

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

CASE 11-W-0200

**PROCEEDING ON THE MOTION OF THE COMMISSION AS TO THE
RATES, CHARGES, RULES AND REGULATIONS OF
LONG ISLAND WATER CORPORATION D/B/A
LONG ISLAND AMERICAN WATER FOR WATER SERVICE**

PREPARED REBUTTAL TESTIMONY

OF

**PAULINE M. AHERN, CRRA
PRINCIPAL
AUS CONSULTANTS**

October 3, 2011

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1 **INTRODUCTION**

2 **1. Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.**

3 A. My name is Pauline M. Ahern and I am a Principal of AUS Consultants. My business
4 address is 155 Gaither Drive, Suite A, Mount Laurel, New Jersey 08054.

5 **2. Q. ARE YOU THE SAME PAULINE M. AHERN WHO PREVIOUSLY**
6 **SUBMITTED PREPARED DIRECT TESTIMONY IN THIS PROCEEDING?**

7 A. Yes, I am.

8 **3. Q. HAVE YOU PREPARED SCHEDULES WHICH SUPPORT YOUR REBUTTAL**
9 **TESTIMONY?**

10 A. Yes, I have. They have been marked for identification as Schedules PMA-15 through
11 PMA-29.

12 **PURPOSE**

13 **4. Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?**

14 A. The purpose of this testimony is to rebut certain aspects of the prepared direct
15 testimony of Kwaku Duah, Staff witness for the New York Public Service Commission
16 (NYPSC) regarding common equity cost rate and overall rate of return. Specifically, I
17 will address: NYPSC Witness Duah's calculation of the Discounted Cash Flow Model
18 (DCF) and Capital Asset Pricing Model (CAPM); the flaws and underestimation of his
19 resulting recommended common equity cost rate including its relation to current and
20 recently authorized return rates on common equity (ROEs) by various regulatory
21 commissions, including New York; and the fact that Mr. Duah's recommendation does
22 not reflect the additional risk experienced by LIAW due to its small size relative to the
23 electric and water companies in his proxy group, the greater financial risk of his

1 recommended capital structure ratios or flotation costs. I will also address a portion of
2 Mr. Duah's response to my prepared direct testimony. However, this does not indicate
3 that I agree with those portions of his response which I will not address. Finally, I will
4 demonstrate that correcting for the flaws in Mr. Duah's application of the DCF and
5 CAPM as well as properly reflecting the greater financial risk inherent in his
6 recommended capital structure ratios, LIAW's greater business risk due to its smaller
7 relative size and a flotation cost adjustment, results in a common equity cost rate of
8 10.84% for his proxy group of twenty-nine electric and water companies and 11.79%
9 for a group of water companies.

10 **COMMON EQUITY COST RATE**

11 **Mr. Duah's Proxy Group of Twenty-Nine Electric and Water Companies**

12 **5. Q. DO YOU HAVE ANY COMMENT ON MR. DUAH'S RELIANCE UPON A**
13 **PROXY GROUP OF TWENTY-NINE ELECTRIC AND WATER**
14 **COMPANIES?**

15 A. Yes. Mr. Duah's explains on page 37, lines 2 through 6, of his prepared testimony that
16 he did not select a separate proxy group of water companies because "he does not
17 believe that a water company proxy group provides the statistical reliability to
18 accurately estimate LIAW's cost of equity." It is true that Value Line Investment
19 Survey's (Value Line) Standard Edition does cover only five water companies and
20 reports projected EPS, DPS, BVPS and common shares for only five companies.
21 However, Value Line's Small- and Mid-Cap Edition provides financial data on an
22 additional five water companies. See pages 1 and 2 of Schedule PMA-15. Thus, Value
23 Line covers ten water utilities which represent the entire universe of publicly-traded

1 water utilities. While the Small- and Mid-Cap Edition does not provide Value Line
2 projected data, it does provide consensus 5-year earnings growth rates in EPS, as well
3 as betas, as shown on pages 3 through 12 of Schedule PMA-15. Projected growth rates
4 in EPS are also available from sources such as ThomsonFN First Call (which reflect the
5 consensus estimates of I/B/E/S), Zacks, and Reuters, for example. Thus, data do exist
6 with which to apply both a DCF analysis and a CAPM analysis to the market data of
7 water companies. This is evidenced by my cost of common equity analysis based upon
8 water companies contained in Schedules PMA-1 through PMA-14 and as discussed in
9 my prepared direct testimony. Investors, consistent with the Efficient Market
10 Hypothesis (EMH) as discussed in my prepared direct testimony at page 28, line 11
11 through page 29, line 14, are aware of the small universe of publicly traded water
12 companies, as well as the sources of market data and analysts estimates for these
13 companies. In my opinion, investors would look to other water companies, even with
14 limited data, in arriving at their pricing decisions and required return rates on common
15 equity for water companies, rather than look to groups of electric and water companies
16 or natural gas distribution companies (LDCs). Investors would then perform a relative
17 risk analysis relative to other publicly traded water companies to determine a company
18 specific investor required return. Rate of return analysts, such as Mr. Duah and myself,
19 should emulate investor behavior when arriving at a recommended cost rate of common
20 equity applicable to LIAW. Therefore, in my opinion, Mr. Duah should not have relied
21 upon a group of electric and water companies, but rather a group of water companies in
22 determining a recommended common equity cost rate for LIAW.

