

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

UG 288

In the Matter of

AVISTA CORPORATION dba AVISTA  
UTILITIES,

Request for a General Rate Revision.

STAFF'S MOTION TO SUBMIT  
CORRECTED STAFF EXHIBITS  
STAFF/202 AND STAFF/203

Staff of the Public Utility Commission of Oregon (Staff) notes that Avista's Post-Heating Brief at page 43 correctly points out that Exhibit Staff/202 fails to adjust market prices for South Jersey Industries, Inc., New York Stock Exchange Ticker Symbol (SJI) after a stock split, and that Exhibit Staff/203, concerning Staff's multi-stage Discounted Cash Flow (DCF) analysis contains two related errors. Staff files this errata for Staff /202, Muldoon/4 and Staff/203, Muldoon/2-4 to correct these errors.

By way of brief explanation, Staff/202, Muldoon/4 Microsoft Excel, "Hamada" tab, worksheet cells H14, I 14 and J14 showing closing SJI stock prices for the first day of each of April, May and June of 2015 are corrected to read \$25.52, \$25.54 and \$25.48 respectively. Staff has flagged these cells with a red font and yellow highlights. Staff has also added a note in cell H21 similarly highlighted to clarify that Staff retrieved the historical stock price data described above, adjusted to reflect a two-for-one stock split in May 2015 from Yahoo Finance on December 28, 2015 at <https://www.yahoo.com/>.

Staff/203 Muldoon/3 and 4 Microsoft Excel "Model X" and "Model Y" tabs, Columns K through O vertical lookup formulas for years 2015 through 2019 are corrected to link to data in Staff/202 for years 2015 through 2019.

The end-result is that Staff's recommended range of reasonable "return on equity" (ROEs) narrows from (8.76 percent to 9.45 percent) to (8.97 percent to 9.39 percent), and Staff's recommended point ROE increases from the original 9.11 percent to 9.18 percent. Staff inserts notation in red in Staff /203, Muldoon/2 Microsoft Excel "ROE Gas" tab rows 42 and 45 to

1 memorialize modeling results prior to corrections. Staff increases the font size in cells E43, G43,  
2 F46 and F55 to distinguish Staff's corrected recommendations. Again with these corrections,  
3 Staff's recommended point ROE is increased 7 basis points to 9.18 percent.

4 Staff previously shared these corrected exhibits, along with the above-stated explanation,  
5 with the active parties and is authorized to state that no party objects to their submission.

6 DATED this 6<sup>th</sup> day of January, 2016.

7 Respectfully submitted,

8 ELLEN F. ROSENBLUM  
9 Attorney General

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11 Michael T. Weirich, #82425  
12 Assistant Attorney General  
13 Of Attorneys for Staff of the Public Utility  
14 Commission of Oregon

UG 288 Staff Hamada Adjustments																				
					Yahoo Finance						VL 2015 Cap Structure				Relevered		Hamada			
					\$ Stock Closing Price			3-Day	Div Yield	VL 2015			2015	Hamada	Equity	Equity				
					1st Trading Day of Month			Avg \$	at	Return on			VL	Unlevered	Risk	At				
#	Abbreviated Utility	UG 246 AVA	UG 246 Staff	Ticker	April 4/1/2015	May 5/1/2015	June 6/1/2015	Stock Price	Recent Price	Common Equity	% Long Term Debt	% Common Equity	VL Beta	Tax Rate	Beta	Equity at 50.0%	Premium	51.00%	#	
1	1 AGL	Yes	Sensitivity	GAS	50.27	50.37	50.36	50.33	3.9%	9.0%	48.0	52.0	0.80	37.5%	0.51	0.82	4.20%	0.10%	1	1
2	2 Atmos	Yes	No	ATO	54.00	54.02	54.09	54.04	2.8%	9.5%	44.5	55.5	0.85	39.5%	0.57	0.92	4.20%	0.29%	2	2
3	3 Laclede	Yes	No	LG	51.93	53.51	53.83	53.09	3.3%	8.5%	54.0	46.0	0.70	29.0%	0.38	0.65	4.20%	-0.20%	3	3
4	4 New Jersey	Yes	No	NJR	30.51	30.07	29.97	30.18	2.8%	12.5%	32.5	67.5	0.80	35.0%	0.61	1.01	4.20%	0.86%	4	4
5	5 NiSource	Yes	No	NI	43.42	47.18	47.06	45.89	2.2%	8.5%	56.0	44.0	0.85	37.0%	0.47	0.77	4.20%	-0.34%	5	5
6	6 Northwest Natural	Yes	Yes	NWN	46.70	44.70	44.52	45.31	4.1%	6.5%	44.5	55.5	0.70	40.0%	0.47	0.76	4.20%	0.24%	6	6
7	7 Piedmont	Yes	Yes	PNY	37.44	37.29	37.37	31.89	4.0%	11.0%	48.0	52.0	0.80	25.0%	0.47	0.83	4.20%	0.11%	7	7
8	8 South Jersey	Yes	No	SJI	25.52	25.54	25.48	25.51	3.8%	11.5%	47.0	53.0	0.85	25.0%	0.51	0.89	4.20%	0.18%	8	8
9	9 Southwest Gas	Yes	No	SWX	55.00	54.56	55.21	54.92	2.6%	9.5%	49.0	51.0	0.85	35.0%	0.52	0.86	4.20%	0.06%	9	9
10	11 WGL	Yes	No	WGL	55.01	57.54	57.70	56.75	3.1%	12.0%	32.5	66.0	0.90	39.0%	0.69	1.11	4.20%	0.90%	10	10
11	13 American Water	No	Sensitivity	AWK	54.52	52.87	52.85	53.41	2.3%	8.5%	53.5	46.5	0.70	39.5%	0.41	0.66	4.20%	-0.16%	11	11
12	15 CA Water	No	Sensitivity	CWT	23.87	23.89	24.14	23.97	2.7%	9.0%	43.0	57.0	0.75	28.5%	0.49	0.84	4.20%	0.36%	15	12
13	18 Middlesex Water	No	Sensitivity	MSEX	22.77	21.83	21.91	22.17	3.4%	9.0%	40.5	58.5	0.75	34.5%	0.52	0.85	4.20%	0.44%	13	13
14	20 York Water	No	Sensitivity	YORW	25.16	22.36	22.64	23.39	2.4%	11.5%	47.5	52.5	0.7	29.5%	0.43	0.73	4.20%	0.12%	14	14
TOTAL		10	2	SJI 2/1 Stock Split in May 2015 prices are corrected by Staff / Yahoo Finance Retrieved Dec. 28, 2015			26.39		26.33	Dividend Yield = (Annual Dividends per Share) / Price per Share							AVA Peer Group	0.22%		
			7														Staff Peer Group	0.18%		
			w Sensitivities														AGL Sensitivity	0.15%		
																	Water Sensitivity	0.18%		
																	AGL & Water Sensitivity	0.17%		
																Mean				

