# **SURREBUTTAL TESTIMONY**

# **FOR**

**AMEREN MISSOURI** 

CASE NO. GR-2021-0241
ATTACHMENT 1
SCHEDULES

BY

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**Financial Analysis** 

MISSOURI PUBLIC SERVICE COMMISSION

**November 5, 2021** 

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#### Federal Reserve Discount Rates Changes and Federal Reserve Funds Rates Changes

	Federal Reserve	Federal Reserve		Federal Reserve	Federal Reserve
Date	Discount Rate	Funds Rate	Date	Discount Rate	Funds Rate
01/01/83	8.50%		01/04/01	5.50%	6.00%
12/31/83	8.50%		01/31/01	5.00%	5.50%
04/09/84	9.00%		03/20/01	4.50%	5.00%
11/21/84	8.50%		04/18/01	4.00%	4.50%
12/24/84	8.00%		05/15/01	3.50%	4.00%
05/20/85	7.50%		06/27/01	3.25%	3.75%
03/07/86	7.00%		08/21/01	3.00%	3.50%
04/21/86	6.50%		09/17/01	2.50%	3.00%
07/11/86	6.00%		10/02/01	2.00%	2.50%
08/21/86	5.50%		11/06/01	1.50%	2.00%
09/04/87	6.00%		12/11/01	1.25%	1.75%
08/09/88	6.50%		11/06/02	0.75%	1.25%
02/24/89	7.00%		01/09/03	2.25%	* 1.25%
07/13/90		8.00% *	06/25/03	2.00%	1.00%
10/29/90		7.75%	06/30/04	2.25%	1.25%
11/13/90		7.50%	08/10/04	2.50%	1.50%
12/07/90		7.25%	09/21/04	2.75%	1.75%
12/18/90		7.00%	11/10/04	3.00%	2.00%
12/19/90	6.50%		12/14/04	3.25%	2.25%
01/09/91		6.75%	02/02/05	3.50%	2.50%
02/01/91	6.00%	6.25%	03/22/05	3.75%	2.75%
03/08/91		6.00%	05/03/05	4.00%	3.00%
04/30/91	5.50%	5.75%	06/30/05	4.25%	3.25%
08/06/91		5.50%	08/09/05	4.50%	3.50%
09/13/91	5.00%	5.25%	09/20/05	4.75%	3.75%
10/31/91	0.0070	5.00%	11/01/05	5.00%	4.00%
11/06/91	4.50%	4.75%	12/13/05	5.25%	4.25%
12/06/91	4.0070	4.50%	01/31/06	5.50%	4.50%
12/20/91	3.50%	4.00%	03/28/06	5.75%	4.75%
04/09/92	3.3070	3.75%	05/10/06	6.00%	5.00%
07/02/92	3.00%	3.25%	06/29/06	6.25%	5.25%
09/04/92	3.0070	3.00%	08/17/07	5.75%	5.25%
01/01/93		3.0070	09/18/07	5.25%	4.75%
12/31/93	No Changes	No Changes	10/31/07	5.00%	4.73%
02/04/94	140 Changes	3.25%	12/11/07	4.75%	4.25%
03/22/94		3.50%	01/22/08	4.00%	3.50%
03/22/94		3.75%	01/22/08	3.50%	3.00%
	2 500/				
05/17/94	3.50%	4.25%	03/16/08	3.25%	2.25%
08/16/94	4.00%	4.75%	03/18/08	2.50%	2.25%
11/15/94	4.75%	5.50%	04/30/08	2.25%	2.00% 1.50%
02/01/95	5.25%	6.00%	10/08/08	1.75%	
07/06/95		5.75%	10/28/08	1.25%	1.00%
12/19/95		5.50%	12/30/08	0.50%	0%25%
01/31/96	5.00%	5.25%	02/19/10	0.75%	0%25%
03/25/97		5.50%	12/17/15	1.00%	0.38%
12/12/97	5.00%		12/15/16	1.25%	0.54%
01/09/98	5.00%		03/16/17	1.50%	0.79%
03/06/98	5.00%	5.25%	06/15/17	1.75%	1.04% 1.30%
09/29/98 10/15/98	4.75%	5.25%	12/14/17 03/22/18	2.00% 2.25%	1.51%
11/17/98	4.50%	4.75%	06/14/18	2.50%	1.82%
06/30/99	4.50%	5.00%	09/27/18	2.75%	1.95%
08/24/99	4.75%	5.25%	12/20/18	3.00%	2.27%
11/16/99	5.00%	5.50%	08/01/19	2.75%	2.13%
02/02/00	5.25%	5.75%	09/19/19	2.50%	2.04%
03/21/00	5.50%	6.00%	10/31/19	2.25%	1.83%
05/19/00	6.00% 5.75%	6.50% 6.00%	03/04/20	1.75% 0.25%	0.65%
01/03/01	5.75%	0.00%	03/16/20	0.25%	0.05%

<sup>\*</sup> Staff began tracking the Federal Funds Rate.

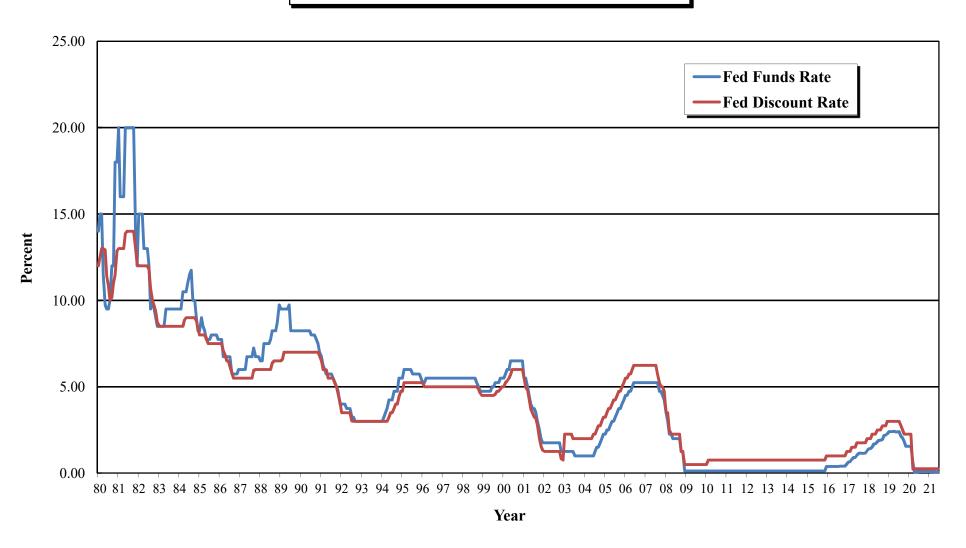
Source:

Federal Reserve Discount rate <a href="https://fred.stlouisfed.org/series/INTDSRUSM193N">https://fred.stlouisfed.org/series/INTDSRUSM193N</a>
Federal Reserve Funds rate <a href="https://fred.stlouisfed.org/series/FEDFUNDS">https://fred.stlouisfed.org/series/FEDFUNDS</a>

Note: Interest rates as of December 31 for each year are underlined.

<sup>\*\*</sup>Revised discount window program begins. Reflects rate on primary credit. This revised discount window policy results in incomparability of the discount rates after January 9, 2003 to discount rates before January 9, 2003.

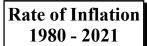
#### Federal Reserve Discount Rates and Federal Funds Rates 1980 - 2021