1 **6. Q. CAN YOU PROVIDE SOME EVIDENCE THAT THE RISK OF WATER**
2 **UTILITIES DIFFERS SIGNIFICANTLY FROM THAT OF ELECTRIC,**
3 **COMBINATION ELECTRIC AND GAS AND NATURAL GAS**
4 **DISTRIBUTION UTILITIES?**

5 A. Yes, page 8, line 1, through page 17, line 11 of my prepared direct testimony provides
6 such evidence on some of the differences in risk between water utilities and the
7 electric, combination electric and gas and natural gas distribution utilities. Specific
8 examples of the differences in risk included, but are not limited to the extraordinary
9 expected capital expenditures necessary to repair, replace and install new water utility
10 plant, capital intensive nature of water utilities and their lower relative depreciation
11 rates. LIAW and the water industry, specifically my water proxy group, continued to
12 be more capital intensive in 2010 as well as experiencing lower depreciation rates.
13 Page 1 of Schedule PMA-16 shows that for LIAW, it took \$2.55 of net plant in 2010 to
14 produce \$1.00 in operating revenues and for my water proxy group, it took \$3.82. In
15 contrast, for Mr. Duah's proxy group, including and excluding the single water
16 company, American States Water Company (AWR), it took \$2.00 of net plant to
17 produce a \$1.00 in operating revenues. In addition, LIAW experiences a depreciation
18 rate significantly lower than that of my water proxy group or Mr. Duah's proxy group,
19 including and excluding the single water company. As shown on page 2, LIAW's
20 2010 effective depreciation rate was 2.1%, while that of my water group was 3.1% and
21 that of Mr. Duah's proxy group, both including and excluding the water companies
22 was 3.8%.

1 **7. Q. IS THERE ANYTHING ELSE INAPPROPRIATE ABOUT MR. DUAH'S USE**
2 **OF AN ELECTRIC AND WATER COMPANY PROXY GROUP?**

3 A. Yes. Having performed a common equity cost rate analysis based upon electric and
4 water companies, Mr. Duah then neglected to perform a complete relative risk analysis
5 between his electric and water companies and LIAW. As noted above, significant
6 differences in risk include the significantly greater capital intensity and lower
7 depreciation rates of the water industry, in general, and LIAW, specifically, relative to
8 the electric utility industry discussed above, the smaller size of LIAW relative to the
9 companies in his proxy group and the greater financial risk of his proposed common
10 equity ratio for LIAW.

11 **8. Q. PLEASE DISCUSS THE RISK IMPLICATIONS OF LIAW'S SMALL SIZE**
12 **RELATIVE TO THE PROXY GROUP OF NINE WATER COMPANIES AND**
13 **MR. DUAH'S PROXY GROUP OF TWENTY-NINE ELECTRIC AND WATER**
14 **COMPANIES.**

15 A. In general, all else equal, one significant element of business risk is size, as discussed
16 on page 21, line 19 through 23, line 11 and again at page 68, line 16, through page 70,
17 line 12 of my prepared direct testimony. Smaller companies are less capable of coping
18 with significant events which affect sales revenues and earnings.

19 **9. Q. PLEASE COMPARE THE SIZE OF LIAW WITH THAT OF THE PROXY**
20 **GROUP OF NINE WATER COMPANIES AND MR. DUAH'S TWENTY-NINE**
21 **ELECTRIC AND WATER COMPANIES.**

22 A. LIAW is significantly smaller than the average company in either my water proxy
23 group or Mr. Duah's electric and water proxy group based upon the results of a study of

1 the market capitalization of LIAW estimated relative to the water proxy group and Mr.
 2 Duah's proxy group of twenty-nine electric and water companies. The results are
 3 shown on Schedule PMA-17. Page 1 contains a chart of the results, while page 2 is a
 4 summary of the small size risk premiums based upon the Ibbotson Associates 2010 size
 5 premium study, and page 3 contains a summary of the market capitalizations based
 6 upon the average market price used by Mr. Duah in his DCF analysis. As can be seen
 7 on both pages 1 and 2 of Schedule PMA-17, the Company is significantly smaller than
 8 the average company in either my water proxy group or in Mr. Duah's electric and
 9 water proxy group, including or excluding the single water company, based upon
 10 market capitalization as shown below:

11 Table 1

	Market Capitalization(1) (\$ Millions)	Times Greater than the Company
18 LIAW		
19 Based upon the Proxy		
20 Group of Nine Water Cos.	\$81.342	
21		
22 Based upon Mr. Duah's		
23 Proxy Group of Twenty-Nine		
24 Electric & Water Cos.	64.248	
25		
26 Proxy Group of Eight		
27 Water Companies	1,200.636	14.8x
28		
29 Mr. Duah's Proxy Group		
30 of Twenty-Nine		
31 Electric & Water Cos.	7,159.097	111.4x
32		

33 Because LIAW's common stock is not publicly traded, I have assumed that if it were
 34 publicly traded, its common shares would be selling at the same market to book ratios

1 as either the average water company or the average electric and water company.
2 Hence, LIAW's market capitalization is estimated to be \$81.342 and \$64.248 million
3 based upon the water and electric and water proxy groups, respectively. In contrast, the
4 market capitalization of the average water company was \$1.201 billion and the average
5 company in Mr. Duah's proxy group including the single water company was
6 approximately \$7.159 billion, or 14.8 and 111.4 times larger than LIAW's estimated
7 market capitalization, respectively. It is conventional wisdom, supported by actual
8 returns over time, and a general premise contained in basic finance textbooks¹, that
9 smaller companies tend to be more risky, causing investors to expect greater returns as
10 compensation for that risk. Pages 3 through 14 of Schedule PMA-14 of confirm this
11 proposition to be true. As shown on page 2 of Schedule PMA-17 the average size
12 premium for common stocks in the 10th decile, in which LIAW falls, was 6.36% from
13 1926-2010. In contrast, the size premiums for the 6th – 7th deciles between the average
14 water company falls and the 2nd – 3rd deciles between Mr. Duah's average electric and
15 water company falls were 1.85% and 0.91%, respectively, from 1926-2010. As also
16 shown on page 2, the size premium spreads between the nine water companies and
17 twenty-nine electric and water companies and LIAW are 4.51% and 5.45%,
18 respectively.