UG 288 Staff ROE Summary

OMB GDP 4.3% Down from 4.61%  
 TIPS Inf. 2.12% Down from 2.35%  
 Historical Real GDP 2.87% Down from 2.93%

EIA Placeholder 4.57% Down from 4.89% Nominal  
 CBO: 4.2% Nominal GDP Down from 4.55%

Stage 3 – Long-Term Annual Dividend and EPS Growth Rates					
Component	Real Rate	TIPS Inflation Forecast	Nominal Rate	Weight	Weighted Rate
EIA	2.40%	2.12%	4.57%	16.70%	0.76%
OMB - White House 2016 Budget			4.30%	16.70%	0.72%
CBO			4.20%	16.70%	0.70%
Historical 1980 – 2014	2.87%	2.12%	5.05%	50.0%	2.53%
<b>Composite</b>				100%	<b>4.71%</b>
Historical 1980 – 2014 Q4			5.05%	100.0%	<b>5.05%</b>
Indiana U – Kelley 2018-35 Ctr Econometric Research	2.90%	2.12%	5.08%	100.0%	<b>5.08%</b>
<b>Blue Chip* – Top 10% 2019 Values</b>	<b>2.90%</b>	<b>2.12%</b>	<b>5.08%</b>	<b>100.0%</b>	<b>5.08%</b>
<b>Blue Chip – Average</b>	<b>2.40%</b>	<b>2.12%</b>	<b>4.57%</b>	<b>100.0%</b>	<b>4.57%</b>
<b>Blue Chip – Bottom 10%</b>	<b>1.90%</b>	<b>2.12%</b>	<b>4.06%</b>	<b>100.0%</b>	<b>4.06%</b>

Stage 3 – Other Long-Term Annual Dividend & EPS Growth Rates Considered					
Component	Real Rate	TIPS Inflation Forecast	Nominal Rate	Weight	Weighted Rate
<b>Blue Chip* – Top 10% 2021-2025 Values</b>	<b>2.70%</b>	<b>2.12%</b>	4.88%	100.0%	<b>4.88%</b>
<b>Blue Chip – Average</b>	<b>2.30%</b>	<b>2.12%</b>	4.47%	100.0%	<b>4.47%</b>
<b>Blue Chip – Bottom 10%</b>	<b>2.00%</b>	<b>2.12%</b>	4.16%	100.0%	<b>4.16%</b>
<b>Blue Chip* – Top 10% 2021-2025 Values</b>	<b>Nominal</b>		<b>5.00%</b>	100.0%	<b>5.00%</b>
<b>Blue Chip – Average</b>			<b>4.40%</b>	100.0%	<b>4.40%</b>
<b>Blue Chip – Bottom 10%</b>			<b>3.90%</b>	100.0%	<b>3.90%</b>

Change Drivers:

- A. Historical GDP rose 6 bps after inclusion of creative works, etc. back to 1929.
- B. Global expectation of inflation dropped, except in certain emerging market nations.
- C. No delayed productivity surge followed the 2008 downturn.
- D. US birth rates declined sharply from pre-2008, while immigration reform remains controversial.
- E. Global stresses and low inflation delay Fed raising of interest rates.
- F. Global investor flight to safety/quality continues.

