  
Comparable Gas Utility Companies**

Company	(1) Expected Annual Dividend	(2) Average 3-Month Stock Price	(3) Projected Dividend Yield
Atmos Energy Corporation	\$ 1.89	\$ 82.04	2.30%
Northwest Gas Holding	\$ 1.89	\$ 60.46	3.13%
ONE Gas, Inc.	\$ 1.76	\$ 69.73	2.52%
Southwest Gas Holdings, Inc.	\$ 2.03	\$ 79.89	2.54%
Spire Missouri Inc.	\$ 2.15	\$ 69.85	3.08%
Average			<u>2.71%</u>

**Proposed Dividend Yield: 2.70%**

**Proposed Range of Growth: 4.20% - 5.00%**

**Estimated Proxy Cost of Common Equity: 6.90% - 7.70%**

Notes: Column 1 = Expected Annual Dividend based on the sum of equity analysts' expected next four quarters of DPS.

Column 3 = (Column 1/Column 2)

Sources: Columns 1 and 2 = SNL Financial

**The Empire District Electric Company  
Case No. ER-2019-0374**

**Capital Asset Pricing Model (CAPM) Estimated Costs of Common Equity for Comparable Electric Utility Companies**

	(1)	(2)	(3)	(4)	(5)	(6)
			Arithmetic Average Market Risk Premium (1926-2018)	Geometric Average Market Risk Premium (1926-2013)	Arithmetic CAPM Cost of Common Equity (1926-2014)	Geometric CAPM Cost of Common Equity (1926-2014)
Company Name	Risk Free Rate	Beta				
Alliant Energy Corporation	2.21%	0.56	6.00%	4.50%	5.56%	4.72%
Ameren Corporation	2.21%	0.54	6.00%	4.50%	5.44%	4.63%
American Electric Power Company, Inc.	2.21%	0.54	6.00%	4.50%	5.44%	4.63%
Avista Corporation	2.21%	0.57	6.00%	4.50%	5.64%	4.78%
CMS Energy Corporation	2.21%	0.50	6.00%	4.50%	5.23%	4.48%
Duke Energy Corporation	2.21%	0.47	6.00%	4.50%	5.03%	4.33%
Evergy, Inc.	2.21%	0.44	6.00%	4.50%	4.83%	4.18%
IDACORP, Corp	2.21%	0.58	6.00%	4.50%	5.68%	4.81%
NorthWestern Corporation	2.21%	0.56	6.00%	4.50%	5.60%	4.75%
OGE Energy Corp.	2.21%	0.64	6.00%	4.50%	6.04%	5.08%
Pinnacle West Capital Corporation	2.21%	0.52	6.00%	4.50%	5.32%	4.54%
PNM Resources, Inc.	2.21%	0.59	6.00%	4.50%	5.76%	4.87%
Portland General Electric Company	2.21%	0.54	6.00%	4.50%	5.48%	4.66%
Southern Company	2.21%	0.50	6.00%	4.50%	5.23%	4.48%
Xcel Energy Inc.	2.21%	0.50	6.00%	4.50%	5.19%	4.45%
<b>Average</b>		<b>0.54</b>			<b>5.43%</b>	<b>4.63%</b>

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for September 2019, October 2019, and November 2019, which was obtained from the St. Louis Federal Reserve website at <http://research.stlouisfed.org/fred2/data/GS30.txt>

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. Staff calculated the unadjusted Beta for each company using an Excel spreadsheet designed specifically to be used with the SNL database market and financial information, then adjusted each Beta using the Blume adjustment formula as used by Value Line: Adjusted Beta = 0.35 + 0.67 \* Unadjusted Beta

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2018 was determined to be 6.00% based on an arithmetic average as calculated in Duff & Phelps 2019 Valuation Handbook: A Guide to the Cost of Capital.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2018 was determined to be 4.50% based on a geometric average calculated by using the arithmetic average as calculated in Duff & Phelps 2019 Valuation Handbook: A Guide to the Cost of Capital.

Column 5 = (Column 1 + (Column 2 \* Column 3)).

Column 6 = (Column 1 + (Column 2 \* Column 4)).

**The Empire District Electric Company  
Case No. ER-2019-0374**

**Capital Asset Pricing Model (CAPM) Estimated Costs of Common Equity for Comparable Gas Utility Companies**

	(1)	(2)	(3)	(4)	(5)	(6)
			Arithmetic Average Market Risk Premium (1926-2018)	Geometric Average Market Risk Premium (1926-2018)	Arithmetic CAPM Cost of Common Equity (1926-2018)	Geometric CAPM Cost of Common Equity (1926-2018)
Company Name	Risk Free Rate	Beta				
Atmos Energy Corporation	2.21%	0.57	6.00%	4.50%	5.64%	4.78%
Northwest Gas Holding	2.21%	0.59	6.00%	4.50%	5.76%	4.87%
ONE Gas, Inc.	2.21%	0.62	6.00%	4.50%	5.96%	5.02%
Southwest Gas Holdings, Inc	2.21%	0.61	6.00%	4.50%	5.88%	4.96%
Spire Inc.	2.21%	0.60	6.00%	4.50%	5.80%	4.90%
<b>Average</b>		<b>0.60</b>			<b>5.81%</b>	<b>4.91%</b>

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for September 2019, October 2019, and November 2019 which was obtained from the St. Louis Federal Reserve website at <http://research.stlouisfed.org/fred2/data/GS30.txt>

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. Staff calculated the unadjusted Beta for each company using an Excel spreadsheet designed specifically to be used with the SNL database market and financial information, then adjusted each Beta using the Blume adjustment formula as used by Value Line: Adjusted Beta = 0.35 + 0.67 \* Unadjusted Beta

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2018 was determined to be 6.00% based on an arithmetic average as calculated in Duff & Phelps 2019 Valuation Handbook: A Guide to the Cost of Capital.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2018 was determined to be 4.50% based on a geometric average calculated by using the arithmetic average as calculated in Duff & Phelps 2019 Valuation Handbook: A Guide to the Cost of Capital.