19 In view of LIAW's small estimated market capitalization, relative to the estimated
20 average market capitalization of the twenty-nine electric and water companies, in my
21 opinion, a conservative small size risk premium of 0.55% is indicated. For the proxy
22 group of nine water companies, a 0.35% small size risk premium is extremely

¹ See line 20, page 21 through line 11 on page 23 of Ms. Ahern's prepared direct testimony.

1 conservative and reasonable to assume a small size risk premium of 0.35% and is
2 identical to the one I recommended in my prepared direct testimony.

3 **Discounted Cash Flow Model**

4 **10. Q. DO YOU HAVE ANY COMMENTS ABOUT MR. DUAH'S APPLICATION OF**
5 **THE DISCOUNTED CASH FLOW MODEL?**

6 A. Yes. Mr. Duah's DCF results are understated for two reasons. First, he incorrectly
7 relies exclusively upon a two-stage growth version of the DCF model. Second, he
8 incorrectly relies upon both dividend growth and sustainable growth in his application
9 of the two-stage DCF.

10 **11. Q. PLEASE COMMENT UPON THE APPLICABILITY OF THE TWO-STAGE**
11 **DCF WHEN DETERMINING A REGULATED WATER UTILITY'S SUCH AS**
12 **LIAW'S, COMMON EQUITY COST RATE.**

13 A. As discussed on page 31, line 5 through page 32, line 7 of my prepared direct
14 testimony, there is no basis for applying a multi-stage growth version of the DCF model
15 to determine the common equity cost rates of mature public utility companies.
16 Therefore, the constant growth model is most appropriate. In addition, in my
17 experience, it is the most widely utilized version of the DCF used in public utility rate
18 base / rate of return regulation. In my opinion, it is widely utilized because utilities are
19 generally in the mature stage of their lifecycles and not transitioning from one growth
20 stage to another. This is especially true for water utilities.

21 It is neither necessary nor appropriate to rely upon multi-stage versions of the
22 DCF model, including the two-stage version used by Mr. Duah. The appropriate DCF

1 model for regulated utility cost of capital purposes is the single-stage constant growth
2 DCF model, which I utilized in my prepared direct testimony.

3 **12. Q. DO YOU AGREE WITH MR. DUAH'S RELIANCE UPON SUSTAINABLE**
4 **GROWTH IN THE SECOND-STAGE OF HIS DCF ANALYSIS?**

5 A. No. Mr. Duah's second-stage DCF growth rate utilizes the sustainable growth
6 methodology for determining the growth rate component. He calculates sustainable
7 growth for "each company in the proxy group based on its expected return on equity,
8 projected retention ratio, and the projected growth in common equity through common
9 stock issuances" as he states on page 42, line 22 through page 43, line 4 of his prepared
10 direct testimony. On page 2 of Exhibit___ (KXD-15), it is clear that the return on
11 equity utilized in Mr. Duah's growth rate analysis is based upon five-year expectations
12 by Value Line. His allowance for growth caused by the sale of new common stock
13 above book value is also based upon the five-year growth in shares from 2011 through
14 2014-2016. Hence, Mr. Duah's sustainable growth methodology is a short-term
15 forecast, no longer than the security analysts' five-year forecasts of EPS growth used in
16 my DCF analysis.

17 Moreover, the sustainable growth methodology is inherently circular because it
18 relies upon an expected ROE on book common equity which is then used in a DCF
19 analysis to establish a common equity cost rate related to the market value of the
20 common stock which, if authorized as the allowed ROE in this proceeding, will become
21 the expected ROE on book common equity. Thus, the resultant allowed DCF derived
22 ROE on book common equity, Mr. Duah's recommended 8.90%, is lower than the
23 expected average Value Line ROE of 10.10% as derived from page 2 of Exhibit ___

1 (KXD-15) for his proxy group used to derive the allowed ROE based upon that proxy
2 group's market data. See Schedule PMA-18, an excerpt from Roger A. Morin's book
3 New Regulatory Finance, which corroborates the circular nature of sustainable growth.

4 In view of the foregoing, it is clear that Mr. Duah's application of the DCF is
5 circular and ignores the basic principle of rate base / rate of return regulation, namely,
6 that the cost of equity which will be authorized in this proceeding will be applied to the
7 jurisdictional book value rate base of LIAW and become the allowed future earned
8 return on book common equity, i.e., the expected ROE component of the sustainable
9 growth method.

10 **13. Q. WHAT WOULD MR. DUAH'S DCF RESULTS HAVE BEEN FOR THE**
11 **TWENTY-NINE ELECTRIC AND WATER COMPANIES HAD HE**
12 **PROPERLY UTILIZED A SINGLE-STAGE DCF AS WELL AS FORECASTED**
13 **GROWTH IN EPS FROM VALUE LINE, HIS SOURCE FOR GROWTH IN HIS**
14 **TWO-STAGE DCF ANALYSIS?**

15 A. On Schedule PMA-19, I have shown a recalculated DCF analysis based upon Mr.
16 Duah's dividends per share (DPS), average market price and Value Line's forecasted 5-
17 year growth in EPS. As shown, the average indicated DCF common equity cost rate is
18 9.84% and the median, upon which Mr. Duah relies, is 9.23%. These more properly
19 calculated DCF cost rates also confirm that both Mr. Duah's unadjusted recommended
20 ROE of 8.90% is grossly understated. In addition, even this corrected DCF analysis
21 understates the cost of common equity for LIAW because it does not reflect LIAW's
22 additional business risk due to its small size, greater financial risk due to the greater

1 financial risk of Mr. Duah's recommended capital structure ratios or a flotation cost
2 adjustment.