Effect: Narrowing expectations and lower highest expected GDP growth

Model X: 3 Stage DCF - Dividend Growth with Terminal Value as Perpetuity						
X	Composite Growth	4.71%	Historical Growth	5.05%	Top-10 LT Blue Chip Growth	5.08%
Avista Gas Peers	8.10%	Implied Average ROE	8.36%	Implied Average ROE	8.38%	Implied Average ROE
Staff Gas Peers	8.39%		8.64%		8.67%	
Sensitivity w AGL	8.50%		8.76%		8.78%	
Sensitivity w Water	8.08%		8.34%		8.36%	
Sensitivity w AGL & Water	8.17%		8.43%		8.45%	

Model X: 3 Stage DCF - Dividend Growth with Terminal Value as Perpetuity (Hamada Adjusted)						
X	Composite Growth	4.71%	Historical Growth	5.05%	Top-10 LT Blue Chip Growth	5.08%
Avista Gas Peers	8.32%	Implied Average ROE	8.58%	Implied Average ROE	8.60%	Implied Average ROE
Staff Gas Peers	8.57%		8.82%		8.85%	
Sensitivity w AGL	8.65%		8.91%		8.93%	
Sensitivity w Water	8.26%		8.52%		8.54%	
Sensitivity w AGL & Water	8.34%		8.60%		8.62%	

See Hamada Adjustments to Right →

Model Y: 3 Stage DCF - Dividend Growth with Terminal Value as Sales based upon EPS Growth and Terminal Stock Sale						
Y	Composite Growth	4.71%	Historical Growth	5.05%	Top-10 LT Blue Chip Growth	5.08%
Avista Gas Peers	8.65%	Implied Average ROE	8.86%	Implied Average ROE	8.88%	Implied Average ROE
Staff Gas Peers	8.86%		9.07%		9.09%	
Sensitivity w AGL	9.05%		9.26%		9.27%	
Sensitivity w Water	8.34%		8.55%		8.57%	
Sensitivity w AGL & Water	8.49%		8.70%		8.72%	

Model Y: 3 Stage DCF - Dividend & EPS Growth with Terminal Value as Stock Sale (Hamada Adjusted)						
Y	Composite Growth	4.71%	Historical Growth	5.05%	Top-10 LT Blue Chip Growth	5.08%
Avista Gas Peers	8.87%	Implied Average ROE	9.08%	Implied Average ROE	9.10%	Implied Average ROE
Staff Gas Peers	9.04%		9.25%		9.27%	
Sensitivity w AGL	9.20%		9.41%		9.42%	
Sensitivity w Water	8.52%		8.73%		8.75%	
Sensitivity w AGL & Water	8.66%		8.87%		8.89%	

See Hamada Adjustments to Right →

Common Stock Flotation Costs Adjustment Shifts Range of Reasonable ROE's Upward by: **12.5** bps  
 Range of Modeled Results **Corrected** 8.52% to 9.39% ROE

Prior w Error 8.76% to 9.45%  
 Best Fit Range of Reasonable ROEs **8.97%** to **9.39%** ROE

(Best fit is Staff's Hamada adjusted screened gas utilities that have similar characteristics to AVA Regulated Gas Operations)

Prior w Error 9.11%  
 Midpoint of Best Fit Modeling Results **Corrected** **9.18%** ROE  
 (Staff's informed judgment excludes some of the lower range of modeling results depicted above)

Check of Reasonableness:

Last Commission Authorized ROE: **9.50%**  
 Change in Long-Term GDP Growth **9.19%** (less 31 bps)  
 Reduction in risk from frequent rate cases, **9.00%** to **9.19%**  
 and prompt cost recovery for new facilities.

Staff Point ROE Recommendation: **Corrected** **9.18%** ROE

\* Staff Blue Chip Data is sourced from Table 1 Blue Chip Economic Forecast, Feb. 2015

Note: This analysis does not reflect further downward correction by the CBO on Aug. 25, 2015  
 For example Staff's modeling of 2015 GDP growth is not reduced from 2.9% to 2.0%  
 See "CBO Cuts US 2015 GDP Forecast to 2% from 2.9%" by Nick Timiraos – WSJ – Aug. 25, 2015

