CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BET/

$$\label{eq:K} \begin{split} K &= Rf + \beta \; (Rm-Rf) \\ K &= Rf + 0.25 \; x \; (Rm-Rf) + 0.75 \; x \; \beta \; x \; (Rm-Rf) \end{split}$$

		[1]	[2]	[3]	[4]	[5]	[6]
		Current 30-day			Risk		
		average of 30-year		Market	Premium		
		U.S. Treasury bond		Return	(Rm –		ECAPM
Company	Ticker	yield	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.89%	0.90	12.68%	8.79%	11.80%	12.02%
Alliant Energy Corporation	LNT	3.89%	0.85	12.68%	8.79%	11.36%	11.69%
Ameren Corporation	AEE	3.89%	0.85	12.68%	8.79%	11.36%	11.69%
American Electric Power Company, Inc.	AEP	3.89%	0.75	12.68%	8.79%	10.48%	11.03%
Duke Energy Corporation	DUK	3.89%	0.85	12.68%	8.79%	11.36%	11.69%
Entergy Corporation	ETR	3.89%	0.90	12.68%	8.79%	11.80%	12.02%
Evergy, Inc.	EVRG	3.89%	0.90	12.68%	8.79%	11.80%	12.02%
IDACORP, Inc.	IDA	3.89%	0.80	12.68%	8.79%	10.92%	11.36%
NextEra Energy, Inc.	NEE	3.89%	0.95	12.68%	8.79%	12.24%	12.35%
NorthWestern Corporation	NWE	3.89%	0.90	12.68%	8.79%	11.80%	12.02%
Pinnacle West Capital Corporation	PNW	3.89%	0.90	12.68%	8.79%	11.80%	12.02%
Portland General Electric Company	POR	3.89%	0.85	12.68%	8.79%	11.36%	11.69%
Xcel Energy Inc.	XEL	3.89%	0.80	12.68%	8.79%	10.92%	11.36%
Mean						11.46%	11.77%
Median						11.36%	11.69%

Notes:

[1] Source: Bloomberg Professional, as of June 30, 2023

[2] Source: Value Line

[3] Source: Market Return

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4] [6] Equals [1] + $0.25 \times ([4]) + 0.75 \times ([2] \times [4])$

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & VL BET/

$\mathbf{K} = \mathbf{R}\mathbf{f} + \beta \left(\mathbf{R}\mathbf{m} - \mathbf{R}\mathbf{f}\right)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
		Near-term projected			Market Risk		
		30-year U.S. Treasury		Market	Premium		
		bond yield		Return	(Rm –		ECAPM
Company	Ticker	(Q4 2023 - Q4 2024)	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.84%	0.90	12.68%	8.84%	11.80%	12.02%
Alliant Energy Corporation	LNT	3.84%	0.85	12.68%	8.84%	11.36%	11.69%
Ameren Corporation	AEE	3.84%	0.85	12.68%	8.84%	11.36%	11.69%
American Electric Power Company, Inc.	AEP	3.84%	0.75	12.68%	8.84%	10.47%	11.02%
Duke Energy Corporation	DUK	3.84%	0.85	12.68%	8.84%	11.36%	11.69%
Entergy Corporation	ETR	3.84%	0.90	12.68%	8.84%	11.80%	12.02%
Evergy, Inc.	EVRG	3.84%	0.90	12.68%	8.84%	11.80%	12.02%
IDACORP, Inc.	IDA	3.84%	0.80	12.68%	8.84%	10.91%	11.36%
NextEra Energy, Inc.	NEE	3.84%	0.95	12.68%	8.84%	12.24%	12.35%
NorthWestern Corporation	NWE	3.84%	0.90	12.68%	8.84%	11.80%	12.02%
Pinnacle West Capital Corporation	PNW	3.84%	0.90	12.68%	8.84%	11.80%	12.02%
Portland General Electric Company	POR	3.84%	0.85	12.68%	8.84%	11.36%	11.69%
Xcel Energy Inc.	XEL	3.84%	0.80	12.68%	8.84%	10.91%	11.36%
Mean						11.46%	11.76%
Median						11.36%	11.69%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 7, June 30, 2023, at 2

[2] Source: Value Line

[3] Source: Market Return

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4] [6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VL BET/