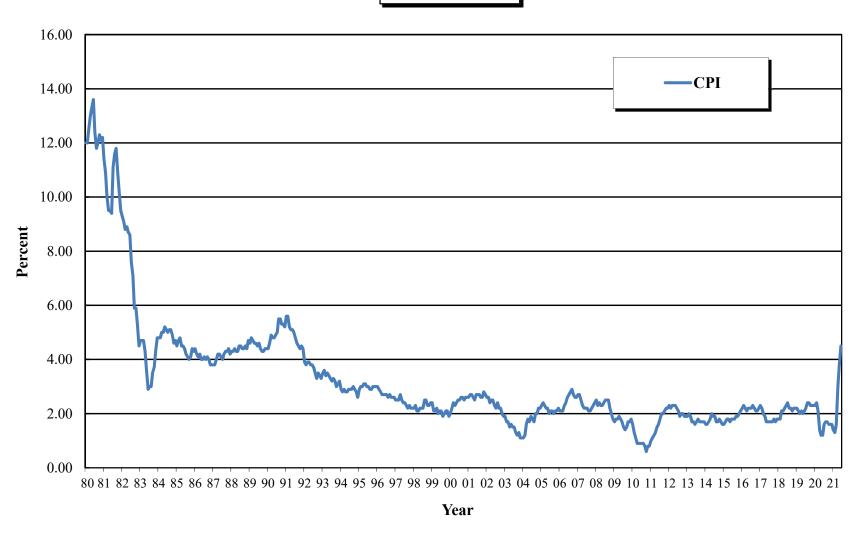


#### Rate of Inflation

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1980	12.00	Jan 1986	4.40	Jan 1992	3.90	Jan 1998	2.20	Jan 2004	1.10	Jan 2010	1.60	Jan 2016	2.20
Feb	12.00	Feb	4.20	Feb	3.80	Feb	2.30	Feb	1.20	Feb	1.30	Feb	2.30
Mar Apr	12.50 13.00	Mar Apr	4.10 4.20	Mar Apr	3.90 3.90	Mar Apr	2.10 2.10	Mar Apr	1.60 1.80	Mar April	1.10 0.90	Mar Apr	2.20 2.10
May	13.30	May	4.00	May	3.80	May	2.20	May	1.70	May	0.90	May	2.20
Jun	13.60	Jun	4.00	Jun	3.80	Jun	2.20	Jun	1.90	Jun	0.90	Jun	2.20
Jul	12.40	Jul	4.10	Jul	3.70	Jul	2.20	Jul	1.80	Jul	0.90	Jul	2.20
Aug	11.80	Aug	4.00	Aug	3.50	Aug	2.50	Aug	1.70	Aug	0.90	Aug	2.30
Sep	12.00	Sep	4.10	Sep	3.30	Sep	2.50	Sep	2.00	Sep	0.80	Sep	2.20
Oct	12.30	Oct	4.00	Oct	3.50	Oct	2.30	Oct	2.00	Oct	0.60	Oct	2.10
Nov	12.10	Nov	3.80	Nov	3.40	Nov	2.30	Nov	2.20	Nov	0.80	Nov	2.10
Dec Jan 1981	12.20 11.40	Dec Jan 1987	3.80 3.80	Dec Jan 1993	3.30 3.50	Dec Jan 1999	2.40 2.40	Dec Jan 2005	2.20 2.30	Dec Jan 2011	0.80 1.00	Dec Jan 2017	2.20 2.30
Feb	10.90	Feb	3.80	Feb	3.60	Feb	2.10	Feb	2.40	Feb	1.10	Feb	2.20
Mar	10.00	Mar	4.00	Mar	3.40	Mar	2.10	Mar	2.30	Mar	1.20	Mar	2.00
Apr	9.50	Apr	4.20	Apr	3.50	Apr	2.20	Apr	2.20	Apr	1.30	Apr	1.90
May	9.50	May	4.20	May	3.40	May	2.00	May	2.20	May	1.50	May	1.70
Jun	9.40	Jun	4.10	Jun	3.30	Jun	2.10	Jun	2.00	Jun	1.60	Jun	1.70
Jul	11.10	Jul	4.00	Jul	3.20	Jul	2.10	Jul	2.10	Jul	1.80	July	1.70
Aug Sep	11.60 11.80	Aug Sep	4.20 4.30	Aug Sep	3.30 3.20	Aug Sep	1.90 2.00	Aug Sep	2.10 2.00	Aug Sep	2.00 2.00	Aug Sep	1.70 1.70
Oct	10.90	Oct	4.30	Oct	3.00	Oct	2.10	Oct	2.10	Oct	2.10	Oct	1.80
Nov	10.20	Nov	4.40	Nov	3.10	Nov	2.10	Nov	2.10	Nov	2.20	Nov	1.70
Dec	9.50	Dec	4.20	Dec	3.20	Dec	1.90	Dec	2.20	Dec	2.20	Dec	1.80
Jan 1982	9.30	Jan 1988	4.30	Jan 1994	2.90	Jan 2000	2.00	Jan 2006	2.10	Jan 2012	2.30	Jan 2018	1.80
Feb	9.10	Feb	4.30	Feb	2.80	Feb	2.20	Feb	2.10	Feb	2.20	Feb	1.80
Mar	8.80	Mar	4.40	Mar	2.90	Mar	2.40	Mar	2.10	Mar	2.30	Mar	2.10
Apr	8.90	Apr	4.30	Apr	2.80	Apr	2.30	Apr	2.30	Apr	2.30	Apr	2.10
May Jun	8.70 8.60	May Jun	4.30 4.50	May Jun	2.80 2.90	May Jun	2.40 2.50	May June	2.40 2.60	May Jun	2.30 2.20	May Jun	2.20 2.30
Jul	7.60	Jul	4.50	Jul	2.90	Jul	2.50	July	2.70	Jul	2.10	Jul	2.40
Aug	7.10	Aug	4.40	Aug	2.90	Aug	2.60	Aug	2.80	Aug	1.90	Aug	2.20
Sep	5.90	Sep	4.40	Sep	3.00	Sep	2.60	Sep	2.90	Sep	2.00	Sep	2.20
Oct	5.90	Oct	4.50	Oct	2.90	Oct	2.50	Oct	2.70	Oct	2.00	Oct	2.10
Nov	5.30	Nov	4.40	Nov	2.80	Nov	2.60	Nov	2.60	Nov	1.90	Nov	2.20
Dec	4.50	Dec	4.70	Dec	2.60	Dec Jan 2001	2.60 2.60	Dec Jan 2007	2.60	Dec	1.90	Dec	2.20
Jan 1983 Feb	4.70 4.70	Jan 1989 Feb	4.60 4.80	Jan 1995 Feb	2.90 3.00	Feb	2.70	Feb	2.70 2.70	Jan 2013 Feb	1.90 2.00	Jan 2019 Feb	2.20 2.10
Mar	4.70	Mar	4.70	Mar	3.00	Mar	2.70	Mar	2.50	Mar	1.90	Mar	2.00
Apr	4.30	Apr	4.60	Apr	3.10	Apr	2.60	Apr	2.30	Apr	1.70	Apr	2.10
May	3.60	May	4.60	May	3.10	May	2.50	May	2.20	May	1.70	May	2.00
Jun	2.90	Jun	4.50	Jun	3.00	Jun	2.70	Jun	2.20	Jun	1.60	Jun	2.10
Jul	3.00	Jul	4.60	Jul	3.00	Jul	2.70	Jul	2.20	Jul	1.70	Jul	2.20
Aug	3.00	Aug	4.40	Aug	2.90	Aug	2.70	Aug	2.10	Aug	1.80	Aug	2.40
Sep Oct	3.50 3.70	Sep Oct	4.30 4.30	Sep Oct	2.90 3.00	Sep Oct	2.60 2.60	Sep Oct	2.10 2.20	Sept Oct	1.70 1.70	Sept Oct	2.40 2.30
Nov	4.30	Nov	4.40	Nov	3.00	Nov	2.80	Nov	2.30	Nov	1.70	Nov	2.30
Dec	4.80	Dec	4.40	Dec	3.00	Dec	2.70	Dec	2.40	Dec	1.70	Dec	2.30
Jan 1984	4.80	Jan 1990	4.40	Jan 1996	3.00	Jan 2002	2.60	Jan 2008	2.50	Jan 2014	1.60	Jan 2020	2.30
Feb	4.80	Feb	4.60	Feb	2.90	Feb	2.60	Feb	2.30	Feb	1.60	Feb	2.40
Mar	5.00	Mar	4.90	Mar	2.80	Mar	2.40	Mar	2.40	Mar	1.70	Mar	2.10
Apr	5.00 5.20	Apr May	4.80 4.80	Apr May	2.70 2.70	Apr May	2.50 2.50	Apr May	2.30 2.30	Apr May	1.80 2.00	Apr May	1.40 1.20
May Jun	5.10	Jun	4.90	Jun	2.70	Jun	2.30	Jun	2.40	Jun	1.90	Jun	1.20
Jul	5.00	Jul	5.00	Jul	2.70	Jul	2.20	Jul	2.50	Jul	1.90	Jul	1.60
Aug	5.10	Aug	5.50	Aug	2.60	Aug	2.40	Aug	2.50	Aug	1.70	Aug	1.70
Sep	5.10	Sep	5.50	Sep	2.70	Sep	2.20	Sep	2.50	Sep	1.70	Sep	1.70
Oct	4.90	Oct	5.30	Oct	2.60	Oct	2.20	Oct	2.20	Oct	1.80	Oct	1.60
Nov	4.60	Nov	5.30	Nov	2.60	Nov	2.00	Nov	2.00	Nov	1.70	Nov	1.60
Dec Jan 1985	4.70 4.50	Dec Jan 1991	5.20 5.60	Dec Jan 1997	2.60 2.50	Dec Jan 2003	1.90 1.90	Dec Jan 2009	1.80 1.70	Dec Jan 2015	1.60 1.60	Dec Jan 2021	1.60 1.40
Feb	4.70	Feb	5.60	Feb	2.50	Feb	1.70	Feb	1.80	Feb	1.70	Feb	1.30
Mar	4.80	Mar	5.20	Mar	2.50	Mar	1.70	Mar	1.80	Mar	1.80	Mar	1.60
Apr	4.50	Apr	5.10	Apr	2.70	Apr	1.50	Apr	1.90	Apr	1.80	Apr	3.00
May	4.50	May	5.10	May	2.50	May	1.60	May	1.80	May	1.70	May	3.80
Jun	4.40	Jun	5.00	Jun	2.40	Jun	1.50	Jun	1.70	Jun	1.80	Jun	4.50
Jul	4.20	Jul	4.80	Jul	2.40	Jul	1.50	Jul	1.50	Jul	1.80	Jul	4.30
Aug Sep	4.10 4.00	Aug Sep	4.60 4.50	Aug Sep	2.30 2.20	Aug Sep	1.30 1.20	Aug Sep	1.40 1.50	Aug Sep	1.80 1.90	Aug Sep	4.00 4.00
Oct	4.10	Oct	4.40	Oct	2.30	Oct	1.30	Oct	1.70	Oct	1.90	Oct	4.00
Nov	4.40	Nov	4.50	Nov	2.20	Nov	1.10	Nov	1.70	Nov	2.00	Nov	
Dec	4.30	Dec	4.40	Dec	2.20	Dec	1.10	Dec	1.80	Dec	2.10	Dec	

Source: U.S. Dept. of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers less food and energy, Change for 12-Month Period, Bureau of Labor Statistics, https://www.bls.gov/cpi/data.htm