5.05% Annual Growth Rate - Stage 3

Dividend Growth with Terminal Value as Perpetuity

**E.O.Y. Cash Flows** Staff UG 288 Model X

#	Abbreviated Utility	AVA	Staff	IRR	Terminal Value as % of NPV <sub>Div</sub>	NPV @ IRR	Recent Price*	Initial Stage										Transition Stage										Final Stage										Terminal Value	2044 Div	2044 Perpetuity	#								
								2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043													
1	1	AGL	Yes	Sensitivity	8.9%	35.0%	0.00	(50.33)	2.04	2.10	2.20	2.30	2.40	2.50	2.62	2.73	2.86	2.98	3.13	3.29	3.45	3.63	3.81	4.00	4.21	4.42	4.64	4.88	5.12	5.38	5.65	5.94	6.24	6.55	6.89	7.23	7.60	226.69	7.98	218.70	1	1							
2	2	Almos	Yes	No	7.9%	45.7%	0.00	(54.04)	1.56	1.64	1.72	1.81	1.90	1.99	2.09	2.19	2.30	2.41	2.53	2.66	2.79	2.93	3.08	3.24	3.40	3.57	3.75	3.94	4.14	4.35	4.57	4.80	5.05	5.30	5.57	5.85	6.14	242.99	6.45	236.54	2	2							
3	3	Laclede	Yes	No	8.4%	40.2%	0.00	(53.09)	1.84	1.92	2.01	2.10	2.20	2.30	2.40	2.51	2.62	2.73	2.87	3.01	3.17	3.33	3.49	3.67	3.86	4.05	4.26	4.47	4.70	4.93	5.18	5.45	5.72	6.01	6.31	6.63	6.97	238.39	7.32	231.08	3	3							
4	4	New Jersey	Yes	No	7.5%	49.8%	0.00	(30.18)	0.92	0.94	0.95	0.97	0.98	0.99	1.03	1.06	1.10	1.13	1.19	1.25	1.31	1.38	1.45	1.52	1.60	1.68	1.76	1.85	1.95	2.05	2.15	2.26	2.37	2.49	2.62	2.75	2.89	132.23	3.03	129.20	4	4							
5	5	NISource	Yes	No	7.1%	56.9%	(0.00)	(45.89)	1.06	1.10	1.13	1.17	1.20	1.23	1.28	1.32	1.37	1.42	1.49	1.56	1.64	1.73	1.81	1.91	2.00	2.10	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.44	3.62	202.18	3.80	198.38	5	5							
6	6	Northwest Natural	Yes	Yes	8.5%	37.5%	0.00	(45.31)	1.87	1.91	1.97	2.03	2.10	2.17	2.22	2.28	2.33	2.39	2.51	2.64	2.77	2.91	3.06	3.21	3.37	3.54	3.72	3.91	4.11	4.32	4.53	4.76	5.00	5.26	5.52	5.80	6.09	198.84	6.40	192.44	6	6							
7	7	Piedmont	Yes	Yes	8.6%	37.2%	0.00	(31.89)	1.31	1.35	1.39	1.43	1.47	1.51	1.56	1.61	1.66	1.71	1.79	1.88	1.98	2.08	2.19	2.30	2.41	2.53	2.66	2.80	2.94	3.08	3.24	3.40	3.58	3.76	3.95	4.15	4.36	4.58	140.58	4.58	136.01	7	7						
8	8	South Jersey	Yes	No	9.7%	29.6%	0.00	(25.51)	1.02	1.10	1.18	1.26	1.35	1.44	1.54	1.65	1.77	1.89	1.99	2.09	2.19	2.31	2.42	2.54	2.67	2.81	2.95	3.10	3.26	3.42	3.59	3.77	3.96	4.16	4.37	4.60	4.83	120.38	5.07	115.31	8	8							
9	9	Southwest Gas	Yes	No	8.5%	40.0%	0.00	(54.92)	1.62	1.74	1.85	1.97	2.10	2.23	2.42	2.63	2.85	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.57	5.86	6.15	6.46	6.79	7.13	7.49	7.87	256.84	8.27	248.57	9	9							
10	11	WGL	Yes	No	7.7%	47.2%	0.00	(56.75)	1.85	1.87	1.91	1.95	1.99	2.03	2.10	2.16	2.23	2.30	2.41	2.53	2.66	2.80	2.94	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.58	5.86	248.86	6.15	242.70	11	10							
11	13	American Water	No	Sensitivity	7.9%	46.9%	0.00	(53.41)	1.33	1.42	1.51	1.60	1.70	1.80	1.94	2.09	2.26	2.43	2.55	2.68	2.81	2.95	3.10	3.26	3.43	3.60	3.78	3.97	4.17	4.38	4.60	4.84	5.08	5.34	5.61	5.89	6.19	245.68	6.50	239.18	13	11							
12	15	CA Water	No	Sensitivity	8.7%	38.6%	(0.00)	(23.97)	0.67	0.69	0.77	0.87	0.97	1.07	1.15	1.24	1.33	1.42	1.49	1.57	1.65	1.73	1.82	1.91	2.00	2.11	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.45	3.62	113.21	3.80	109.41	15	12							
13	18	Middlesex Water	No	Sensitivity	7.9%	44.7%	0.00	(22.17)	0.77	0.78	0.80	0.83	0.85	0.87	0.89	0.91	0.93	0.95	1.00	1.05	1.10	1.16	1.22	1.28	1.34	1.41	1.48	1.56	1.63	1.72	1.80	1.90	1.99	2.09	2.20	2.31	2.42	96.79	2.55	94.24	18	13							
14	20	York Water	No	Sensitivity	7.9%	46.1%	0.00	(23.39)	0.60	0.63	0.68	0.73	0.79	0.85	0.90	0.95	1.01	1.07	1.12	1.18	1.24	1.30	1.37	1.44	1.51	1.59	1.67	1.75	1.84	1.93	2.03	2.13	2.24	2.35	2.47	2.59	2.73	106.90	2.86	104.03	20	14							
TOTALS					10	2	Mean																																		Terminal Value		2044 Div		2044 Perpetuity		#		
					7		8.28%	41.90%	-0.03%	Avista Gas																																							
					7		8.56%	37.36%	0.00%	Staff Gas																																							
					7		8.67%	36.59%	0.00%	Staff Sensitivity w AGL																																							
					7		8.26%	41.85%	0.00%	Staff Sensitivity w Water																																							
					7		8.35%	40.88%	0.00%	Staff Sensitivity w AGL and Water																																							