3 **14. Q. YOU PREVIOUSLY STATED THAT IT IS APPROPRIATE TO USE**
4 **SECURITY ANALYSTS' FORECASTS OF EPS GROWTH IN A DCF**
5 **ANALYSIS. HAVE YOU CONDUCTED SUCH A DCF ANALYSIS?**

6 A. Yes. Pages 2 and 3 of Schedule PMA-19 presents the DCF results using dividend
7 yields based upon more current² closing market prices for the 60 days ending
8 September 16, 2011 for Mr. Duah's proxy group of twenty-nine electric and water
9 utilities. Using these more current dividend yields and correctly relying upon security
10 analysts' EPS growth forecasts, the average and median DCF results for Mr. Duah's
11 proxy group are 9.78% and 9.67% as shown on page 1.

12 Since it is my opinion that Mr. Duah should have more properly relied upon a
13 group of water companies, I have also conducted the same DCF analysis for a proxy
14 group of nine water companies³. The average and median DCF results for the nine
15 company water group are 10.40% and 11.08%, respectively as shown on page 2.

16 Once again, however, even these DCF cost rates understate the cost of common
17 equity for LIAW because they do not reflect LIAW's additional business risk due to its
18 small size, greater financial risk due to the greater financial risk of Mr. Duah's
19 recommended capital structure ratios or a flotation cost adjustment.

² Mr. Duah's DCF analysis is stale and outdated, as his dividend yields are based upon market prices for the three months ended July 2011. Therefore, his DCF analysis does not represent current market conditions.

³ Applying my proxy group selection criteria from page 27, lines 3-14 of my prepared direct testimony now results in the inclusion of Artesian Resources Corp. for which Value Line began coverage on April 22, 2011. In addition, I have included American Water Works Co., Inc. and Aqua American, Inc. because the mutual acquisitions of Ohio-American Water Co. by Aqua America and of New York Water Service Corp. by American Water will have a *de minimus* effect upon the market prices of the parent holding companies. Ohio-American and New York Water are included in other regulated operations which represented approximately 19.0% - 19.5% of total 2010

1 **Capital Asset Pricing Model**

2 **15. Q. DO YOU AGREE WITH MR. DUAH’S APPLICATION OF THE CAPITAL**
3 **ASSET PRICING MODEL?**

4 A. No. Mr. Duah’s CAPM results are understated for three reasons. First, he relies
5 exclusively upon an average of Merrill Lynch’s “Implied Return” and “Required
6 Return” from the May 2011 through July 2011 Quantitative Profiles without looking to
7 other sources of the expected market return such as long-term returns on the market
8 from the Ibbotson[®] SBBI[®] – 2011 Valuation Yearbook – Market Results for Stocks,
9 Bonds, Bills and Inflation – 1926-2010 (SBBI – 2011) (SBBI – 2011) or a projected
10 total market return derived from Value Line’s projected median price appreciation and
11 projected median dividend yield.

12 Second, he does not utilize a projected risk-free rate. Since both the cost of capital
13 and rate making are prospective in nature, it is appropriate to utilize a forecasted risk-
14 free rate in a CAPM analysis, as I have done in my prepared direct testimony.

15 Third, he erroneously averages the yields on 10-year and 30-year U. S. Treasury
16 bonds to develop his risk-free rate. It is not appropriate to utilize the yields on 10-year
17 U.S. Treasury Bonds for cost of capital purposes because their term, i.e., ten years, is
18 not consistent with: 1) the long-term cost of capital to public utilities as measured by
19 the yields on A rated public bonds; 2) the long-term investment horizon inherent in
20 utilities’ common stock; or, 3) the long-term investment horizon presumed in the DCF
21 model as discussed in my prepared direct testimony at page 52, lines 13 - 20. In
22 addition, it is not consistent with the typical long-term life of the jurisdictional rate base

revenues for both holding companies. The revenues for Ohio-American and New York Water are not significant enough that their respective parent holding companies report them separately in the Annual Forms 10K.

1 to which the allowed fair rate of return, i.e., cost of capital, will be applied. Hence, it is
2 appropriate for Mr. Duah to use the yields on 30-year U. S. Treasury bonds and not the
3 average of the yields on 10-year and 30-year U. S. Treasury bonds.

4 All of this serves to seriously understate Mr. Duah's CAPM results.

5 **16. Q. CAN YOU DEMONSTRATE WHY IT IS APPROPRIATE TO USE THE**
6 **IBBOTSON ASSOCIATES LONG-TERM (1926-2010) HISTORICAL DATA IN**
7 **A CAPM ANALYSIS?**

8 A. Yes. As discussed on page 42, line 4 through page 43, line 17 of my prepared direct
9 testimony and in Schedule PMA-10, the use of holding period returns over a very long
10 period of time is useful in a cost of capital analysis. On page 42, line 7 through page
11 43, line 17 of my prepared direct testimony, I provided a citation from SBBI - 2011
12 demonstrating the appropriateness of the use of such long-term historical data in a cost
13 of capital analysis, which is consistent with the previously-discussed long-term
14 investment horizon presumed by the DCF model. Moreover, arithmetic mean return
15 rates are appropriate for cost of capital purposes as noted by SBBI – 2011 in the excerpt
16 attached to Schedule PMA-10 and demonstrated on pages 1 through 3 of Schedule
17 PMA-10 and discussed on page 43, line 24 through page 47, line 2 of my prepared
18 direct testimony.