#### Average Yields on Moody's Public Utility Bonds

Mo/Year Jan 1980	Rate (%) 12.12	Mo/Year Jan 1986	Rate (%) 10.66	Mo/Year Jan 1992	Rate (%) 8.67	Mo/Year Jan 1998	Rate (%) 7.03	Mo/Year Jan 2004	Rate (%) 6.23	Mo/Year Jan 2010	Rate (%) 5.83	Mo/Year Jan 2016	Rate (%) 4.62
Feb	13.48	Feb	10.16	Feb	8.77	Feb	7.09	Feb	6.17	Feb	5.94	Feb	4.44
Mar	14.33	Mar	9.33	Mar	8.84	Mar	7.13	Mar	6.01	Mar	5.90	Mar	4.40
Apr	13.50	Apr	9.02	Apr	8.79	Apr	7.12	Apr	6.38	April	5.87	Apr	4.16
May	12.17	May	9.52	May	8.72	May	7.11	May	6.68	May	5.59	May	4.06
Jun	11.87	Jun	9.51	Jun	8.64	Jun	6.99	Jun	6.53	Jun	5.62	Jun	3.93
Jul	12.12	Jul	9.19	Jul	8.46	Jul Aug	6.99	Jul	6.34	Jul	5.41	Jul	3.70
Aug Sep	12.82 13.29	Aug Sep	9.15 9.42	Aug Sep	8.34 8.32	Sep	6.96 6.88	Aug Sep	6.18 6.01	Aug Sep	5.10 5.10	Aug Sep	3.73 3.80
Oct	13.29	Oct	9.39	Oct	8.44	Oct	6.88	Oct	5.95	Oct	5.20	Oct	3.90
Nov	14.07	Nov	9.15	Nov	8.53	Nov	6.96	Nov	5.97	Nov	5.45	Nov	4.21
Dec	14.48	Dec	8.96	Dec	8.36	Dec	6.84	Dec	5.93	Dec	5.64	Dec	4.39
Jan 1981	14.22	Jan 1987	8.77	Jan 1993	8.23	Jan 1999	6.87	Jan 2005	5.80	Jan 2011	5.64	Jan 2017	4.24
Feb	14.84	Feb	8.81	Feb	8.00	Feb	7.00	Feb	5.64	Feb	5.73	Feb	4.25
Mar	14.86	Mar	8.75	Mar	7.85	Mar	7.18	Mar	5.86	Mar	5.62	Mar	4.30
Apr	15.32	Apr	9.30	Apr	7.76	Apr	7.16	Apr	5.72	Apr	5.62	Apr	4.19
May	15.84	May	9.82	May	7.78	May	7.42	May	5.60	May	5.38	May	4.19
Jun	15.27	Jun	9.87	Jun	7.68	Jun	7.70	Jun	5.39	Jun	5.32	Jun	4.01
Jul	15.87 16.33	Jul Aug	10.01 10.33	Jul Aug	7.53 7.21	Jul Aug	7.66 7.86	Jul Aug	5.50 5.51	Jul Aug	5.34 4.78	July Aug	4.06 3.92
Aug Sep	16.89	Sep	11.00	Sep	7.01	Sep	7.87	Sep	5.54	Sep	4.61	Sep	3.93
Oct	16.76	Oct	11.32	Oct	6.99	Oct	8.02	Oct	5.79	Oct	4.66	Oct	3.97
Nov	15.50	Nov	10.82	Nov	7.30	Nov	7.86	Nov	5.88	Nov	4.37	Nov	3.88
Dec	15.77	Dec	10.99	Dec	7.33	Dec	8.04	Dec	5.83	Dec	4.47	Dec	3.85
Jan 1982	16.73	Jan 1988	10.75	Jan 1994	7.31	Jan 2000	8.22	Jan 2006	5.77	Jan 2012	4.48	Jan 2018	3.91
Feb	16.72	Feb	10.11	Feb	7.44	Feb	8.10	Feb	5.83	Feb	4.47	Feb	4.15
Mar	16.07	Mar	10.11	Mar	7.83	Mar	8.14	Mar	5.98	Mar	4.59	Mar	4.21
Apr	15.82	Apr	10.53	Apr	8.20	Apr	8.14	Apr	6.28	Apr	4.54	Apr	4.24
May	15.60	May	10.75	May	8.32	May	8.56	May	6.39	May	4.36	May	4.36
Jun	16.18	Jun	10.71	Jun	8.31 8.47	Jun	8.22	June	6.39	Jun	4.26	Jun	4.37
Jul	16.04 15.22	Jul	10.96 11.09	Jul	8.41	Jul	8.17 8.06	July Aug	6.37 6.20	Jul	4.12 4.18	Jul	4.35 4.33
Aug Sep	14.56	Aug Sep	10.56	Aug Sep	8.65	Aug Sep	8.15	Sep	6.03	Aug Sep	4.17	Aug Sep	4.41
Oct	13.88	Oct	9.92	Oct	8.88	Oct	8.08	Oct	6.01	Oct	4.04	Oct	4.56
Nov	13.58	Nov	9.89	Nov	9.00	Nov	8.03	Nov	5.82	Nov	3.95	Nov	4.65
Dec	13.55	Dec	10.02	Dec	8.79	Dec	7.79	Dec	5.83	Dec	4.10	Dec	4.51
Jan 1983	13.46	Jan 1989	10.02	Jan 1995	8.77	Jan 2001	7.76	Jan 2007	5.96	Jan 2013	4.24	Jan 2019	4.48
Feb	13.60	Feb	10.02	Feb	8.56	Feb	7.69	Feb	5.91	Feb	4.29	Feb	4.35
Mar	13.28	Mar	10.16	Mar	8.41	Mar	7.59	Mar	5.87	Mar	4.29	Mar	4.26
Apr	13.03	Apr	10.14	Apr	8.30	Apr	7.81	Apr	6.01	Apr	4.08	Apr	4.18
May	13.00	May	9.92	May	7.93	May	7.88	May	6.03	May	4.24	May	4.10
Jun Jul	13.17 13.28	Jun Jul	9.49 9.34	Jun Jul	7.62 7.73	Jun Jul	7.75 7.71	Jun Jul	6.34 6.28	Jun Jul	4.63 4.78	Jun Jul	3.93 3.79
Aug	13.50	Aug	9.37	Aug	7.86	Aug	7.57	Aug	6.28	Aug	4.85	Aug	3.36
Sep	13.35	Sep	9.43	Sep	7.62	Sep	7.73	Sep	6.24	Sept	4.90	Sept	3.44
Oct	13.19	Oct	9.37	Oct	7.46	Oct	7.64	Oct	6.17	Oct	4.78	Oct	3.45
Nov	13.33	Nov	9.33	Nov	7.40	Nov	7.61	Nov	6.04	Nov	4.86	Nov	3.48
Dec	13.48	Dec	9.31	Dec	7.21	Dec	7.86	Dec	6.23	Dec	4.88	Dec	3.45
Jan 1984	13.40	Jan 1990	9.44	Jan 1996	7.20	Jan 2002	7.69	Jan 2008	6.08	Jan 2014	4.72	Jan 2020	3.34
Feb	13.50	Feb	9.66	Feb	7.37	Feb	7.62	Feb	6.28	Feb	4.64	Feb	3.16
Mar	14.03	Mar	9.75	Mar	7.72	Mar	7.83	Mar	6.29	Mar	4.64	Mar	3.59
Apr May	14.30 14.95	Apr May	9.87 9.89	Apr May	7.88 7.99	Apr May	7.74 7.76	Apr May	6.36 6.38	Apr May	4.52 4.37	Apr May	3.31 3.22
Jun	15.16	Jun	9.69	Jun	8.07	Jun	7.67	Jun	6.50	Jun	4.42	Jun	3.10
Jul	14.92	Jul	9.66	Jul	8.02	Jul	7.54	Jul	6.50	Jul	4.35	Jul	2.77
Aug	14.29	Aug	9.84	Aug	7.84	Aug	7.34	Aug	6.48	Aug	4.28	Aug	2.76
Sep	14.04	Sep	10.01	Sep	8.01	Sep	7.23	Sep	6.59	Sep	4.40	Sep	2.88
Oct	13.68	Oct	9.94	Oct	7.76	Oct	7.43	Oct	7.70	Oct	4.24	Oct	2.98
Nov	13.15	Nov	9.76	Nov	7.48	Nov	7.31	Nov	7.80	Nov	4.29	Nov	2.89
Dec	12.96	Dec	9.57	Dec	7.58	Dec	7.20	Dec	6.87	Dec	4.18	Dec	2.80
Jan 1985	12.88	Jan 1991	9.56	Jan 1997	7.79	Jan 2003	7.13	Jan 2009	6.77	Jan 2015	3.83	Jan 2021	2.94
Feb	13.00	Feb	9.31	Feb	7.68	Feb	6.92	Feb	6.72	Feb	3.91	Feb	3.13
Mar	13.66	Mar	9.39	Mar	7.92	Mar	6.80	Mar Apr	6.85	Mar	3.97	Mar	3.48
Apr May	13.42 12.89	Apr May	9.30 9.29	Apr May	8.08 7.94	Apr May	6.68 6.35	Apr May	6.90 6.83	Apr May	3.96 4.38	Apr May	3.33 3.36
Jun	12.89	Jun	9.29 9.44	Jun	7.94 7.77	Jun	6.21	Jun	6.54	Jun	4.60	Jun	3.19
Jul	11.88	Jul	9.40	Jul	7.52	Jul	6.54	Jul	6.15	Jul	4.63	Jul	2.99
Aug	11.93	Aug	9.16	Aug	7.57	Aug	6.78	Aug	5.80	Aug	4.54	Aug	2.99
Sep	11.95	Sep	9.03	Sep	7.50	Sep	6.58	Sep	5.60	Sep	4.68	Sep	3.00
Oct	11.84	Oct	8.99	Oct	7.37	Oct	6.50	Oct	5.64	Oct	4.63	Oct	
Nov	11.33	Nov	8.93	Nov	7.24	Nov	6.44	Nov	5.71	Nov	4.73	Nov	
Dec	10.82	Dec	8.76	Dec	7.16	Dec	6.35	Dec	5.86	Dec	4.69	Dec	