**B.O.Y. Cash Flows** Staff UG 288 Model X

#	Abbreviated Utility	AVA	Staff	IRR	Terminal Value as % of NPV <sub>Div</sub>	NPV @ IRR	Recent Price*	Initial Stage										Transition Stage										Final Stage										Terminal Value	2044 Div	2044 Perpetuity	#	
								2016	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043						
1	1	AGL	Yes	Sensitivity	9.1%	33.4%	0.00	(50.33)	2.10	2.20	2.30	2.40	2.50	2.62	2.73	2.86	2.98	3.13	3.29	3.45	3.63	3.81	4.00	4.21	4.42	4.64	4.88	5.12	5.38	5.65	5.94	6.24	6.55	6.89	7.23	7.60	7.98	227.48	8.38	219.10	1	1
2	2	Almos	Yes	No	8.1%	44.0%	0.00	(54.04)	1.64	1.72	1.81	1.90	1.99	2.09	2.19	2.30	2.41	2.53	2.66	2.79	2.93	3.08	3.24	3.40	3.57	3.75	3.94	4.14	4.35	4.57	4.80	5.05	5.30	5.57	5.85	6.14	6.45	243.35	6.78	236.57	2	2
3	3	Laclede	Yes	No	8.5%	38.5%	0.00	(53.09)	1.92	2.01	2.10	2.20	2.30	2.40	2.51	2.62	2.73	2.87	3.01	3.17	3.33	3.49	3.67	3.86	4.05	4.26	4.47	4.70	4.93	5.18	5.45	5.72	6.01	6.31	6.63	6.97	7.32	239.01	7.69	231.32	3	3
4	4	New Jersey	Yes	No	7.6%	47.7%	0.00	(30.18)	0.94	0.95	0.97	0.98	0.99	1.03	1.06	1.10	1.13	1.19	1.25	1.31	1.38	1.45	1.52	1.60	1.68	1.76	1.85	1.95	2.05	2.15	2.26	2.37	2.49	2.62	2.75	2.89	133.00	3.19	129.82	4	4	
5	5	NISource	Yes	No	7.2%	55.5%	(0.00)	(45.89)	1.10	1.13	1.17	1.20	1.23	1.28	1.32	1.37	1.42	1.49	1.56	1.64	1.73	1.81	1.91	2.00	2.10	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.44	3.62	3.80	202.84	3.99	198.85	5	5
6	6	Northwest Natural	Yes	Yes	8.7%	36.1%	0.00	(45.31)	1.91	1.97	2.03	2.10	2.17	2.22	2.28	2.33	2.39	2.51	2.64	2.77	2.91	3.06	3.21	3.37	3.54	3.72	3.91	4.11	4.32	4.53	4.76	5.00	5.26	5.52	5.80	6.09	6.40	200.11	6.73	193.39	6	6
7	7	Piedmont	Yes	Yes	8.7%	35.8%	0.00	(31.89)	1.35	1.39	1.43	1.47	1.51	1.56	1.61	1.66	1.71	1.79	1.88	1.98	2.08	2.19	2.30	2.41	2.53	2.66	2.80	2.94	3.08	3.24	3.40	3.58	3.76	3.95	4.15	4.36	4.58	141.44	4.81	136.63	7	7
8	8	South Jersey	Yes	No	9.9%	27.5%	0.00	(25.51)	1.10	1.18	1.26	1.35	1.44	1.54	1.65	1.77	1.89	1.99	2.09	2.19	2.31	2.42	2.54	2.67	2.81	2.95	3.10	3.26	3.42	3.59	3.77	3.96	4.16	4.37	4.60	4.83	5.07	120.10	5.33	114.77	8	8
9	9	Southwest Gas	Yes	No	8.7%	37.8%	(0.00)	(54.92)	1.74	1.85	1.97	2.10	2.23	2.42	2.63	2.85	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.57	5.86	6.15	6.46	6.79	7.13	7.49	7.87	256.29	8.69	247.61	9	9	
10	11	WGL	Yes	No	7.8%	45.9%	0.00	(56.75)	1.87	1.91	1.95	1.99	2.03	2.10	2.16	2.23	2.30	2.41	2.53	2.66	2.80	2.94	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.58	5.86	6.15	250.37	6.46	243.90	11	10
11	13	American Water	No	Sensitivity	8.1%	44.9%	0.00	(53.41)	1.42	1.51	1.60	1.70	1.80	1.94	2.09	2.26	2.43	2.55	2.68	2.81	2.95	3.10	3.26	3.43	3.60	3.78	3.97	4.17	4.38	4.60	4.84	5.08	5.34	5.61	5.89	6.19	6.50	245.39	6.83	238.66	13	11
12	15	CA Water	No	Sensitivity	8.9%	36.3%	0.00	(23.97)	0.69	0.77	0.87	0.97	1.07	1.15	1.24	1.33	1.42	1.49	1.57	1.65	1.73	1.82	1.91	2.00	2.11	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.45	3.62	3.80	112.70	3.99	108.71	15	12
13	18	Middlesex Water	No	Sensitivity	8.0%	43.4%	0.00	(22.17)	0.78	0.80	0.83	0.85	0.87	0.89	0.91	0.93	0.95	1.00	1.05	1.10	1.16	1.22	1.28	1.34	1.41	1.48	1.56	1.63	1.72	1.80	1.90	1.99	2.09	2.20	2.31	2.42	2.55	97.40	2.68	94.72	18	13
14	20	York Water	No	Sensitivity	8.1%	44.2%	0.00	(23.39)	0.63	0.68	0.73	0.79	0.85	0.90	0.95	1.01	1.07	1.12	1.18	1.24	1.30	1.37	1.44	1.51	1.59	1.67	1.75	1.84	1.93	2.03	2.13	2.24	2.35	2.47	2.59	2.73	2.86	106.77	3.01	103.76	20	14</