19 In addition, the use of the Ibbotson Associates long-term (1926 – 2010) historical
20 data in a CAPM analysis is consistent with the methodology adopted by the NYPSIC in
21 Cases 02-E-0198 and 02-G-0199 cited by Mr. Duah on page 34 of his prepared direct
22 testimony as well as consistent with the July 19, 1994 Recommended Decision in Case
23 91-M-0509 the “Generic Financing” proceeding.

1 In view of all the foregoing, it is clear that the arithmetic mean long-term
2 historical risk premium, which takes account of the standard deviation of returns, or
3 volatility and which is critical to risk analysis is the appropriate for cost of capital
4 purposes.

5 **17. Q. PLEASE EXPLAIN WHY MR. DUAH SHOULD ALSO HAVE RELIED UPON**
6 **A FORWARD-LOOKING MARKET EQUITY RISK PREMIUM BASED UPON**
7 **VALUE LINE'S FORECASTED TOTAL ANNUAL MARKET RETURN PLUS**
8 **FORECASTED DIVIDEND YIELD.**

9 A. Using a forward-looking market equity risk premium based upon Value Line data is
10 consistent with Mr. Duah's exclusive reliance upon Value Line projections in his DCF
11 analysis. In addition, it provides an additional tool and added reliability to estimating
12 the market equity risk premium. Therefore, in my opinion, equal weight should be
13 given to the current forecasted market risk premium derived from Value Line's average
14 median price appreciation potential and average median expected dividend yield 3-5
15 years hence of 13.52% as well as the Ibbotson/Morningstar long-term historical
16 arithmetic mean equity risk premium of 6.70% as derived in Note 2 on page 2 of
17 Schedule PMA-20.

18 **18. Q. WHAT WOULD MR. DUAH'S CAPM RESULT HAVE BEEN HAD HE ALSO**
19 **UTILIZED IBBOTSON ASSOCIATES LONG-TERM HISTORICAL DATA, A**
20 **FORECASTED MARKET EQUITY RISK PREMIUM, AS WELL AS A**
21 **PROJECTED 30-YEAR TREASURY BOND YIELD AS THE RISK-FREE**
22 **RATE?**

1 A. On Schedule PMA-20, I have shown corrected traditional and empirical CAPM
2 calculations using the average forecasted 30-year Treasury bond yield as the risk-free
3 rate as well as including the Merrill Lynch return on the market, the long-term
4 Ibbotson/Morningstar historical information, a forecasted Value Line data and a
5 forecasted risk-free rate for Mr. Duah's proxy group. Also shown on Schedule PMA-
6 20 is a similarly calculated CAPM analysis for a more appropriate proxy group of nine
7 water companies. As can be seen, for Mr. Duah's proxy group, the traditional CAPM
8 (9.94%) and empirical, or zero-beta CAPM (10.51%), average 10.23%. Since the
9 median beta of the water proxy group is also 0.70, average CAPM cost rate also
10 averages 10.23%. These properly calculated CAPM cost rates also confirm that Mr.
11 Duah's recommended ROE of 8.90% is grossly understated by at least 133 basis points.
12 In addition, even these corrected CAPM-derived cost rates understate the cost of
13 common equity for LIAW because they do not reflect LIAW's additional business risk
14 due to its small size, the greater financial risk of Mr. Duah's recommended capital
15 structure ratios as well as flotation costs.

16 **19. Q. DO YOU HAVE ANY FINAL COMMENTS ON MR. DUAH'S COMMON**
17 **EQUITY COST RATE RECOMMENDATION?**

18 A. As discussed above, Mr. Duah's common equity cost rate is significantly understated
19 for several reasons. Correcting for the flaws discussed above results in a DCF cost rate
20 of 9.67% for his proxy group and 11.08% for the nine water company group and
21 CAPM cost rates of 10.23% for both groups. Using the 2 / 3 (DCF) / 1 / 3 (CAPM)
22 weighting Mr. Duah used results in a common equity cost rate of 9.85% for his proxy
23 group and 10.80% for the water proxy group.

1 **20. Q. IS THE 2/3 / 1/3 DCF AND CAPM RESULTS OF 9.85% FOR MR. DUAH'S**
2 **PROXY GROUP, OR 10.80% FOR THE WATER PROXY GROUP,**
3 **RESPECTIVELY, ADEQUATE WHEN APPLIED TO LIAW?**

4 A. No. Both of these cost rates are understated and not applicable to LIAW, because they
5 do not reflect either the additional risk of LIAW due to its smaller size of either Mr.
6 Duah's proxy group or the more appropriate nine water companies, the greater financial
7 risk of Mr. Duah's recommended capital structure and a flotation cost adjustment.

8 As shown on pages 3 and 4 of Schedule PMA-21, the average capital structure
9 ratios of both Mr. Duah's proxy group and the nine water companies exhibit less
10 financial risk than reflected in Mr. Duah's proposed capital structure ratios. Mr.
11 Duah's proposed long-term debt ratio of 56.19% and total (common equity plus
12 preferred stock⁴) equity ratio of 43.76% contains more financial risk than the average
13 company in his proxy group which had 51.91% long-term debt and 48.09% total equity
14 at year-end 2010 as well as more financial risk than the average water company which
15 had 50.61% long-term debt and 49.39% total equity at year-end 2010. Using the
16 Hamada Equation discussed in my prepared direct testimony at page 64, line 11
17 through page 65, line 24, a financial risk adjustment of 0.38% is indicated relative to
18 Mr. Duah's proxy group and 0.53% relative to the nine water companies.