$\mathbf{K} = \mathbf{R}\mathbf{f} + \beta \left(\mathbf{R}\mathbf{m} - \mathbf{R}\mathbf{f}\right)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
					Market		
					Risk		
		Projected 30-year U.S.		Market	Premium		
		Treasury bond yield		Return	(Rm –		ECAPM
Company	Ticker	(2025 - 2029)	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.80%	0.90	12.68%	8.88%	11.79%	12.02%
Alliant Energy Corporation	LNT	3.80%	0.85	12.68%	8.88%	11.35%	11.68%
Ameren Corporation	AEE	3.80%	0.85	12.68%	8.88%	11.35%	11.68%
American Electric Power Company, Inc.	AEP	3.80%	0.75	12.68%	8.88%	10.46%	11.02%
Duke Energy Corporation	DUK	3.80%	0.85	12.68%	8.88%	11.35%	11.68%
Entergy Corporation	ETR	3.80%	0.90	12.68%	8.88%	11.79%	12.02%
Evergy, Inc.	EVRG	3.80%	0.90	12.68%	8.88%	11.79%	12.02%
IDACORP, Inc.	IDA	3.80%	0.80	12.68%	8.88%	10.91%	11.35%
NextEra Energy, Inc.	NEE	3.80%	0.95	12.68%	8.88%	12.24%	12.35%
NorthWestern Corporation	NWE	3.80%	0.90	12.68%	8.88%	11.79%	12.02%
Pinnacle West Capital Corporation	PNW	3.80%	0.90	12.68%	8.88%	11.79%	12.02%
Portland General Electric Company	POR	3.80%	0.85	12.68%	8.88%	11.35%	11.68%
Xcel Energy Inc.	XEL	3.80%	0.80	12.68%	8.88%	10.91%	11.35%
Mean						11.45%	11.76%
Median						11.35%	11.68%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14.

[2] Source: Value Line

[3] Source: Market Return

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4] [6] Equals [1] + $0.25 \times ([4]) + 0.75 \times ([2] \times [4])$

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BET/

$\mathbf{K} = \mathbf{R}\mathbf{f} + \beta \left(\mathbf{R}\mathbf{m} - \mathbf{R}\mathbf{f}\right)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
					Market		
		Current 30-day			Risk		
		average of 30-year		Market	Premium		
		U.S. Treasury bond		Return	(Rm –		ECAPM
Company	Ticker	yield	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.89%	0.83	12.68%	8.79%	11.16%	11.54%
Alliant Energy Corporation	LNT	3.89%	0.79	12.68%	8.79%	10.85%	11.31%
Ameren Corporation	AEE	3.89%	0.75	12.68%	8.79%	10.52%	11.06%
American Electric Power Company, Inc.	AEP	3.89%	0.76	12.68%	8.79%	10.56%	11.09%
Duke Energy Corporation	DUK	3.89%	0.72	12.68%	8.79%	10.23%	10.84%
Entergy Corporation	ETR	3.89%	0.86	12.68%	8.79%	11.41%	11.73%
Evergy, Inc.	EVRG	3.89%	0.78	12.68%	8.79%	10.77%	11.25%
IDACORP, Inc.	IDA	3.89%	0.80	12.68%	8.79%	10.90%	11.35%
NextEra Energy, Inc.	NEE	3.89%	0.82	12.68%	8.79%	11.07%	11.47%
NorthWestern Corporation	NWE	3.89%	0.86	12.68%	8.79%	11.44%	11.75%
Pinnacle West Capital Corporation	PNW	3.89%	0.83	12.68%	8.79%	11.19%	11.56%
Portland General Electric Company	POR	3.89%	0.78	12.68%	8.79%	10.78%	11.25%
Xcel Energy Inc.	XEL	3.89%	0.74	12.68%	8.79%	10.44%	11.00%
Mean						10.87%	11.32%
Median						10.85%	11.31%

Notes:

[1] Source: Bloomberg Professional, as of June 30, 2023

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] Source: Market Return

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4] [6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

$\mathbf{K} = \mathbf{R}\mathbf{f} + \beta \left(\mathbf{R}\mathbf{m} - \mathbf{R}\mathbf{f}\right)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
					Market		
		Near-term projected			Risk		
		30-year U.S. Treasury		Market	Premium		
		bond yield		Return	(Rm –		ECAPM
Company	Ticker	(Q4 2023 - Q4 2024)	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.84%	0.83	12.68%	8.84%	11.15%	11.53%
Alliant Energy Corporation	LNT	3.84%	0.79	12.68%	8.84%	10.84%	11.30%
Ameren Corporation	AEE	3.84%	0.75	12.68%	8.84%	10.50%	11.05%
American Electric Power Company, Inc.	AEP	3.84%	0.76	12.68%	8.84%	10.55%	11.08%
Duke Energy Corporation	DUK	3.84%	0.72	12.68%	8.84%	10.22%	10.83%
Entergy Corporation	ETR	3.84%	0.86	12.68%	8.84%	11.40%	11.72%
Evergy, Inc.	EVRG	3.84%	0.78	12.68%	8.84%	10.76%	11.24%
IDACORP, Inc.	IDA	3.84%	0.80	12.68%	8.84%	10.89%	11.34%
NextEra Energy, Inc.	NEE	3.84%	0.82	12.68%	8.84%	11.06%	11.47%
NorthWestern Corporation	NWE	3.84%	0.86	12.68%	8.84%	11.44%	11.75%
Pinnacle West Capital Corporation	PNW	3.84%	0.83	12.68%	8.84%	11.18%	11.55%
Portland General Electric Company	POR	3.84%	0.78	12.68%	8.84%	10.77%	11.25%
Xcel Energy Inc.	XEL	3.84%	0.74	12.68%	8.84%	10.42%	10.99%
Mean						10.86%	11.32%
Median						10.84%	11.30%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 7, June 30, 2023, at 2