		5.05% Annual Growth Rate - Stage 3			EPS Growth to Determine a Sale Terminal Value		EPS Growth		Staff Model Y																																	
E.O.Y. Cash Flows																																										
#	Abbreviated Utility	AVA	Staff	IRR	Terminal Value as % of NPV <sub>0Y</sub>	NPV @ IRR	Recent Price*	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2043 Terminal Value	2044 Div	2044 Sale	2045	#	
								Initial Stage					Transition Stage					Final Stage																								
1	1	AGL	Yes	Sensitivity	9.5%	39.7%	0.00	(50.33)	2.04	2.10	2.20	2.30	2.40	2.50	2.62	2.73	2.86	2.98	3.13	3.29	3.45	3.63	3.81	4.00	4.21	4.42	4.64	4.88	5.12	5.38	5.65	5.94	6.24	6.55	6.89	7.23	7.60	307.91	7.98	299.93	18.47	1
2	2	Almos	Yes	No	10.1%	57.9%	0.00	(54.04)	1.56	1.64	1.72	1.81	1.90	1.99	2.09	2.19	2.30	2.41	2.53	2.66	2.79	2.93	3.08	3.24	3.40	3.57	3.75	3.94	4.14	4.35	4.57	4.80	5.05	5.30	5.57	5.85	6.14	568.48	6.45	562.02	31.20	2
3	3	Laclede	Yes	No	9.0%	44.0%	0.00	(53.09)	1.84	1.92	2.01	2.10	2.20	2.30	2.40	2.51	2.62	2.73	2.87	3.01	3.17	3.33	3.49	3.67	3.86	4.05	4.26	4.47	4.70	4.93	5.18	5.45	5.72	6.01	6.31	6.63	6.97	305.97	7.32	298.65	17.72	3
4	4	New Jersey	Yes	No	6.9%	45.9%	0.00	(30.18)	0.92	0.94	0.95	0.97	0.98	0.99	1.03	1.06	1.10	1.13	1.19	1.25	1.31	1.38	1.45	1.52	1.60	1.68	1.76	1.85	1.95	2.05	2.15	2.26	2.37	2.49	2.62	2.75	2.89	102.89	3.03	99.86	5.79	4
5	5	NISource	Yes	No	8.0%	61.3%	0.00	(45.89)	1.06	1.10	1.13	1.17	1.20	1.23	1.28	1.32	1.37	1.42	1.49	1.56	1.64	1.73	1.81	1.91	2.00	2.10	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.44	3.62	279.86	3.80	276.06	11.13	5
6	6	Northwest Natural	Yes	Yes	9.7%	45.0%	0.00	(45.31)	1.87	1.91	1.97	2.03	2.10	2.17	2.22	2.28	2.33	2.39	2.51	2.64	2.77	2.91	3.06	3.21	3.37	3.54	3.72	3.91	4.11	4.32	4.53	4.76	5.00	5.26	5.52	5.80	329.44	6.40	323.04	13.55	6	
7	7	Piedmont	Yes	Yes	8.3%	35.0%	0.00	(31.89)	1.31	1.35	1.39	1.43	1.47	1.51	1.56	1.61	1.66	1.71	1.79	1.88	1.98	2.08	2.19	2.30	2.41	2.53	2.66	2.80	2.94	3.08	3.24	3.40	3.58	3.76	3.95	4.15	4.36	121.44	4.58	116.87	6.78	7
8	8	South Jersey	Yes	No	10.4%	34.7%	0.00	(25.51)	1.02	1.10	1.18	1.26	1.35	1.44	1.54	1.65	1.77	1.89	1.99	2.09	2.19	2.31	2.42	2.54	2.67	2.81	2.95	3.10	3.26	3.42	3.59	3.77	3.96	4.16	4.37	4.60	170.63	5.07	165.56	10.71	8	
9	9	Southwest Gas	Yes	No	8.4%	39.0%	0.00	(54.92)	1.62	1.74	1.85	1.97	2.10	2.23	2.42	2.63	2.85	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.57	5.86	6.15	6.46	6.79	7.13	7.49	7.87	241.37	8.27	233.10	13.37	9
10	11	WGL	Yes	No	7.6%	46.4%	0.00	(56.75)	1.85	1.87	1.91	1.95	1.99	2.03	2.10	2.16	2.23	2.30	2.41	2.53	2.66	2.80	2.94	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.58	235.89	6.15	229.73	11.74	10	
11	13	American Water	No	Sensitivity	8.1%	48.0%	0.00	(53.41)	1.33	1.42	1.51	1.60	1.70	1.80	1.94	2.09	2.26	2.43	2.55	2.68	2.81	2.95	3.10	3.26	3.43	3.60	3.78	3.97	4.17	4.38	4.60	4.84	5.08	5.34	5.61	5.89	263.58	6.50	257.08	12.51	13	
12	15	CA Water	No	Sensitivity	8.9%	40.1%	0.00	(23.97)	0.67	0.69	0.77	0.87	0.97	1.07	1.15	1.24	1.33	1.42	1.49	1.57	1.65	1.73	1.82	1.91	2.00	2.11	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.45	124.28	3.80	120.47	6.03	15	
13	18	Middlesex Water	No	Sensitivity	7.8%	44.4%	0.00	(22.17)	0.77	0.78	0.80	0.83	0.85	0.87	0.89	0.91	0.93	0.95	1.00	1.05	1.10	1.16	1.22	1.28	1.34	1.41	1.48	1.56	1.63	1.72	1.80	1.90	1.99	2.09	2.20	2.31	94.77	2.55	92.22	4.78	18	
14	20	York Water	No	Sensitivity	8.0%	0.0%	0.00	(23.39)	0.60	0.63	0.68	0.73	0.79	0.85	0.90	0.95	1.01	1.07	1.12	1.18	1.24	1.30	1.37	1.44	1.51	1.59	1.67	1.75	1.84	1.93	2.03	2.13	2.24	2.35	2.47	2.59	110.41	2.86	107.54	4.37	20	
TOTALS		10	2						Mean																																	
									8.79%	41.53%	0.00%	Avista Gas																														
									9.00%	40.01%	0.00%	Staff Gas																														
									9.18%	39.89%	0.00%	Staff Sensitivity w AGL)																														
									8.47%	35.42%	0.00%	Staff Sensitivity w Water																														
									8.63%	36.03%	0.00%	Staff Sensitivity w AGL and Water)																														