19 **DISCUSSION OF COMPANY'S PREPARED DIRECT TESTIMONY**

20 **21. Q. ON PAGE 57, LINES 13-16 OF HIS DIRECT TESTIMONY, MR. DUAH**
21 **CLAIMS THAT YOU HAVE "EQUALLY AVERAGED THE RESULTS OF**
22 **ALL FOUR METHODOLOGIES (DCF, CAPM, RPM, AND CEM) TO ARRIVE**

1 **AT HER RECOMMENDED COST OF COMMON EQUITY OF 11.5%.**
2 **PLEASE COMMENT.**

3 A. Mr. Duah is incorrect. Had I equally weighted the results of all four models, the
4 average would have been 11.22% and not the 10.55% shown on Line No. 5 on page 2
5 of Schedule PMA-1.

6 **22. Q. ON PAGE 13, LINE 13 THROUGH PAGE 65, LINE 9 OF HIS DIRECT**
7 **TESTIMONY, MR. DUAH CRITICIZES YOUR EXCLUSIVE RELIANCE UPON**
8 **A WATER PROXY GROUP BY NOTING THAT IN CASES 09-W-0824 AND 09-**
9 **W-0828 YOU THEN UTILIZED BOTH A WATER PROXY GROUP AND AN**
10 **LDC PROXY GROUP. PLEASE COMMENT.**

11 A. It is true that in those Cases I did use an LDC proxy group and did state that it was due
12 to the small number of publicly traded water companies available for use as proxies for
13 regulated water utilities as well as the limited availability of comprehensive investment
14 analyst coverage. However, since those Cases were filed, I undertook the relative risk
15 analysis between water utilities, electric utilities, combination electric and gas utilities
16 and gas distribution utilities discussed above in this rebuttal testimony and in my direct
17 testimony. I had not done so at the time of the preparation of my rates of return studies
18 in Cases 09-W-0824 and 09-W-0828. Since those Cases were filed, I have also
19 expanded my selection criteria to include more sources of security analysts' forecasts of
20 EPS growth, which enabled me to expand the number of companies in the proxy group
21 to include all but one of the ten publicly traded water utilities for whom market data are
22 readily available.

⁴ It is appropriate to add common equity and preferred stock when comparing financial risk, because, like common dividends, preferred stock dividends are not deductible for income tax purposes while interest on debt is

1 **23. Q. ON PAGE 58, LINE 18 THROUGH 61, LINE 1 OF HIS DIRECT TESTIMONY,**
2 **MR. DUAH CRITICIZES YOUR RELIANCE UPON SECURITY ANALYSTS’**
3 **FORECASTS OF EPS GROWTH IN YOUR DCF ANALYSIS. PLEASE**
4 **COMMENT.**

5 A. First, Mr. Duah claims that I have “not demonstrated a link between long-term earnings
6 growth and long-term dividend growth rates” on lines 1-3 on page 59 of his direct
7 testimony. As stated in my prepared direct testimony on page 30, line 21 through page
8 31, line 2, “DCF theory indicates that an investor buys a stock for an expected total
9 return rate which is derived from cash flows received in the form of dividends plus
10 appreciation in market price (the expected growth rate).” Hence, the correct link that
11 needs demonstrating is between both earnings and dividend growth rates and the capital
12 appreciation expected by investors because both earnings and dividend growth rates are
13 but proxies for that capital appreciation.

14 Second, Mr. Duah claims that I “failed to reveal how [my] earnings growth
15 estimate would be sustainable in the long-term” on lines 4-5 on page 59. The issue is
16 not whether earnings growth is sustainable in the long-term. The issue is whether
17 earnings growth expectations are reflected in the market prices investors pay. In
18 addition, as discussed above, Mr. Duah’s sustainable growth rate for the second stage
19 of his long-form DCF calculation is based upon Value Line’s hypothesized economic
20 environment 3-5 years hence. Therefore, the same criticism relative to long-term
21 sustainability can be leveled at Mr. Duah who has not revealed how his sustainable
22 growth estimate based upon the next 3-5 years is sustainable in the long-term.

deductible. In other words, there is no tax benefit to preferred stock.

1 **24. Q. MR. DUAH HAS ALSO QUOTED A SPRING 2010 MCKINSEY & COMPANY**
2 **REPORT AS STATING THAT ANALYSTS “WERE TYPICALLY OVER-**
3 **OPTIMISTIC . . . PRONE TO MAKING INCREASINGLY INACCURATE**
4 **FORECASTS.” PLEASE COMMENT.**

5 A. As rate of return analysts, Mr. Duah and I must attempt to emulate investor behavior in
6 our rate of return analyses and evaluate those factors which influence investor behavior.
7 Security analysts’ forecasted EPS growth rates are one such factor. What is relevant to
8 investor behavior is the fact that security analysts’ forecasted EPS growth rates
9 influence investors’ pricing decisions.

10 Moreover, there is no empirical evidence that investors, consistent with the EMH,
11 would discount or disregard analysts’ estimates of growth in earnings per share. “Do
12 Analyst Conflicts Matter? Evidence from Stock Recommendations”⁵ provided in
13 Schedule PMA-22 concluded that conflicted analysts are not able to systematically
14 mislead investors with optimistic stock recommendations.