Source: https://fred.stlouisfed.org/series/DBAA

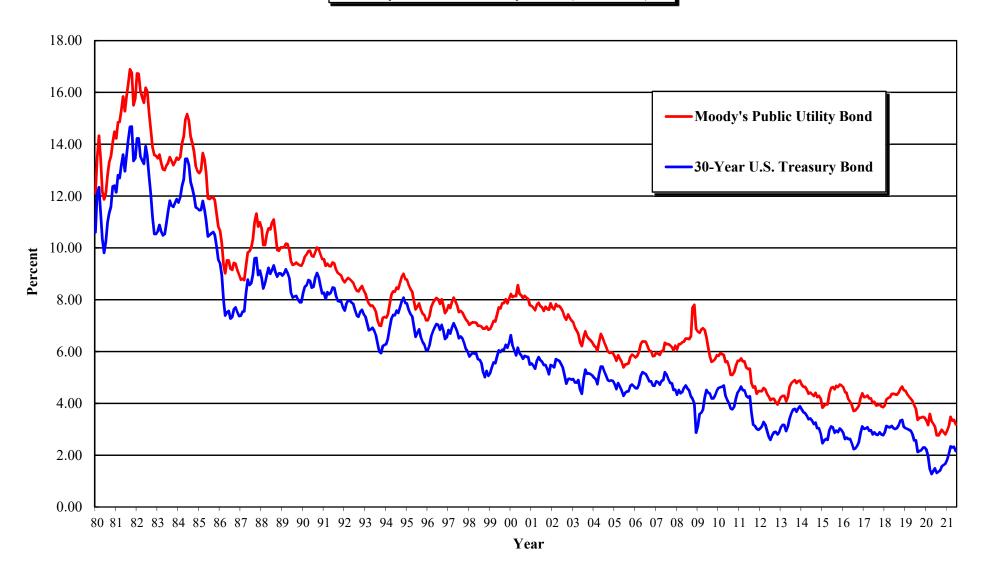
#### Average Yields on Thirty-Year U.S. Treasury Bonds

Mo/Year Jan 1980	Rate (%) 10.60	Mo/Year Jan 1986	Rate (%) 9.40	Mo/Year Jan 1992	Rate (%) 7.58	Mo/Year Jan 1998	Rate (%) 5.81	Mo/Year Jan 2004	Rate (%) 4.99	Mo/Year Jan 2010	Rate (%) 4.60	Mo/Year Jan 2016	Rate (%) 2.86
Feb	12.13	Feb	8.93	Feb	7.85	Feb	5.89	Feb	4.93	Feb	4.62	Feb	2.62
Mar	12.34	Mar	7.96	Mar	7.97	Mar	5.95	Mar	4.74	Mar	4.64	Mar	2.68
Apr	11.40	Apr	7.39	Apr	7.96	Apr	5.92	Apr	5.14	April	4.69	Apr	2.62
May	10.36	May	7.52	May	7.89	May	5.93	May	5.42	May	4.29	May	2.63
Jun	9.81	Jun	7.57	Jun	7.84	Jun	5.70	Jun	5.41	Jun	4.13	Jun	2.45
Jul	10.24	Jul	7.27	Jul	7.60	Jul	5.68	Jul	5.22	Jul	3.99	Jul	2.23
Aug Sep	11.00 11.34	Aug Sep	7.33 7.62	Aug Sep	7.39 7.34	Aug Sep	5.54 5.20	Aug Sep	5.06 4.90	Aug Sep	3.80 3.77	Aug Sep	2.26 2.35
Oct	11.59	Oct	7.70	Oct	7.53	Oct	5.01	Oct	4.86	Oct	3.87	Oct	2.50
Nov	12.37	Nov	7.52	Nov	7.61	Nov	5.25	Nov	4.89	Nov	4.19	Nov	2.86
Dec	12.40	Dec	7.37	Dec	7.44	Dec	5.06	Dec	4.86	Dec	4.42	Dec	3.11
Jan 1981	12.14	Jan 1987	7.39	Jan 1993	7.34	Jan 1999	5.16	Jan 2005	4.73	Jan 2011	4.52	Jan 2017	3.02
Feb	12.80	Feb	7.54	Feb	7.09	Feb	5.37	Feb	4.55	Feb	4.65	Feb	3.03
Mar	12.69	Mar	7.55	Mar	6.82	Mar	5.58	Mar	4.78	Mar	4.51	Mar	3.08
Apr	13.20	Apr	8.25	Apr	6.85	Apr	5.55	Apr	4.65	Apr	4.50	Apr	2.94
May	13.60	May	8.78	May	6.92	May	5.81	May	4.49	May	4.29	May	2.96
Jun	12.96	Jun	8.57	Jun	6.81	Jun	6.04	Jun	4.29	Jun	4.23	Jun	2.80
Jul	13.59 14.17	Jul Aug	8.64 8.97	Jul Aug	6.63 6.32	Jul Aug	5.98 6.07	Jul Aug	4.41 4.46	Jul Aug	4.27 3.65	July Aug	2.88 2.80
Aug Sep	14.17	Sep	9.59	Sep	6.00	Sep	6.07	Sep	4.47	Sep	3.18	Sep	2.78
Oct	14.68	Oct	9.61	Oct	5.94	Oct	6.26	Oct	4.67	Oct	3.13	Oct	2.88
Nov	13.35	Nov	8.95	Nov	6.21	Nov	6.15	Nov	4.73	Nov	3.02	Nov	2.80
Dec	13.45	Dec	9.12	Dec	6.25	Dec	6.35	Dec	4.66	Dec	2.98	Dec	2.77
Jan 1982	14.22	Jan 1988	8.83	Jan 1994	6.29	Jan 2000	6.63	Jan 2006	4.59	Jan 2012	3.03	Jan 2018	2.88
Feb	14.22	Feb	8.43	Feb	6.49	Feb	6.23	Feb	4.58	Feb	3.11	Feb	3.13
Mar	13.53	Mar	8.63	Mar	6.91	Mar	6.05	Mar	4.73	Mar	3.28	Mar	3.09
Apr	13.37	Apr	8.95	Apr	7.27	Apr	5.85	Apr	5.06	Apr	3.18	Apr	3.07
May	13.24	May	9.23	May	7.41	May	6.15	May	5.20	May	2.93	May	3.13
Jun	13.92	Jun	9.00	Jun	7.40	Jun	5.93	June	5.16	Jun	2.70	Jun	3.05
Jul	13.55 12.77	Jul	9.14 9.32	Jul	7.58 7.49	Jul	5.85 5.72	July Aug	5.13 5.00	Jul Aug	2.59 2.77	Jul	3.01 3.04
Aug Sep	12.77	Aug Sep	9.06	Aug Sep	7.71	Aug Sep	5.83	Sep	4.85	Sep	2.88	Aug Sep	3.15
Oct	11.17	Oct	8.89	Oct	7.94	Oct	5.80	Oct	4.85	Oct	2.90	Oct	3.34
Nov	10.54	Nov	9.02	Nov	8.08	Nov	5.78	Nov	4.69	Nov	2.80	Nov	3.36
Dec	10.54	Dec	9.01	Dec	7.87	Dec	5.49	Dec	4.68	Dec	2.88	Dec	3.10
Jan 1983	10.63	Jan 1989	8.93	Jan 1995	7.85	Jan 2001	5.54	Jan 2007	4.85	Jan 2013	3.08	Jan 2019	3.04
Feb	10.88	Feb	9.01	Feb	7.61	Feb	5.45	Feb	4.82	Feb	3.17	Feb	3.02
Mar	10.63	Mar	9.17	Mar	7.45	Mar	5.34	Mar	4.72	Mar	3.16	Mar	2.98
Apr	10.48	Apr	9.03	Apr	7.36	Apr	5.65	Apr	4.86	Apr	2.93	Apr	2.94
May	10.53	May	8.83	May	6.95	May	5.78	May	4.90	May	3.11	May	2.82
Jun Jul	10.93 11.40	Jun Jul	8.27 8.08	Jun Jul	6.57 6.72	Jun Jul	5.67 5.61	Jun Jul	5.20 5.11	Jun Jul	3.40 3.61	Jun Jul	2.57 2.57
Aug	11.82	Aug	8.12	Aug	6.86	Aug	5.48	Aug	4.93	Aug	3.76	Aug	2.12
Sep	11.63	Sep	8.15	Sep	6.55	Sep	5.48	Sep	4.79	Sept	3.79	Sept	2.16
Oct	11.58	Oct	8.00	Oct	6.37	Oct	5.32	Oct	4.77	Oct	3.68	Oct	2.19
Nov	11.75	Nov	7.90	Nov	6.26	Nov	5.12	Nov	4.52	Nov	3.80	Nov	2.28
Dec	11.88	Dec	7.90	Dec	6.06	Dec	5.48	Dec	4.53	Dec	3.89	Dec	2.30
Jan 1984	11.75	Jan 1990	8.26	Jan 1996	6.05	Jan 2002	5.45	Jan 2008	4.33	Jan 2014	3.77	Jan 2020	2.22
Feb	11.95	Feb	8.50	Feb	6.24	Feb	5.39	Feb	4.52	Feb	3.66	Feb	1.97
Mar	12.38	Mar	8.56	Mar	6.60	Mar	5.71	Mar	4.39	Mar	3.62	Mar	1.46
Apr May	12.65 13.43	Apr May	8.76 8.73	Apr May	6.79 6.93	Apr May	5.67 5.64	Apr May	4.44 4.60	Apr May	3.52 3.39	Apr May	1.27 1.38
Jun	13.44	Jun	8.46	Jun	7.06	Jun	5.52	Jun	4.69	Jun	3.42	Jun	1.49
Jul	13.21	Jul	8.50	Jul	7.03	Jul	5.38	Jul	4.57	Jul	3.33	Jul	1.31
Aug	12.54	Aug	8.86	Aug	6.84	Aug	5.08	Aug	4.50	Aug	3.20	Aug	1.36
Sep	12.29	Sep	9.03	Sep	7.03	Sep	4.76	Sep	4.27	Sep	3.26	Sep	1.42
Oct	11.98	Oct	8.86	Oct	6.81	Oct	4.93	Oct	4.17	Oct	3.04	Oct	1.57
Nov	11.56	Nov	8.54	Nov	6.48	Nov	4.95	Nov	4.00	Nov	3.04	Nov	1.62
Dec	11.52	Dec	8.24	Dec	6.55	Dec	4.92	Dec	2.87	Dec	2.83	Dec	1.67
Jan 1985	11.45	Jan 1991	8.27	Jan 1997	6.83	Jan 2003	4.94	Jan 2009	3.13	Jan 2015	2.46	Jan 2021	1.82
Feb	11.47	Feb	8.03	Feb	6.69	Feb	4.81	Feb	3.59	Feb	2.57	Feb	2.04
Mar	11.81	Mar	8.29	Mar	6.93	Mar	4.80	Mar Apr	3.64	Mar Apr	2.63	Mar	2.34
Apr May	11.47 11.05	Apr May	8.21 8.27	Apr May	7.09 6.94	Apr May	4.90 4.53	Apr May	3.76 4.23	Apr May	2.59 2.96	Apr May	2.30 2.32
Jun	10.44	Jun	8.47	Jun	6.77	Jun	4.33	Jun	4.52	Jun	3.11	Jun	2.16
Jul	10.50	Jul	8.45	Jul	6.51	Jul	4.93	Jul	4.41	Jul	3.07	Jul	1.94
Aug	10.56	Aug	8.14	Aug	6.58	Aug	5.30	Aug	4.37	Aug	2.86	Aug	1.92
Sep	10.61	Sep	7.95	Sep	6.50	Sep	5.14	Sep	4.19	Sep	2.95	Sep	1.94
Oct	10.50	Oct	7.93	Oct	6.33	Oct	5.16	Oct	4.19	Oct	2.89	Oct	
Nov	10.06	Nov	7.92	Nov	6.11	Nov	5.13	Nov	4.31	Nov	3.03	Nov	
Dec	9.54	Dec	7.70	Dec	5.99	Dec	5.08	Dec	4.49	Dec	2.97	Dec	

