

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

AVISTA CORPORATION, DBA
AVISTA UTILITIES,

Respondent.

)
)
) DOCKET NOS. UE-140188 and
) UG-140189 (*Consolidated*)
)
)
)
)
)
)
)

EXHIBIT NO.__(MPG-23)

VARIATIONS OF THE CAPM AND BETA CALCULATIONS

July 22, 2014

Avista Corporation

Variations of the CAPM - Current Risk Premium

Line	Company							CAPM Results:			
		Implied Raw Beta ¹ (1)	Corrected ECAPM Adjusted Beta ¹ (2)	Value Line Adjusted Beta ² (3)	McKenzie Adjusted Beta ¹ (4)	McKenzie Market Risk Premium ^{2,a} (5)	Risk Free Rate ² (6)	Implied Raw Beta (7)	Corrected ECAPM Beta (8)	Value Line Adjusted Beta (9)	McKenzie Adjusted Beta (10)
1	Ameren Corp.	0.67	0.75	0.80	0.85	8.5%	3.9%	9.6%	10.3%	10.7%	11.1%
2	American Elec Pwr	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
3	ALLETE	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
4	Avista Corp.	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
5	Black Hills Corp.	0.75	0.81	0.85	0.89	8.5%	3.9%	10.2%	10.8%	11.1%	11.4%
6	CMS Energy Corp.	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
7	DTE Energy Co.	0.67	0.75	0.80	0.85	8.5%	3.9%	9.6%	10.3%	10.7%	11.1%
8	Duke Energy Corp.	0.45	0.59	0.65	0.74	8.5%	3.9%	7.7%	8.9%	9.4%	10.2%
9	Empire District Elec	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
10	El Paso Electric	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
11	Edison International	0.60	0.70	0.75	0.81	8.5%	3.9%	9.0%	9.8%	10.3%	10.8%
12	Entergy Corp.	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
13	Exelon Corp.	0.60	0.70	0.75	0.81	8.5%	3.9%	9.0%	9.8%	10.3%	10.8%
14	Great Plains Energy	0.75	0.81	0.85	0.89	8.5%	3.9%	10.2%	10.8%	11.1%	11.4%
15	Hawaiian Elec.	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
16	IDACORP, Inc.	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
17	NorthWestern Corp.	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
18	Otter Tail Corp.	0.90	0.92	0.95	0.96	8.5%	3.9%	11.5%	11.7%	12.0%	12.1%
19	PG&E Corp.	0.30	0.47	0.55	0.66	8.5%	3.9%	6.4%	7.9%	8.6%	9.5%
20	Portland General Elec.	0.60	0.70	0.75	0.81	8.5%	3.9%	9.0%	9.8%	10.3%	10.8%
21	PPL Corp.	0.45	0.59	0.65	0.74	8.5%	3.9%	7.7%	8.9%	9.4%	10.2%
22	SCANA Corp.	0.52	0.64	0.70	0.78	8.5%	3.9%	8.3%	9.4%	9.9%	10.5%
23	Sempra Energy	0.67	0.75	0.80	0.85	8.5%	3.9%	9.6%	10.3%	10.7%	11.1%
24	UIL Holdings	0.67	0.75	0.80	0.85	8.5%	3.9%	9.6%	10.3%	10.7%	11.1%
25	Westar Energy	0.60	0.70	0.75	0.81	8.5%	3.9%	9.0%	9.8%	10.3%	10.8%
22	Average	0.58	0.68	0.73	0.80			8.8%	9.7%	10.2%	10.7%

Sources & Note:

¹ Exhibit No.__(MPG-__), page 3.

² Exhibit No.__(AMM-8), page 1.

^a The use of Mr. McKenzie's risk premium on this schedule does not imply my acceptance of it. Rather, this is to illustrate his misuse of adjusted betas to develop an ECAPM analysis.