15 As discussed above and in my prepared direct testimony at lines 4-18 on page 28,
16 the “semistrong” form of the EMH is generally held to be true where stock prices
17 reflect all publicly available information, including the many analysts’ available
18 earnings growth forecasts. Investors are also aware of the accuracy of past forecasts,
19 whether for earnings or dividends growth or for interest rates. Investors have no prior
20 knowledge of the accuracy of any forecasts available at the time they make their
21 investment decisions, as that accuracy only becomes known after some future period of
22 time has elapsed.

⁵ Agrawal, Anup and Chen, Mark A., “Do Analysts’ Conflicts Matter? Evidence from Stock Recommendations”, (Journal of Law and Economics, August 2008), Vol. 51.

1 In view of the foregoing, the use of analysts' forecasts of EPS growth should
2 receive significant, if not sole, emphasis when estimating the cost rate of common
3 equity capital. In addition, Mr. Duah's comments are unsupported and without merit.

4 **25. Q. ON PAGE 65, LINE 10 THROUGH PAGE 67, LINE 3 AND AGAIN ON PAGE**
5 **68, LINE 4 THROUGH PAGE 70, LINE 5 OF HIS PREPARED DIRECT**
6 **TESTIMONY, MR. DUAH CRITICIZES YOUR CALCULATION OF THE**
7 **EQUITY RISK PREMIUM FOR YOUR CAPM ANALYSIS. PLEASE**
8 **COMMENT.**

9 A. On page 67, lines 1-3, Mr. Duah states that my "market risk premium should be
10 rejected because of the use of stale Ibbotson data which the Commission has
11 consistently rejected." And on page 68, lines 5-13, he states that my "use of an
12 historical market risk premium using Ibbotson's data for Stocks, Bonds, Bills, and
13 Inflation published by Ibbotson's [sic] Associates (now Morningstar) in its Valuation
14 Edition-2010 Yearbook does not accurately estimate the current premium." Mr. Duah is
15 incorrect on both points. First, the cost of capital is a long-term concept. Second,
16 consistent with the EMH, investors are aware of the Ibbotson Associates data. Third,
17 returns and equity risk premiums over the time period 1926-2010 do cover periods
18 similar to recent economic events. Fourth, I will discuss an empirical study which
19 indicates that historical equity risk premiums over such long periods of time are indeed
20 relevant to the investors required rate of return.

21

1 **26. Q. PLEASE DISCUSS THE LONG-TERM NATURE OF THE COST OF**
2 **CAPITAL.**

3 A. The cost of capital is a long-term concept, because common stocks are outstanding in
4 perpetuity. The DCF, which both Mr. Duah and I employ, presumes an infinite
5 investment horizon. In addition, the assets, i.e., rate bases, of regulated utilities are
6 particularly long-lived, especially water utilities. Therefore, the arithmetic mean equity
7 risk premium over a long horizon is entirely appropriate for cost of capital purposes as
8 discussed in detail both previously in this rebuttal testimony and in my prepared direct
9 testimony. My prepared direct testimony provides ample support for the use of the
10 long-term equity risk premium as the estimate of the equity risk premium on page 41,
11 line 20 through page 45 line 21 and in Schedule PMA-10. While the estimate does
12 depend upon the length of the data series studied, a long enough data series provides a
13 reliable average “without being unduly influenced by very good and very poor short-
14 term returns.”⁶ In addition, Ibbotson Associates note that “using a long series makes it
15 less likely that the analyst can justify any number he or she wants.”⁷

16 **27. Q. ARE INVESTORS AWARE OF THE IBBOTSON ASSOCIATES LONG-TERM**
17 **MARKET EQUITY RISK PREMIUM?**

18 A. Consistent with the EMH, which has also been discussed in detail in this rebuttal
19 testimony as well as in my prepared direct testimony, investors are aware of the
20 Ibbotson Associates long-term market equity risk premium data as well as the
21 appropriateness of the use of such data for cost of capital purposes. Therefore, in my

⁶ SBBI - 2011 59.

⁷ SBBI - 2011 59.

1 informed expert opinion, investors find the Ibbotson Associates long-term market
2 equity risk premium highly relevant for cost of capital purposes.

3 **28. Q. ON PAGE 69, LINE 13 THROUGH PAGE 70, LINE 5, OF MR. DUAH'S**
4 **DIRECT TESTIMONY, HE CITES "ANOTHER REASON TO REJECT THE**
5 **USE OF THE IBBOTSON DATA" BY MR. IBBOTSON. PLEASE COMMENT**

6 A. Mr. Duah cites a December 26, 2005 article in Fortune Magazine, in which Roger
7 Ibbotson stated that the market risk premium is not constant. I have discussed in my
8 prepared direct testimony at page 43, line 24 through page 45, line 21, that the market
9 risk premium is indeed not constant and varies over time. Moreover, it is this very
10 variation, or volatility, over time which provides the insight into the riskiness of market
11 returns and the market equity risk premium which is reflected in the arithmetic mean
12 returns and equity risk premiums and provides the insight into risk. Such insight is
13 necessary in order for investors to evaluate risk, making the arithmetic mean
14 appropriate for cost of capital purposes and use in CAPM analyses.

15 Mr. Duah also states that "the magazine concludes that Mr. Ibbotson agrees now
16 that he can no longer rely on [the] historical equity premium to predict the future" on
17 page 70, lines 2-4. Since there are no quotation marks around this statement, it makes it
18 confusing and misleading. The statement makes it appear that Mr. Ibbotson agrees
19 today, in 2011, that he can no longer really upon the historical equity premium to
20 predict future returns, when the article was actually published in 2005. In stark
21 contrast, as also cited previously in this rebuttal and in my prepared direct testimony,

1 Ibbotson⁸ Associates advocates the arithmetic mean historical equity risk premium as
2 the only correct one to use to estimate the cost of capital and for use in CAPM analyses.