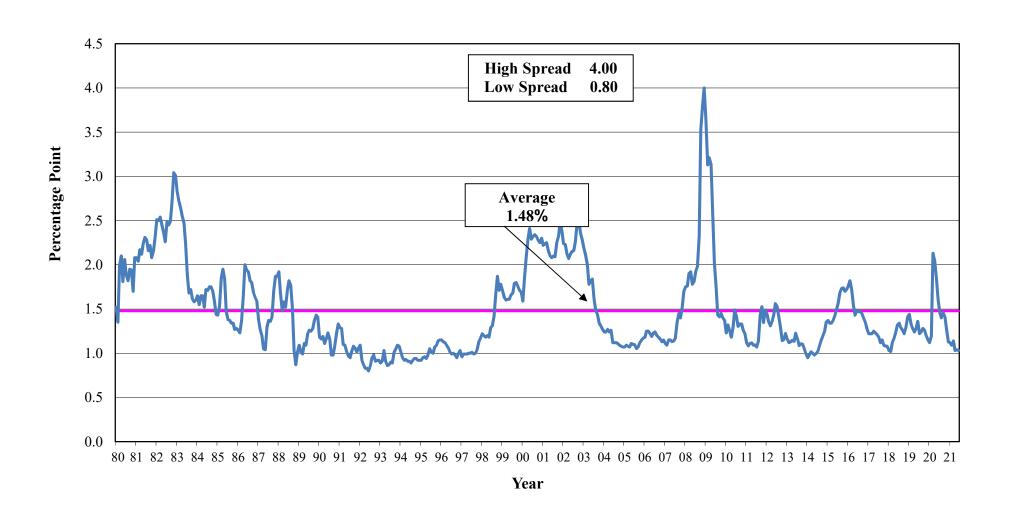
Sources

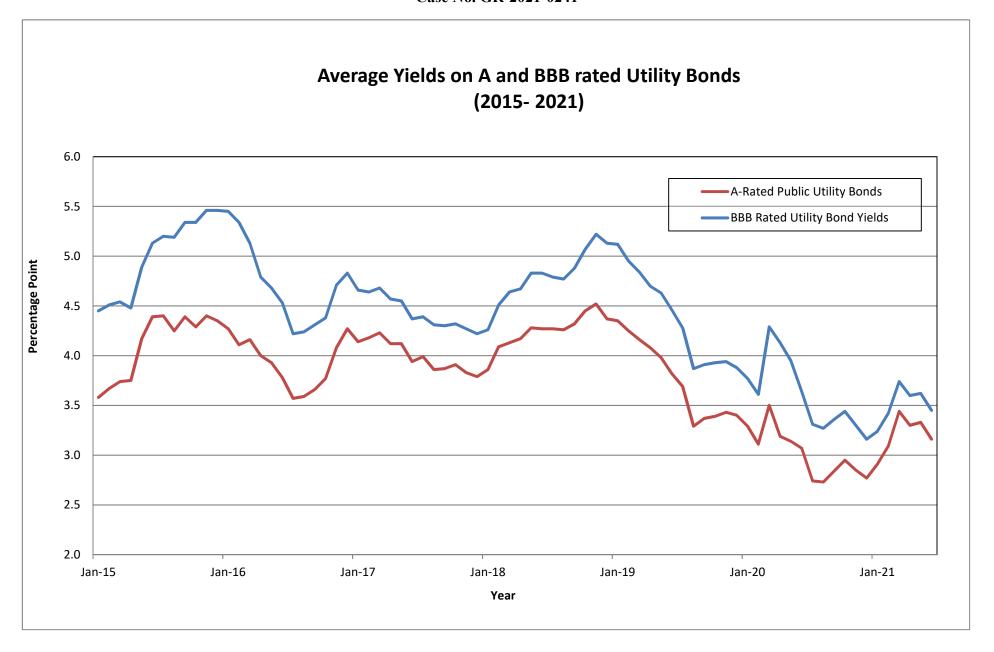
http://research.stlouisfed.org/fred2/data/GS30.txt

Average Yields on Mergent's Public Utility Bonds and Thirty-Year U.S. Treasury Bonds (1980 - 2021)



Monthly Spreads Between Yields on Moody's Public Utility Bonds and 30-Year U.S. Treasury Bonds (1980 - 2021)





#### Historical Consolidated Capital Structures for Ameren Corporation

(Dollars in Millions)

	September 30,	December 31,	March 31,	June 30,
Capital Components	2019	2019	2020	2020
Common Equity	\$8,062.0	\$8,059.0	\$8,085.2	\$8,226.9
Preferred Stock	\$0.0	\$0.0	\$142.5	\$142.5
Long-Term Debt	\$8,651.0	\$8,915.0	\$9,472.0	\$10,265.7
-	\$16,713.0	\$16,974.0	\$17,699.6	\$18,635.1
	September 30,	December 31,	March 31,	June 30,
Capital Components	2020	2020	2021	2021
Common Equity	\$8,489.6	\$8,937.7	\$9,148.0	\$9,353.0
Preferred Stock	\$142.5	\$142.5	\$129.6	\$0.0
Long-Term Debt	\$10,266.7	\$10,830.6	\$11,278.7	\$12,492.0
	\$18,898.8	\$19,910.7	\$20,556.3	\$21,845.0
	<del></del>			

#### Historical Consolidated Capital Structures for Ameren Missouri

(Dollars in Millions)

Capital Components	September 30, 2019	December 31, 2019	March 31, 2020	June 30, 2020
Common Equity	\$4,345.0	\$4,269.0	\$4,258.6	\$4,410.7
Preferred Stock	\$80.0	\$80.0	\$80.8	\$80.8
Long-Term Debt	\$3,779.0	\$4,098.0	\$4,249.8	\$4,250.9
Total	\$8,204.0	\$8,447.0	\$8,589.1	\$8,742.4
Capital Components	September 30, 2020	December 31, 2020	March 31, 2021	June 30, 2021
Common Equity	\$4,708.2	\$5,129.7	\$5,289.39	\$5,551.0
Preferred Stock	\$80.8	\$80.8	\$80.76	\$80.0
Long-Term Debt	\$4,251.9	\$4,795.5	\$4,796.66	\$5,618.0
Total	\$9,040.8	\$10,005.9	\$10,166.8	\$11,249.0

Sources:

Form 10-Q, 10-K.

## Historical Consolidated Capital Structures for Ameren Corporation

(Percentage)

Capital Components	September 30,	December 31,	March 31,	June 30,
	2019	2019	2020	2020
Common Equity Preferred Stock Long-Term Debt	48.24%	47.48%	45.68%	44.15%
	0.00%	0.00%	0.80%	0.76%
	51.76%	52.52%	53.52%	55.09%
	100.00%	100.00%	100.00%	100.00%
Capital Components	September 30,	December 31,	March 31,	June 30,
	2020	2020	2021	2021
Common Equity Preferred Stock Long-Term Debt	44.92%	44.89%	44.50%	42.82%
	0.75%	0.72%	0.63%	0.00%
	54.32%	54.40%	54.87%	57.18%
	100.00%	100.00%	100.00%	100.00%

# Historical Consolidated Capital Structures for Ameren Missouri

(Percentage)

Capital Components	September 30, 2019	December 31, 2019	March 31, 2020	June 30, 2020
Common Equity	52.96%	50.54%	49.58%	50.45%
Preferred Stock	0.98%	0.95%	0.94%	0.92%
Long-Term Debt	46.06%	48.51%	49.48%	48.62%
Total	100.00%	100.00%	100.00%	100.00%
Capital Components	September 30, 2020	December 31, 2020	March 31, 2021	June 30, 2021
Common Equity	52.08%	51.27%	52.03%	49.35%
Preferred Stock	0.89%	0.81%	0.79%	0.71%
Long-Term Debt	47.03%	47.93%	47.18%	49.94%
Total	100.00%	100.00%	100.00%	100.00%

Sources:

Form 10-Q, 10-K

Staff Data Request No. 0112.