Column 5 = (Column 1 + (Column 2 \* Column 3))

Column 6 = (Column 1 + (Column 2 \* Column 4))

**The Empire District Electric Company  
Case No. ER-2019-0374**

**Reproduced Capital Asset Pricing Model (CAPM) Estimated Costs of Common Equity for Comparable Gas Utility Companies**

	(1)	(2)	(3)	(4)	(5)	(6)
			Arithmetic Average Market Risk Premium (1926-2016)	Geometric Average Market Risk Premium (1926-2016)	Arithmetic CAPM Cost of Common Equity (1926-2016)	Geometric CAPM Cost of Common Equity (1926-2016)
Company Name	Risk Free Rate	Beta				
Atmos Energy Corporation	2.90%	0.71	6.00%	4.50%	7.17%	6.10%
Northwest Gas Holding	2.90%	0.66	6.00%	4.50%	6.89%	5.89%
ONE Gas, Inc.	2.90%	0.77	6.00%	4.50%	7.53%	6.37%
Southwest Gas Holdings, Inc.	2.90%	0.71	6.00%	4.50%	7.16%	6.10%
Spire Inc.	2.90%	0.67	6.00%	4.50%	6.93%	5.92%
<b>Average</b>		<b>0.71</b>			<b>7.14%</b>	<b>6.08%</b>

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for April 2017, May 2017, and June 2017 which was obtained from the St. Louis Federal Reserve website at <http://research.stlouisfed.org/fred2/data/GS30.txt>

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole. Staff calculated the unadjusted Beta for each company using an Excel spreadsheet designed specifically to be used with the SNL database market and financial information, then adjusted each Beta using the Blume adjustment formula as used by Value Line: Adjusted Beta = 0.35 + 0.67 \* Unadjusted Beta

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2016 was determined to be 6.00% based on an arithmetic average as calculated in Duff & Phelps 2019 Valuation Handbook: A Guide to the Cost of Capital.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium for the period 1926 - 2016 was determined to be 4.50% based on a geometric average calculated by using the arithmetic average as calculated in Duff & Phelps 2017 Valuation Handbook: A Guide to the Cost of Capital.

Column 5 = (Column 1 +(Column 2 \* Column 3))

Column 6 = (Column 1 + (Column 2 \* Column 4))

**The Empire District Electric Company  
Case No. ER-2019-0374**

**Summary of Staff's Cost of Equity Estimates**

**Current Cost of Equity Estimates for the Electric Proxy Group**

DCF Range of Growth %	<u>4.20%</u>	<u>5.00%</u>	<b>Average</b>
DCF	7.34%	8.14%	<b>7.74%</b>
	<u>Geometric Arithmetic</u>		
CAPM	4.63%	5.43%	<b>5.03%</b>
	<b>Average</b>		<b>6.39%</b>

**Current Cost of Equity Estimates for the Gas Proxy Group**

DCF Range of Growth %	<u>4.20%</u>	<u>5.00%</u>	<b>Average</b>
DCF	6.65%	7.45%	<b>7.05%</b>
	<u>Geometric Arithmetic</u>		
CAPM	4.91%	5.81%	<b>5.36%</b>
	<b>Average</b>		<b>6.21%</b>

**Reproduced Cost of Equity Estimates for the Gas Proxy Group in the Spire Missouri Cases No. GR-2017-0215 and GR-2017-0216**

DCF Range of Growth %	<u>4.20%</u>	<u>5.00%</u>	<b>Average</b>
DCF	6.91%	7.71%	<b>7.31%</b>
	<u>Geometric Arithmetic</u>		
CAPM	6.08%	7.14%	<b>6.61%</b>
	<b>Average</b>		<b>6.96%</b>

Average COE Difference Between Updated Spire Case and Last Spire Case <sup>1</sup>	-0.75%
COE Differential Between Electric Proxy Group and Gas Proxy <sup>2</sup>	0.18%
	-0.57%
Commission Allowed ROE in Spire rate cases <sup>3</sup>	9.80%
	-0.57%
	9.23%
<b>Staff Recommended Allowed ROE</b>	<b>9.25%</b>

<sup>1</sup> (6.96%-6.21%)

<sup>2</sup> (6.39%-6.21%)

<sup>3</sup> GR-2017-0215 & GR-2017-0216



**The Empire District Electric Company  
Case No. ER-2019-0374**

**Recommended Allowed Rate of Return as of October 31, 2019  
for The Empire District Electric Company**

Allowed Rate of Return Using  
Common Equity Return of:

Capital Component	Percentage of Capital	Embedded Cost	9.05%	<b>9.25%</b>	9.80%
Common Stock Equity	52.90%	-----	4.79%	<b>4.89%</b>	5.18%
Long-Term Debt	47.10%	4.76%	2.24%	<b>2.24%</b>	2.24%
Total	<b>100.00%</b>		7.03%	<b>7.14%</b>	7.43%

Notes:

See Schedule 7 for the Capital Structure Ratios.