B.O.Y. Cash Flows

Staff Model Y EPS Growth

#	Abbreviated Utility	AVA	Staff	IRR	Terminal Value as % of NPV <sub>DIV</sub>	NPV @ IRR	Recent Price*	2015 - 2043																																				Terminal Value	2044 Div	2044 Sale	2045	#
								Initial Stage					Transition Stage					Final Stage																														
1	AGL	Yes	Sensitivity	9.7%	38.0%	0.00	(50.33)	2.10	2.20	2.30	2.40	2.50	2.62	2.73	2.86	2.98	3.13	3.29	3.45	3.63	3.81	4.00	4.21	4.42	4.64	4.88	5.12	5.38	5.65	5.94	6.24	6.55	6.89	7.23	7.60	7.98	308.32	8.38	299.93	18.47	1							
2	Atmos	Yes	No	10.3%	56.3%	0.00	(54.04)	1.64	1.72	1.81	1.90	1.99	2.09	2.19	2.30	2.41	2.53	2.66	2.79	2.93	3.08	3.24	3.40	3.57	3.75	3.94	4.14	4.35	4.57	4.80	5.05	5.30	5.57	5.85	6.14	6.45	568.80	6.78	562.02	31.20	2							
3	Laclede	Yes	No	9.1%	42.3%	0.00	(53.09)	1.92	2.01	2.10	2.20	2.30	2.40	2.51	2.62	2.73	2.87	3.01	3.17	3.33	3.49	3.67	3.86	4.05	4.26	4.47	4.70	4.93	5.18	5.45	5.72	6.01	6.31	6.63	6.97	7.32	306.34	7.69	298.65	17.72	3							
4	New Jersey	Yes	No	7.0%	44.6%	0.00	(30.18)	0.94	0.95	0.97	0.98	0.99	1.03	1.06	1.10	1.13	1.19	1.25	1.31	1.38	1.45	1.52	1.60	1.68	1.76	1.85	1.95	2.05	2.15	2.26	2.37	2.49	2.62	2.75	2.89	3.03	103.05	3.19	99.86	5.79	4							
5	NiSource	Yes	No	8.0%	60.0%	0.00	(45.89)	1.10	1.13	1.17	1.20	1.23	1.28	1.32	1.37	1.42	1.49	1.56	1.64	1.73	1.81	1.91	2.00	2.10	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.44	3.62	3.80	280.05	3.99	276.06	11.13	5							
6	Northwest Natural	Yes	Yes	9.8%	43.6%	0.00	(45.31)	1.91	1.97	2.03	2.10	2.17	2.22	2.28	2.33	2.39	2.51	2.64	2.77	2.91	3.06	3.21	3.37	3.54	3.72	3.91	4.11	4.32	4.53	4.76	5.00	5.26	5.52	5.80	6.09	6.40	329.76	6.73	323.04	13.55	6							
7	Piedmont	Yes	Yes	8.4%	33.6%	0.00	(31.89)	1.35	1.39	1.43	1.47	1.51	1.56	1.61	1.66	1.71	1.79	1.88	1.98	2.08	2.19	2.30	2.41	2.53	2.66	2.80	2.94	3.08	3.24	3.40	3.58	3.76	3.95	4.15	4.36	4.58	121.67	4.81	116.87	6.78	7							
8	South Jersey	Yes	No	10.6%	32.6%	0.00	(25.51)	1.10	1.18	1.26	1.35	1.44	1.54	1.65	1.77	1.89	1.99	2.09	2.19	2.31	2.42	2.54	2.67	2.81	2.95	3.10	3.26	3.42	3.59	3.77	3.96	4.16	4.37	4.60	4.83	5.07	170.89	5.33	165.56	10.71	8							
9	Southwest Gas	Yes	No	8.6%	36.9%	0.00	(54.92)	1.74	1.85	1.97	2.10	2.23	2.42	2.63	2.85	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.57	5.86	6.15	6.46	6.79	7.13	7.49	7.87	8.27	241.78	8.69	233.10	13.37	9							
10	11 WGL	Yes	No	7.7%	45.0%	0.00	(56.75)	1.87	1.91	1.95	1.99	2.03	2.10	2.16	2.23	2.30	2.41	2.53	2.66	2.80	2.94	3.09	3.24	3.41	3.58	3.76	3.95	4.15	4.36	4.58	4.81	5.05	5.31	5.58	5.86	6.15	236.20	6.46	229.73	11.74	10							
11	13 American Water	No	Sensitivity	8.2%	46.1%	0.00	(53.41)	1.42	1.51	1.60	1.70	1.80	1.94	2.09	2.26	2.43	2.55	2.68	2.81	2.95	3.10	3.26	3.43	3.60	3.78	3.97	4.17	4.38	4.60	4.84	5.08	5.34	5.61	5.89	6.19	6.50	263.91	6.83	257.08	12.51	13							
12	15 CA Water	No	Sensitivity	9.1%	37.9%	0.00	(23.97)	0.69	0.77	0.87	0.97	1.07	1.15	1.24	1.33	1.42	1.49	1.57	1.65	1.73	1.82	1.91	2.00	2.11	2.21	2.32	2.44	2.56	2.69	2.83	2.97	3.12	3.28	3.45	3.62	3.80	124.47	3.99	120.47	6.03	15							
13	18 Middlesex Water	No	Sensitivity	8.0%	43.0%	0.00	(22.17)	0.78	0.80	0.83	0.85	0.87	0.89	0.91	0.93	0.95	1.00	1.05	1.10	1.16	1.22	1.28	1.34	1.41	1.48	1.56	1.63	1.72	1.80	1.90	1.99	2.09	2.20	2.31	2.42	2.55	94.90	2.68	92.22	4.78	18							
14	20 York Water	No	Sensitivity	8.2%	44.7%	0.00	(23.39)	0.63	0.68	0.73	0.79	0.85	0.90	0.95	1.01	1.07	1.12	1.18	1.24	1.30	1.37	1.44	1.51	1.59	1.67	1.75	1.84	1.93	2.03	2.13	2.24	2.35	2.47	2.59	2.73	2.86	110.55	3.01	107.54	4.37	20							
TOTALS								10	2	Mean																																						
								7	8.93%	43.28%	0.00%	Avista Gas																																				
								7	9.14%	38.55%	0.00%	Staff Gas																																				
								7	9.33%	38.36%	0.00%	Staff Sensitivity w AGL																																				
								7	8.63%	41.46%	0.00%	Staff Sensitivity w Water																																				
								7	8.78%	40.96%	0.00%	Staff Sensitivity w AGL and Water																																				