# Capital Structure as of June 30, 2021 Ameren Corporation

(Dollars in Millions)

Capital Component	Amount	Percentage of Capital
Common Stock Equity	\$9,353	42.82%
Preferred Stock	\$0	0.00%
Long-Term Debt	\$12,492	57.18%
Total Capitalization	\$21,845	100.00%

Sources: Form 10-Q

#### Adjusted Capital Structure as of June 30, 2021 Ameren Missouri

(Dollars in Millions)

Capital Component	Amount	Percentage of Capital
Common Stock Equity	\$5,470	50.32%
Preferred Stock	\$82	0.75%
Long-Term Debt	\$5,318	48.92%
Total Capitalization	\$10,870	100.00%

Source:

Staff Data Request No. 0651 of Case No. ER-2021-0240

# Embedded Cost of Long-Term Debt as of June 30, 2020 for Ameren Corporation & Ameren Missouri

#### **Ameren Corporation**

(In millions)	
Total Annual Cost:	\$457.8
Total Carrying Value:	\$12,177.3
Embedded Cost = Total Annual Cost/Total Carrying Value	3.76%
Note: Source: Staff Data Request No. 0114.	

Ameren Missouri (In millions)	
Total Annual Cost:	\$208.0
Total Carrying Value:	\$5,318.2
Embedded Cost = Total Annual Cost/Total Carrying Value	3.91%
Note: Source: Staff Data Request No. 0114.	

# Embedded Cost of Preferred Stock as of June 30, 2020 for Ameren Corporation & Ameren Missouri

#### **Ameren Corporation**

(In millions)	
Total Annual Cost:	\$5.3
Total Carrying Value:	\$130.2
Embedded Cost = Total Annual Cost/Total Carrying Value	4.09%
Note: Source: Staff Data Request No. 0114.	

#### Ameren Missouri

Ameren Missouri	
(In millions)	
Total Annual Cost:	\$3.4
Total Carrying Value:	\$81.8
Embedded Cost = Total Annual Cost/Total Carrying Value	4.18%
Note:	

-

Source:

Staff Data Request No. 0114.

# AMEREN MISSOURI CASE NO. GR-2021-0241 PROXY GROUP SCREENING DATA AND RESULTS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	
										At least 65%	At least 65%				
							At Least			of Regulated	of Assets are		Positive		
			Information	Information			Investment			Income from	Gas	No Reduced	Growth Rates	Covered by	Comparable
		Stock Publicly	Provided by	Provided by	5-Year Data		Grade Credit	S&P Global		Gas Utility	Distribution	Dividend Since	from at Least	More Than 2	Company Met
Gas Utility Companies	Ticker	Traded	Value Line	Reuters	Available	Dividends	Rating	Rating	Moody's	Operations	Operations	2015	Two Sources	Analyst	All Criteria
Atmos Energy Corporation	ATO	Yes	Yes	Yes	Yes	Yes	Yes	A-	A1	Yes	Yes	Yes	Yes	Yes	Yes
Chesapeake Util.	CPK	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A	No	No	Yes	Yes	Yes	No
New Jersey Resources Corporation	NJR	Yes	Yes	Yes	Yes	Yes	Yes	N/A	A1	Yes	Yes	Yes	Yes	Yes	Yes
NiSource Inc.	NI	Yes	Yes	Yes	Yes	Yes	Yes	BBB+	Baa2	No	No	No	Yes	Yes	No
Northwest Natural Holding Company	NWN	Yes	Yes	Yes	Yes	Yes	Yes	N/A	Baa1	Yes	Yes	Yes	Yes	Yes	Yes
ONE Gas, Inc.	OGS	Yes	Yes	Yes	Yes	Yes	Yes	BBB+	A3	Yes	Yes	Yes	Yes	Yes	Yes
South Jersey Industries, Inc.	SJI	Yes	Yes	Yes	Yes	Yes	Yes	BBB	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Southwest Gas Holdings, Inc.	SWX	Yes	Yes	Yes	Yes	Yes	Yes	BBB+	Baa2	Yes	Yes	Yes	Yes	Yes	Yes
Spire Inc.	SR	Yes	Yes	Yes	Yes	Yes	Yes	A-	Baa2	Yes	Yes	Yes	Yes	Yes	Yes

1	1]	Source: The Value Lin	e Investment Surve	: Ratings & Reports

<sup>[2]</sup> Source: The Value Line Investment Survey: Ratings & Reports

- [4] Source: The Value Line Investment Survey: Ratings & Reports
- [5] Source: The Value Line Investment Survey: Ratings & Reports
- [6] Source: S&P Global Market Intelligence
- [7] Source: S&P Global Market Intelligence
- [8] Source: S&P Global Market Intelligence
- [9] Source: SEC Form 10-K Filings
- [10] Source: SEC Form 10-K Filings
- [11] Source: The Value Line Investment Survey: Ratings & Reports
- [12] Source: S&P Global Market Intelligence, Value Line Investment Survey, Yahoo! Finance, and Zacks
- [13] Source: S&P Global Market Intelligence, Value Line Investment Survey, Yahoo! Finance, and Zacks

<sup>[3]</sup> Source: Reuters, https://www.reuters.com/

#### PROXY GROUP LIST

Gas Utility Companies	Ticker
1 Atmos Energy Corporation	ATO
2 New Jersey Resources Corporation	NJR
3 Northwest Natural Holding Company	NWN
4 ONE Gas, Inc.	OGS
5 South Jersey Industries, Inc.	SJI
6 Southwest Gas Holdings, Inc.	SWX
7 Spire Inc.	SR

#### **Growth Rate Estimates** Based on Dividend per Share (DPS) and Earning per Share (EPS) for the Comparable Natural Gas Utility Companies

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
2021 Q3		Pas	Past 10-Years			Past 5-Year			Projected			Average		Projective
Water Utility Companies	Ticker	EPS	DPS	Average	EPS	DPS	Average	EPS	DPS	W.Average	EPS	DPS	Average	Real GDP
1 Atmos Energy Corporation	ATO	8.00%	5.00%	6.50%	9.00%	7.50%	8.25%	7.00%	7.50%	7.00%	8.00%	6.67%	7.33%	3.80%
2 New Jersey Resources Corporation	NJR	6.00%	7.00%	6.50%	5.50%	6.50%	6.00%	2.00%	5.50%	2.00%	4.50%	6.33%	5.42%	3.80%
3 Northwest Natural Holding Company	NWN	-1.50%	1.50%	0.00%	1.50%	0.50%	1.00%	5.50%	0.50%	5.50%	1.83%	0.83%	1.33%	3.80%
4 ONE Gas, Inc.	OGS				10.00%	14.50%	12.25%	6.50%	7.00%	6.50%	8.25%	10.75%	9.50%	3.80%
5 South Jersey Industries, Inc.	SJI	1.50%	6.50%	4.00%	-1.50%	4.00%	1.25%	11.50%	4.50%	11.50%	3.83%	5.00%	4.42%	3.80%
6 Southwest Gas Holdings, Inc.	SWX	7.50%	8.50%	8.00%	5.50%	8.00%	6.75%	8.00%	4.50%	8.00%	7.00%	7.00%	7.00%	3.80%
7 Spire Inc.	SR	1.50%	4.50%	3.00%	4.50%	6.00%	5.25%	10.00%	4.50%	10.00%	5.33%	5.00%	5.17%	3.80%
Average		3.83%	5.50%	4.67%	4.93%	6.71%	5.82%	7.21%	4.86%	7.21%	5.54%	5.94%	5.74%	3.80%

2021 Q2		Past 10-Years			Р	Past 5-Year			Projected			Average		
Water Utility Companies	Ticker	EPS	DPS	Average	EPS	DPS	Average	EPS	DPS	W.Average	EPS	DPS	Average	Real GDP
1 Atmos Energy Corporation	ATO	8.00%	5.00%	6.50%	9.00%	7.50%	8.25%	7.00%	7.50%	7.00%	8.00%	6.67%	7.33%	3.80%
2 New Jersey Resources Corporation	NJR	6.00%	7.00%	6.50%	5.50%	6.50%	6.00%	2.00%	5.50%	2.00%	4.50%	6.33%	5.42%	3.80%
3 Northwest Natural Holding Company	NWN	-1.50%	1.50%	0.00%	1.50%	0.50%	1.00%	5.50%	0.50%	5.50%	1.83%	0.83%	1.33%	3.80%
4 ONE Gas, Inc.	OGS				10.00%	14.50%	12.25%	6.50%	7.00%	6.50%	8.25%	10.75%	9.50%	3.80%
5 South Jersey Industries, Inc.	SJI	1.50%	6.50%	4.00%	-1.50%	4.00%	1.25%	11.50%	4.50%	11.50%	3.83%	5.00%	4.42%	3.80%
6 Southwest Gas Holdings, Inc.	SWX	7.50%	8.50%	8.00%	5.50%	8.00%	6.75%	9.00%	4.50%	9.00%	7.33%	7.00%	7.17%	3.80%
7 Spire Inc.	SR	1.50%	4.50%	3.00%	4.50%	6.00%	5.25%	10.00%	4.50%	10.00%	5.33%	5.00%	5.17%	3.80%
Average		3.83%	5.50%	4.67%	4.93%	6.71%	5.82%	7.36%	4.86%	7.36%	5.58%	5.94%	5.76%	3.80%

#### Note:

[1]	Source: The Value Line Investment Survey:	Ratings & Reports
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<sup>[2]</sup> Source: The Value Line Investment Survey: Ratings & Reports

[7] Source: The Value Line Investment Survey: Ratings & Reports

[8] Source: The Value Line Investment Survey: Ratings & Reports W= 1.0

[9] =W\*[7]+(1-W)\*[8]