Avista Corporation

Variations of the CAPM - Projected Risk Premium

Line	Company							CAPM Results:			
		Implied Raw Beta ¹ (1)	Corrected ECAPM Adjusted Beta ¹ (2)	Value Line Adjusted Beta ² (3)	McKenzie Adjusted Beta ¹ (4)	McKenzie Market Risk Premium ^{2,a} (5)	Risk Free Rate ² (6)	Implied Raw Beta (7)	Corrected ECAPM Beta (8)	Value Line Adjusted Beta (9)	McKenzie Adjusted Beta (10)
1	Ameren Corp.	0.67	0.75	0.80	0.85	8.0%	4.4%	9.8%	10.4%	10.8%	11.2%
2	American Elec Pwr	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
3	ALLETE	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
4	Avista Corp.	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
5	Black Hills Corp.	0.75	0.81	0.85	0.89	8.0%	4.4%	10.4%	10.9%	11.2%	11.5%
6	CMS Energy Corp.	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
7	DTE Energy Co.	0.67	0.75	0.80	0.85	8.0%	4.4%	9.8%	10.4%	10.8%	11.2%
8	Duke Energy Corp.	0.45	0.59	0.65	0.74	8.0%	4.4%	8.0%	9.1%	9.6%	10.3%
9	Empire District Elec	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
10	El Paso Electric	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
11	Edison International	0.60	0.70	0.75	0.81	8.0%	4.4%	9.2%	10.0%	10.4%	10.9%
12	Entergy Corp.	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
13	Exelon Corp.	0.60	0.70	0.75	0.81	8.0%	4.4%	9.2%	10.0%	10.4%	10.9%
14	Great Plains Energy	0.75	0.81	0.85	0.89	8.0%	4.4%	10.4%	10.9%	11.2%	11.5%
15	Hawaiian Elec.	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
16	IDACORP, Inc.	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
17	NorthWestern Corp.	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
18	Otter Tail Corp.	0.90	0.92	0.95	0.96	8.0%	4.4%	11.6%	11.8%	12.0%	12.1%
19	PG&E Corp.	0.30	0.47	0.55	0.66	8.0%	4.4%	6.8%	8.2%	8.8%	9.7%
20	Portland General Elec.	0.60	0.70	0.75	0.81	8.0%	4.4%	9.2%	10.0%	10.4%	10.9%
21	PPL Corp.	0.45	0.59	0.65	0.74	8.0%	4.4%	8.0%	9.1%	9.6%	10.3%
22	SCANA Corp.	0.52	0.64	0.70	0.78	8.0%	4.4%	8.6%	9.5%	10.0%	10.6%
23	Sempra Energy	0.67	0.75	0.80	0.85	8.0%	4.4%	9.8%	10.4%	10.8%	11.2%
24	UIL Holdings	0.67	0.75	0.80	0.85	8.0%	4.4%	9.8%	10.4%	10.8%	11.2%
25	Westar Energy	0.60	0.70	0.75	0.81	8.0%	4.4%	9.2%	10.0%	10.4%	10.9%
22	Average	0.58	0.68	0.73	0.80			9.0%	9.8%	10.2%	10.8%

Sources & Note:

¹ Exhibit No.__(MPG-__), page 3.² Exhibit No.__(AMM-8), page 2.^a The use of Mr. McKenzie's risk premium on this schedule does not imply my acceptance of it. Rather, this is to illustrate his misuse of adjusted betas to develop an ECAPM analysis.

Avista Corporation

Beta Calculations

Line	Company	Value Line	Value Line's	Value Line's	Implied Raw Beta ^a	ECAPM	ECAPM	Corrected	McKenzie	McKenzie	McKenzie
		Adjusted	Adjustment to	Adjustment to		Adjustment to	Adjustment to	ECAPM	Adjustment to	Adjustment to	Adjusted
		Beta ¹	Market Beta	Company Beta	(4) = [(1) - (2)] / (3)	Market Beta	Company Beta	Adjusted Beta	Market Beta	Company Beta	Adjusted Beta
		(1)	(2)	(3)		(5)	(6)	(7) = (5) + (4)*(6)	(8)	(9)	(10) = (8) + (1)*(9)
1	Ameren Corp.	0.80	0.35	0.67	0.67	0.25	0.75	0.75	0.25	0.75	0.85
2	American Elec Pwr	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
3	ALLETE	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
4	Avista Corp.	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
5	Black Hills Corp.	0.85	0.35	0.67	0.75	0.25	0.75	0.81	0.25	0.75	0.89
6	CMS Energy Corp.	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
7	DTE Energy Co.	0.80	0.35	0.67	0.67	0.25	0.75	0.75	0.25	0.75	0.85
8	Duke Energy Corp.	0.65	0.35	0.67	0.45	0.25	0.75	0.59	0.25	0.75	0.74
9	Empire District Elec	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
10	El Paso Electric	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
11	Edison International	0.75	0.35	0.67	0.60	0.25	0.75	0.70	0.25	0.75	0.81
12	Entergy Corp.	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
13	Exelon Corp.	0.75	0.35	0.67	0.60	0.25	0.75	0.70	0.25	0.75	0.81
14	Great Plains Energy	0.85	0.35	0.67	0.75	0.25	0.75	0.81	0.25	0.75	0.89
15	Hawaiian Elec.	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
16	IDACORP, Inc.	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
17	NorthWestern Corp.	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
18	Otter Tail Corp.	0.95	0.35	0.67	0.90	0.25	0.75	0.92	0.25	0.75	0.96
19	PG&E Corp.	0.55	0.35	0.67	0.30	0.25	0.75	0.47	0.25	0.75	0.66
20	Portland General Elec.	0.75	0.35	0.67	0.60	0.25	0.75	0.70	0.25	0.75	0.81
21	PPL Corp.	0.65	0.35	0.67	0.45	0.25	0.75	0.59	0.25	0.75	0.74
22	SCANA Corp.	0.70	0.35	0.67	0.52	0.25	0.75	0.64	0.25	0.75	0.78
23	Sempra Energy	0.80	0.35	0.67	0.67	0.25	0.75	0.75	0.25	0.75	0.85
24	UIL Holdings	0.80	0.35	0.67	0.67	0.25	0.75	0.75	0.25	0.75	0.85
25	Westar Energy	0.75	0.35	0.67	0.60	0.25	0.75	0.70	0.25	0.75	0.81
26	Average	0.74			0.58			0.68			0.80

Source & Notes:

¹ Exhibit No.____(AMM-8).

^a Value Line's adjusted beta is calculated by adjusting a company's raw beta by:
Adjusted $B_i = 0.35 + .67 * B_i$.

This can be rewritten as: $B_i = [\text{Adjusted } B_i - .35] / .67$

where B_i = Company's Raw Beta.