Average B.O.Y. & E.O.Y. Cash Flows

Model Y EPS Growth

#	Abbreviated Utility	AVA	Staff	Average IRR	Terminal Value as % of NPV <sub>DIV</sub>	Average 2015 - 2019 Dividend Growth Rates			
						EOY	BOY	Average	
1	AGL	Yes	Sensitivity	9.6%	38.8%	4.1%	4.5%	4.3%	
2	Atmos	Yes	No	10.2%	57.1%	5.1%	5.0%	5.0%	
3	Laclede	Yes	No	9.0%	43.2%	4.6%	4.6%	4.6%	
4	New Jersey	Yes	No	7.0%	45.2%	1.6%	1.4%	1.5%	
5	NiSource	Yes	No	8.0%	60.7%	3.1%	2.9%	3.0%	
6	Northwest Natural	Yes	Yes	9.8%	44.3%	3.0%	3.2%	3.1%	
7	Piedmont	Yes	Yes	8.4%	34.3%	2.9%	2.9%	2.9%	
8	South Jersey	Yes	No	10.5%	33.7%	7.2%	6.9%	7.1%	
9	Southwest Gas	Yes	No	8.5%	37.9%	6.7%	6.4%	6.5%	
10	11 WGL	Yes	No	7.6%	45.7%	1.8%	2.1%	1.9%	
11	13 American Water	No	Sensitivity	8.2%	47.1%	6.3%	6.1%	6.2%	
12	15 CA Water	No	Sensitivity	9.0%	39.0%	9.7%	11.7%	10.7%	
13	18 Middlesex Water	No	Sensitivity	7.9%	43.7%	2.5%	2.9%	2.7%	
14	20 York Water	No	Sensitivity	8.1%	22.4%	7.2%	7.7%	7.5%	
TOTALS						10	2	Mean	
						7	8.86%	44.09%	4.02%
						7	9.07%	39.28%	2.97%
						7	9.26%	39.13%	3.36%
						7	8.55%	38.44%	5.28%
						7	8.70%	38.50%	5.12%