[10] =([1]+[4]+[7])/3

[11] =([2]+[5]+[8])/3 [12] =([10]+[511])/2

[13] Source: Congress Budget Office (CBO), Budget Economic Outlook

<sup>[3]</sup> =([1]+[2])/2

<sup>[4]</sup> Source: The Value Line Investment Survey: Ratings & Reports

<sup>[5]</sup> Source: The Value Line Investment Survey: Ratings & Reports

<sup>[6] =([4]+[5]])/2</sup> 

# Average High / Low Stock Price for the Comparable Natural Gas Utility Companies

			[1]	[2]	[3]	[4]	[5]	[6]	[7]
			July 2	<u> 2021</u>	Augus	t 2021	<u>Septemb</u>	oer 2021	
									Average
			High	Low	High	Low	High	Low	High/Low
			Stock	Stock	Stock	Stock	Stock	Stock	Stock Price
	Company Name	Ticker	Price	Price	Price	Price	Price	Price	(7/01/21 - 9/30/21)
1	Atmos Energy Corporation	ATO	101.76	95.21	102.28	96.52	98.59	85.80	96.69
2	New Jersey Resources Corporation	NJR	40.97	37.48	39.52	36.69	38.37	34.41	37.91
3	Northwest Natural Holding Company	NWN	54.01	50.83	54.48	50.42	52.03	45.09	51.14
4	ONE Gas, Inc.	OGS	75.93	72.01	75.32	70.81	73.48	62.52	71.68
5	South Jersey Industries, Inc.	SJI	26.72	24.52	25.91	23.97	25.25	21.21	24.60
6	Southwest Gas Holdings, Inc.	SWX	71.90	64.63	73.05	67.79	72.19	65.90	69.24
7	Spire Inc.	SR	71.90	64.63	73.05	67.79	72.19	65.90	69.24

			April 2021		May	2021	June 2021		
									Average
			High	Low	High	Low	High	Low	High/Low
			Stock	Stock	Stock	Stock	Stock	Stock	Stock Price
	Company Name	Ticker	Price	Price	Price	Price	Price	Price	(4/01/21 - 6/30/21)
1	Atmos Energy Corporation	ATO	104.99	97.08	104.79	96.84	101.84	95.67	100.20
2	New Jersey Resources Corporation	NJR	43.41	39.46	43.94	41.59	44.41	39.21	42.00
3	Northwest Natural Holding Company	NWN	56.75	52.61	56.11	52.50	55.70	51.37	54.17
4	ONE Gas, Inc.	OGS	81.90	75.69	81.55	72.50	78.96	73.20	77.30
5	South Jersey Industries, Inc.	SJI	25.47	22.45	26.87	24.60	27.99	25.62	25.50
6	Southwest Gas Holdings, Inc.	SWX	73.54	67.61	72.57	65.29	68.20	62.54	68.29
7	Spire Inc.	SR	77.95	72.70	77.87	71.48	76.85	69.77	74.44

#### Note:

<sup>[1]</sup> Source: Wall Street Journal, https://www.wsj.com/market-data [2] Source: Wall Street Journal, https://www.wsj.com/market-data [3] Source: Wall Street Journal, https://www.wsj.com/market-data

<sup>[4]</sup> Source: Wall Street Journal, https://www.wsj.com/market-data [5] Source: Wall Street Journal, https://www.wsj.com/market-data

<sup>[6]</sup> Source: Wall Street Journal, https://www.wsj.com/market-data

 $<sup>[7] = ([1]+[2]+[3]+[4]+[5]+[6]) \ / \ 6</sup>$ 

# Discounted Cash Flow (DCF) Costs of Common Equity (COE) Estimates Based on Dividend per Share, Earning per Share, Stock Price, and Growth Rate for the Comparable Natural Gas Utility Companies

2021 Q3 DCF COE estimate		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
					Expected	Projected	Projected		
		Dividend		Dividend	Dividend	Weighted	GDP	Growth	
Gas Utility Companies	Ticker	per Share	Stock Price	Yield	Yield	Growth	Growth	Rate	COE
1 Atmos Energy Corporation	ATO	2.30	96.69	2.38%	2.45%	7.00%	3.80%	6.20%	8.65%
2 New Jersey Resources Corporation	NJR	1.27	37.91	3.35%	3.39%	2.00%	3.80%	2.45%	5.84%
3 Northwest Natural Holding Company	NWN	1.91	51.14	3.73%	3.83%	5.50%	3.80%	5.08%	8.90%
4 ONE Gas, Inc.	OGS	2.16	71.68	3.01%	3.10%	6.50%	3.80%	5.83%	8.93%
5 South Jersey Industries, Inc.	SJI	1.19	24.60	4.84%	5.07%	11.50%	3.80%	9.58%	14.64%
6 Southwest Gas Holdings, Inc.	SWX	2.28	69.24	3.29%	3.41%	8.00%	3.80%	6.95%	10.36%
7 Spire Inc.	SR	2.49	69.24	3.60%	3.75%	10.00%	3.80%	8.45%	12.20%
Average		1.94	60.07	3.46%	3.57%	7.21%	3.80%	6.36%	9.93%
							DCF Lov	wer Bound	8.83%
							DCF Up	per Bound	10.49%
2021 Q2 DCF COE estimate		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
					Expected	Projected	Projected		
		Dividend		Dividend	Dividend	Weighted	GDP	Growth	
Gas Utility Companies	Ticker	per Share	Stock Price	Yield	Yield	Growth	Growth	Rate	COE
1 Atmos Energy Corporation	ATO	2.30	100.20	2.30%	2.37%	7.00%	3.80%	6.20%	8.57%
2 New Jersey Resources Corporation	NJR	1.27	42.00	3.02%	3.06%	2.00%	3.80%	2.45%	5.51%
3 Northwest Natural Holding Company	NWN	1.91	54.17	3.53%	3.62%	5.50%	3.80%	5.08%	8.69%
4 ONE Gas, Inc.	OGS	2.16	77.30	2.79%	2.88%	6.50%	3.80%	5.83%	8.70%
5 South Jersey Industries, Inc.	SJI	1.19	25.50	4.67%	4.89%	11.50%	3.80%	9.58%	14.47%
6 Southwest Gas Holdings, Inc.	SWX	2.28	68.29	3.34%	3.47%	9.00%	3.80%	7.70%	11.17%
7 Spire Inc.	SR	2.49	74.44	3.35%	3.49%	10.00%	3.80%	8.45%	11.94%
Average		1.94	63.13	3.28%	3.39%	7.36%	3.80%	6.47%	9.86%
							DCF Lov	wer Bound	8.65%
							DCF Up	per Bound	10.60%
Comparison DCF Estimates									
						202:	1 Q2 DCF CO	E estimate	9.63%
						202:	1 Q3 DCF CO	E estimate _	9.66%
				Differe	nce of Avera	ges betweer	n Q2 2021 an	d Q3 2021	0.03%

Note:

<sup>[1]</sup> Source: The Value Line Investment Survey: Ratings & Reports.

 $<sup>\</sup>begin{tabular}{ll} [2] & Source: The Wall Street Journal; Average Monthly Highest and Lowest. \end{tabular}$ 

<sup>[3] = [1] / [2]</sup> 

<sup>[4] = [3]</sup>  $\times$  (1 + .5  $\times$  [7])

<sup>[5]</sup> Source: [12] of Growth Rate SJW-11

<sup>[6]</sup> Source: Congress Budget Office (CBO), Budget Economic Outlook

<sup>[7] =</sup>  $(2 \times [5] + [6]) / 3$ 

<sup>[8] = [4] + [7]</sup> 

# Capital Asset Pricing Model (CAPM) Costs of Common Equity (COE) Estimates Based on Historical Return Differences Between Common Stocks and Long-Term U.S. Treasuries for the Comparable Natural Gas Utility Companies