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] Source: Market Return

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4] [6] Equals [1] + $0.25 \times ([4]) + 0.75 \times ([2] \times [4])$

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BET#

$K = Rf + \beta (Rm - Rf)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
					Market		
					Risk		
		Projected 30-year U.S.		Market	Premium		
		Treasury bond yield		Return	(Rm –		ECAPM
Company	Ticker	(2025 - 2029)	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.80%	0.83	12.68%	8.88%	11.14%	11.53%
Alliant Energy Corporation	LNT	3.80%	0.79	12.68%	8.88%	10.84%	11.30%
Ameren Corporation	AEE	3.80%	0.75	12.68%	8.88%	10.50%	11.04%
American Electric Power Company, Inc.	AEP	3.80%	0.76	12.68%	8.88%	10.54%	11.08%
Duke Energy Corporation	DUK	3.80%	0.72	12.68%	8.88%	10.20%	10.82%
Entergy Corporation	ETR	3.80%	0.86	12.68%	8.88%	11.39%	11.72%
Evergy, Inc.	EVRG	3.80%	0.78	12.68%	8.88%	10.75%	11.23%
IDACORP, Inc.	IDA	3.80%	0.80	12.68%	8.88%	10.88%	11.33%
NextEra Energy, Inc.	NEE	3.80%	0.82	12.68%	8.88%	11.06%	11.46%
NorthWestern Corporation	NWE	3.80%	0.86	12.68%	8.88%	11.43%	11.74%
Pinnacle West Capital Corporation	PNW	3.80%	0.83	12.68%	8.88%	11.17%	11.55%
Portland General Electric Company	POR	3.80%	0.78	12.68%	8.88%	10.76%	11.24%
Xcel Energy Inc.	XEL	3.80%	0.74	12.68%	8.88%	10.41%	10.98%
Mean						10.85%	11.31%
Median						10.84%	11.30%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14.

[2] Source: Bloomberg Professional, based on 10-year weekly returns

[3] Source: Market Return

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4] [6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VALUE LINE LT AVERAGE BET/

 $K = Rf + \beta (Rm - Rf)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
					Market		
		Current 30-day			Risk		
		average of 30-year		Market	Premium		
		U.S. Treasury bond		Return	(Rm –		ECAPM
Company	Ticker	yield	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.89%	0.79	12.68%	8.79%	10.79%	11.26%
Alliant Energy Corporation	LNT	3.89%	0.75	12.68%	8.79%	10.48%	11.03%
Ameren Corporation	AEE	3.89%	0.73	12.68%	8.79%	10.26%	10.87%
American Electric Power Company, Inc.	AEP	3.89%	0.68	12.68%	8.79%	9.82%	10.54%
Duke Energy Corporation	DUK	3.89%	0.67	12.68%	8.79%	9.74%	10.47%
Entergy Corporation	ETR	3.89%	0.75	12.68%	8.79%	10.44%	11.00%
Evergy, Inc.	EVRG	3.89%	0.95	12.68%	8.79%	12.24%	12.35%
IDACORP, Inc.	IDA	3.89%	0.73	12.68%	8.79%	10.31%	10.90%
NextEra Energy, Inc.	NEE	3.89%	0.73	12.68%	8.79%	10.31%	10.90%
NorthWestern Corporation	NWE	3.89%	0.75	12.68%	8.79%	10.44%	11.00%
Pinnacle West Capital Corporation	PNW	3.89%	0.74	12.68%	8.79%	10.35%	10.93%
Portland General Electric Company	POR	3.89%	0.75	12.68%	8.79%	10.48%	11.03%
Xcel Energy Inc.	XEL	3.89%	0.66	12.68%	8.79%	9.65%	10.41%
Mean						10.41%	10.98%
Median						10.35%	10.93%