2021 Q3 CAPM Estimate	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
				Duff&Phelps	(1926-2020)			NYU Stern (	1928-2020)			Market Ris	k Premium			CAPM Cost of C	ommon Equity	
			Large Comp	pany Stocks	Long-term	G-Bonds	S&P	500	US Treas	ury Bond	Duff&l	Phelps	NYU	Stern .	Duff&	Phelps Phelps	NYU	<u>Stern</u>
'-	Risk-Free		Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic
Gas Utility Companies	Rate	Beta	Mean Return	Mean Return		Mean Return	Mean Return		Mean Return	Mean Return		Mean Return		Mean Return	Mean Return	Mean Return	Mean Return	
1 Atmos Energy Corporation	1.93%	0.80	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	5.64%	6.79%	5.81%	7.07%
2 New Jersey Resources Corporation	1.93%	1.00	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	6.56%	8.00%	6.77%	8.36%
3 Northwest Natural Holding Company	1.93%	0.85	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	5.87%	7.09%	6.05%	7.39%
4 ONE Gas, Inc.	1.93%	0.80	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	5.64%	6.79%	5.81%	7.07%
5 South Jersey Industries, Inc.	1.93%	1.05	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	6.79%	8.31%	7.02%	8.68%
6 Southwest Gas Holdings, Inc.	1.93%	0.95	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	6.33%	7.70%	6.53%	8.04%
7 Spire Inc.	1.93%	0.85	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	5.87%	7.09%	6.05%	7.39%
Average	1.93%	0.90	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	6.10%	7.40%	6.29%	7.72%
															CAP	'M Lower Bound		7.18%
															CAP	M Upper Bound		8.36%
																Average		7.77%
2021 Q2 CAPM Estimate	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
				Duff&Phelps	(1926-2020)			NYU Stern (					k Premium			CAPM Cost of C		
			Large Comp		Long-term		<u>S&amp;P</u>		<u>US Treas</u>		Duff&l		NYU			Phelps	NYU	
	Risk-Free		Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic	Geometric	Arithmetic
Gas Utility Companies	Rate	Beta	Mean Return	Mean Return		Mean Return			Mean Return		Mean Return	Mean Return			Mean Return	Mean Return	Mean Return	Mean Return
Atmos Energy Corporation	2.26%	0.80	10.29%	12.16%	5.65%	6.08%	9.79%	11.64%	4.95%	5.21%	4.63%	6.07%	4.84%	6.43%	5.97%	7.12%	6.14%	7.40%
Atmos Energy Corporation New Jersey Resources Corporation	2.26% 2.26%	0.80 1.00	10.29% 10.29%	12.16% 12.16%	5.65% 5.65%	6.08% 6.08%	9.79% 9.79%	11.64% 11.64%	4.95% 4.95%	5.21% 5.21%	4.63% 4.63%	6.07% 6.07%	4.84% 4.84%	6.43% 6.43%	5.97% 6.89%	7.12% 8.33%	6.14% 7.10%	7.40% 8.69%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company	2.26% 2.26% 2.26%	0.80 1.00 0.85	10.29% 10.29% 10.29%	12.16% 12.16% 12.16%	5.65% 5.65% 5.65%	6.08% 6.08% 6.08%	9.79% 9.79% 9.79%	11.64% 11.64% 11.64%	4.95% 4.95% 4.95%	5.21% 5.21% 5.21%	4.63% 4.63% 4.63%	6.07% 6.07% 6.07%	4.84% 4.84% 4.84%	6.43% 6.43% 6.43%	5.97% 6.89% 6.20%	7.12% 8.33% 7.42%	6.14% 7.10% 6.38%	7.40% 8.69% 7.72%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc.	2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80	10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97%	7.12% 8.33% 7.42% 7.12%	6.14% 7.10% 6.38% 6.14%	7.40% 8.69% 7.72% 7.40%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc.	2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05	10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12%	7.12% 8.33% 7.42% 7.12% 8.64%	6.14% 7.10% 6.38% 6.14% 7.35%	7.40% 8.69% 7.72% 7.40% 9.01%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc.	2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95	10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03%	6.14% 7.10% 6.38% 6.14% 7.35% 6.86%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc. Spire Inc.	2.26% 2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95 0.85	10.29% 10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03% 7.42%	6.14% 7.10% 6.38% 6.14% 7.35% 6.86% 6.38%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37% 7.72%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc.	2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95	10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03% 7.42%	6.14% 7.10% 6.38% 6.14% 7.35% 6.86%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37% 7.72% 8.05%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc. Spire Inc.	2.26% 2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95 0.85	10.29% 10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20% 6.43%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03% 7.42% 7.73% M Lower Bound	6.14% 7.10% 6.38% 6.14% 7.35% 6.86% 6.38%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37% 7.72% 8.05% 7.51%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc. Spire Inc.	2.26% 2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95 0.85	10.29% 10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20% 6.43%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03% 7.42% 7.73% M Lower Bound M Upper Bound	6.14% 7.10% 6.38% 6.14% 7.35% 6.86% 6.38%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37% 7.72% 8.05% 7.51% 8.69%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc. Spire Inc.	2.26% 2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95 0.85	10.29% 10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20% 6.43%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03% 7.42% 7.73% M Lower Bound	6.14% 7.10% 6.38% 6.14% 7.35% 6.86% 6.38%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37% 7.72% 8.05% 7.51%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc. Spire Inc. Average	2.26% 2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95 0.85	10.29% 10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20% 6.43%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03% 7.42% 7.73% M Lower Bound M Upper Bound	6.14% 7.10% 6.38% 6.14% 7.35% 6.86% 6.38%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37% 7.72% 8.05% 7.51% 8.69%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc. Spire Inc.	2.26% 2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95 0.85	10.29% 10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20% 6.43%	7.12% 8.33% 7.42% 7.12% 8.64% 8.03% 7.42% 7.73% M Lower Bound M Upper Bound	6.14% 7.10% 6.38% 6.14% 7.35% 6.86% 6.38% 6.62%	7.40% 8.69% 7.72% 9.01% 8.37% 7.72% 8.05% 7.51% 8.69% 8.10%
Atmos Energy Corporation New Jersey Resources Corporation Northwest Natural Holding Company ONE Gas, Inc. South Jersey Industries, Inc. Southwest Gas Holdings, Inc. Spire Inc. Average	2.26% 2.26% 2.26% 2.26% 2.26% 2.26% 2.26%	0.80 1.00 0.85 0.80 1.05 0.95 0.85	10.29% 10.29% 10.29% 10.29% 10.29% 10.29% 10.29%	12.16% 12.16% 12.16% 12.16% 12.16% 12.16% 12.16%	5.65% 5.65% 5.65% 5.65% 5.65% 5.65% 5.65%	6.08% 6.08% 6.08% 6.08% 6.08% 6.08%	9.79% 9.79% 9.79% 9.79% 9.79% 9.79% 9.79%	11.64% 11.64% 11.64% 11.64% 11.64% 11.64%	4.95% 4.95% 4.95% 4.95% 4.95% 4.95% 4.95%	5.21% 5.21% 5.21% 5.21% 5.21% 5.21% 5.21%	4.63% 4.63% 4.63% 4.63% 4.63% 4.63%	6.07% 6.07% 6.07% 6.07% 6.07% 6.07%	4.84% 4.84% 4.84% 4.84% 4.84% 4.84% 4.84%	6.43% 6.43% 6.43% 6.43% 6.43% 6.43%	5.97% 6.89% 6.20% 5.97% 7.12% 6.66% 6.20% 6.43%	7.12% 8.33% 7.42% 8.64% 8.03% 7.42% 7.73% IM Lower Bound M Upper Bound Average	6.14% 7.10% 6.38% 6.14% 7.35% 6.86% 6.38%	7.40% 8.69% 7.72% 7.40% 9.01% 8.37% 7.72% 8.05% 7.51% 8.69%

#### Note:

[1] Source: 3-Month Average of 30-Year Treasury Bond

[2] Source: Value Line, Investment Survey.

[3] Source: Duff & Phelps, the Stocks, Bonds, Bills, and Inflation (SBBI®) Monthly Dataset.

[4] Source: Duff & Phelps, the Stocks, Bonds, Bills, and Inflation (SBBI®) Monthly Dataset.

[5] Source: Duff & Phelps, the Stocks, Bonds, Bills, and Inflation (SBBI®) Monthly Dataset.

[6] Source: Duff & Phelps, the Stocks, Bonds, Bills, and Inflation (SBBI®) Monthly Dataset.

[7] Source: Risk Premium, Damodaran Online, Stern School of Business, NYU.

[8] Source: Risk Premium, Damodaran Online, Stern School of Business, NYU.

[9] Source: Risk Premium, Damodaran Online, Stern School of Business, NYU.

[10] Source: Risk Premium, Damodaran Online, Stern School of Business, NYU.

[11] = [3] - [5]

[12] = [4] - [6]

[13] = [7] - [9]

[14] = [8] - [10]

2021 Q3 CAPM COE estimate

Difference of Averages between 2017 and 2021

# AUTHORIZED RETURN ON EQUITY

	DCF Compa	arison_	CAPM Comp	<u>oarison</u>
2021 Q3 COE Estimate	DCF	9.66% A 9.66% C	CAPM	7.77% B 7.77% C
2021 Q2 COE Estimate	DCF	9.63% <sup>D</sup> E  9.63% <sup>F</sup>	САРМ	8.10% E 8.10% F
ROE Adjustment		0.03% <sup>G</sup>		-0.33% <sup>G</sup>
Authorized ROE	2021 Q2	9.37% <sup>H</sup>	2021 Q2	9.37% <sup>H</sup>
Estimated ROE	2021 Q3	9.40%	2021 Q3	9.04%

#### Note:

A Schedule SJW-13

<sup>&</sup>lt;sup>B</sup> Schedule SJW-14

 $<sup>^{</sup>C} = ([A] + [B]) / 2$ 

D Schedule SJW-13

E Schedule SJW-14

F = ([D] + [E]) / 2

G = [C] - [F]

H GR-2021-0108

<sup>&</sup>lt;sup>|</sup> = [G] + [H]

#### ALLOWED RATE OF RETURN

#### Allowed Rate of Return

				Common Equity Return of:	
	Percentage	Embedded	Lower	ROE	Upper
Capital Component	of Capital	Cost	9.25%	<b>9.50%</b> <sup>3</sup>	9.75%
Common Stock Equity	50.32%	-	4.65%	4.78%	4.91%
Preferred Stock	0.75%	4.18% 1	0.03%	0.03%	0.03%
Long-Term Debt	48.93%	3.91% 2	1.91%	1.91%	1.91%
Takal	100.00%		C C00/	C 720/	C 050/
Total	100.00%		6.60%	<u>6.72%</u>	6.85%

Note:

Staff's COS Report

1 Schedule SJW-8

2 Schedule SJW-7

3 Schedule SJW-15

# Authorized ROE of the U.S. Utility by Sector 2010-2021

	<u>Natural Gas</u>							<u>Electric</u>						
	<u>Fully Litigated</u> <u>Settled</u>		Natural Gas Total		Fully Litigated		<u>Settled</u>		Electric Total					
<u>Year</u>	ROE (%)	Case (No.)	ROE (%)	Case (No.)	ROE (%)	Case (No.)	ROE (%)	Case (No.)	ROE (%)	Case (No.)	ROE (%)	Case (No.)		
2010	10.08	27	10.30	12	10.15	39	10.35	27	10.39	34	10.37	61		
2011	9.76	8	10.08	8	9.92	16	10.39	26	10.12	16	10.29	42		
2012	9.92	21	9.99	14	9.94	35	10.28	29	10.06	29	10.17	58		
2013	9.59	12	9.80	9	9.68	21	9.85	17	10.12	32	10.03	49		
2014	9.98	15	9.51	11	9.78	26	10.05	21	9.73	17	9.91	38		
2015	9.58	5	9.60	11	9.60	16	9.66	16	10.04	15	9.84	31		
2016	9.61	10	9.50	16	9.54	26	9.74	25	9.80	17	9.77	42		
2017	9.82	7	9.68	17	9.72	24	9.73	24	9.75	29	9.74	53		
2018	9.59	17	9.59	23	9.59	40	9.63	22	9.57	26	9.60	48		
2019	9.74	12	9.70	20	9.71	32	9.58	27	9.76	20	9.66	47		
2020	9.44	12	9.47	22	9.46	34	9.43	32	9.46	23	9.44	55		
2021	9.60	7	9.48	13	9.52	20	9.43	18	9.48	11	9.45	29		
Q1 2021	9.77	2	9.69	8	9.71	10	9.48	8	9.40	2	9.46	10		
Q2 2021	9.54	4	9.37	2	9.48	6	9.31	5	9.50	5	9.40	10		
Q3 2021	9.64	3	9.29	7	9.40	10	9.33	6	9.43	7	9.38	13		

Note:

Source: S&P Global Market Intelligence, Retrieved in October 15, 2021