Notes:

[1] Source: Bloomberg Professional, as of June 30, 2023

[2] Source: LT Beta

[3] Source: Market Return

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4] [6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & VALUE LINE LT AVERAGE BET/

 $\mathbf{K} = \mathbf{R}\mathbf{f} + \beta \left(\mathbf{R}\mathbf{m} - \mathbf{R}\mathbf{f}\right)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
					Market		
		Near-term projected			Risk		
		30-year U.S. Treasury		Market	Premium		
		bond yield		Return	(Rm –		ECAPM
Company	Ticker	(Q4 2023 - Q4 2024)	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.84%	0.79	12.68%	8.84%	10.78%	11.26%
Alliant Energy Corporation	LNT	3.84%	0.75	12.68%	8.84%	10.47%	11.02%
Ameren Corporation	AEE	3.84%	0.73	12.68%	8.84%	10.25%	10.86%
American Electric Power Company, Inc.	AEP	3.84%	0.68	12.68%	8.84%	9.81%	10.53%
Duke Energy Corporation	DUK	3.84%	0.67	12.68%	8.84%	9.72%	10.46%
Entergy Corporation	ETR	3.84%	0.75	12.68%	8.84%	10.43%	10.99%
Evergy, Inc.	EVRG	3.84%	0.95	12.68%	8.84%	12.24%	12.35%
IDACORP, Inc.	IDA	3.84%	0.73	12.68%	8.84%	10.29%	10.89%
NextEra Energy, Inc.	NEE	3.84%	0.73	12.68%	8.84%	10.29%	10.89%
NorthWestern Corporation	NWE	3.84%	0.75	12.68%	8.84%	10.43%	10.99%
Pinnacle West Capital Corporation	PNW	3.84%	0.74	12.68%	8.84%	10.34%	10.92%
Portland General Electric Company	POR	3.84%	0.75	12.68%	8.84%	10.47%	11.02%
Xcel Energy Inc.	XEL	3.84%	0.66	12.68%	8.84%	9.63%	10.39%
Mean						10.40%	10.97%
Median						10.34%	10.92%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 7, June 30, 2023, at 2 [2] Source: LT Beta [3] Source: Market Return [4] Equals [3] - [1] [5] Equals $[1] + [2] \times [4]$ [6] Equals $[1] + 0.25 \times ([4]) + 0.75 \times ([2] \times [4])$

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VALUE LINE LT BET#

 $\mathbf{K} = \mathbf{R}\mathbf{f} + \beta \left(\mathbf{R}\mathbf{m} - \mathbf{R}\mathbf{f}\right)$ $K = Rf + 0.25 x (Rm - Rf) + 0.75 x \beta x (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
					Market		
					Risk		
		Projected 30-year U.S.		Market	Premium		
		Treasury bond yield		Return	(Rm –		ECAPM
Company	Ticker	(2025 - 2029)	Beta (β)	(Rm)	Rf)	ROE (K)	ROE (K)
ALLETE, Inc.	ALE	3.80%	0.79	12.68%	8.88%	10.77%	11.25%
Alliant Energy Corporation	LNT	3.80%	0.75	12.68%	8.88%	10.46%	11.02%
Ameren Corporation	AEE	3.80%	0.73	12.68%	8.88%	10.24%	10.85%
American Electric Power Company, Inc.	AEP	3.80%	0.68	12.68%	8.88%	9.79%	10.52%
Duke Energy Corporation	DUK	3.80%	0.67	12.68%	8.88%	9.71%	10.45%
Entergy Corporation	ETR	3.80%	0.75	12.68%	8.88%	10.42%	10.98%
Evergy, Inc.	EVRG	3.80%	0.95	12.68%	8.88%	12.24%	12.35%
IDACORP, Inc.	IDA	3.80%	0.73	12.68%	8.88%	10.28%	10.88%
NextEra Energy, Inc.	NEE	3.80%	0.73	12.68%	8.88%	10.28%	10.88%
NorthWestern Corporation	NWE	3.80%	0.75	12.68%	8.88%	10.42%	10.98%
Pinnacle West Capital Corporation	PNW	3.80%	0.74	12.68%	8.88%	10.33%	10.92%
Portland General Electric Company	POR	3.80%	0.75	12.68%	8.88%	10.46%	11.02%
Xcel Energy Inc.	XEL	3.80%	0.66	12.68%	8.88%	9.62%	10.38%
Mean						10.39%	10.96%
Median						10.33%	10.92%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14.[2] Source: LT Beta

[2] Source: Dr Beur [3] Source: Market Return [4] Equals [3] - [1] [5] Equals [1] + [2] x [4] [6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])