3 Hence, Mr. Duah's conclusion relative to the comments made by Mr. Ibbotson in
4 December 2005 are misplaced and without merit.

5 **29. Q. DOES THE TIME PERIOD FROM 1926-2010 COVER PERIODS OF TIME**
6 **WHICH MAY NOT BE REFLECTIVE OF CURRENT ECONOMIC**
7 **CONDITIONS?**

8 A. No. As noted above and in my prepared direct testimony, the 1926-2010 period covered
9 periods of both economic stability and economic volatility. Without an appreciation of
10 the various types of events that occurred during the period and their rate of return
11 effects, it is impossible to assess investors' expectations of what kinds of economic
12 conditions could occur or assess their return expectations.

13 **30. Q. YOU PREVIOUSLY STATED THAT YOU WOULD DISCUSS AN EMPIRICAL**
14 **STUDY WHICH INDICATES THAT HISTORICAL EQUITY RISK**
15 **PREMIUMS OVER SUCH LONG PERIODS OF TIME ARE INDEED**
16 **RELEVANT TO THE INVESTORS REQUIRED RATE OF RETURN. PLEASE**
17 **COMMENT.**

18 A. As noted on the final page of Appendix A to my prepared direct testimony, Frank J.
19 Hanley (AUS Consultants), Professor Richard A. Michelfelder, Ph.D. (Rutgers
20 University) and myself have co-authored a paper entitled "New Approach to Estimating
21 the Cost of Common Equity Capital for Public Utilities" which is now forthcoming in
22 The Journal of Regulatory Economics. The purpose of the paper was to present,

⁸ Roger Ibbotson is the "Ibbotson" of Ibbotson Associates.

1 empirically test and apply a recently developed general consumption-based asset
2 pricing model that estimates the risk-return relationship directly from asset pricing data
3 and when estimated with recently developed time series methods, produces a prediction
4 of the equity risk premium that is driven by its predicted volatility. The time series
5 methods used were developed by Professor Robert F. Engle, III, Ph.D. (Stern School of
6 Business – New York University) who shared the Nobel Prize in Economics in 2003
7 for his work. Engle discovered that volatility changes over time and is related from one
8 period to the next. Using his time series method, we developed a financial model, i.e.,
9 the Predictive Risk Premium Model (PRPMTM) which predicts equity risk premiums
10 based upon historical equity risk premiums. We estimated the PRPMTM over rolling 24-
11 month periods ending December 2008 for 5, 10, 15, 20, and 70 year periods. We then
12 calculated predicted equity risk premiums using the average predicted variances
13 (volatility) and the spot (last observation) variance. Table 3 of the article which is
14 contained in Schedule PMA-23 presents the mean predicted risk premiums, the range of
15 predicted premiums and the standard deviations for each time period. It is clear that the
16 risk premiums are more stable over the rolling 24-month periods when calculated using
17 the average predicted variances over the entire time period compared with using the last
18 observation. It is also clear that the longer the time periods, i.e. 20 and 79 years, the
19 substantially more stable and reasonable the equity risk premiums are than over the
20 shorter 5-year time period. Hence, the study supports the use of the long-term
21 historical arithmetic mean equity risk premium published by Ibbotson Associates.

22 In view of all of the foregoing, as well as consistent with the July 19, 1994
23 Recommended Decision in Case 91-M-0509 the “Generic Financing” proceeding as

1 discussed above, Mr. Duah's comments relative to the "staleness" of the Ibbotson data
2 are unsupported and without merit.

3 **31. Q. ON PAGE 72, LINES 6 – 11 OF HIS PREPARED DIRECT TESTIMONY, MR.**
4 **DUAH DISAGREES WITH YOUR APPLICATION OF THE RPM. PLEASE**
5 **COMMENT.**

6 A. Mr. Duah states that he does not agree with my application of the RPM "for the same
7 reasons that the Commission has previously rejected the RPM method in determining
8 the cost of equity." That reason being that in the cases cited by Mr. Duah, the
9 Commission rejected the RPM analyses because they were based upon allowed returns.
10 These comments are not applicable to my RPM analysis because all of the historical
11 equity risk premiums used in my analysis are based upon holding period stock market
12 returns and not allowed returns. Therefore, Mr. Duah's comments are completely
13 irrelevant.

14 **32. Q. ON PAGE 78, LINE 20 THROUGH PAGE 80, LINE 1 OF HIS DIRECT**
15 **TESTIMONY, MR. DUAH CRITICIZED YOUR 0.35% ADJUSTMENT TO**
16 **REFLECT THE SMALLER SIZE OF LIAW RELATIVE TO THAT OF YOUR**
17 **PROXY GROUP. PLEASE COMMENT**

18 A. In addition to citing Commission precedent, Mr. Duah relies upon three articles as the
19 basis for his criticism. Mr. Duah's criticisms are unfounded and without merit.

20 Based upon the information shown on page 1 of Schedule PMA-17, namely the
21 smaller estimated market capitalization of LIAW relative Mr. Duah's proxy group and
22 to the nine water companies as well as the associated size premiums developed by

1 Ibbotson Associates, it is clear that LIAW does have higher business risk, all else equal,
2 based upon its small relative size.

3 Mr. Duah's flawed reasoning behind not recognizing higher relative business risk
4 due to small size is also based upon a study by Professor Annie Wong cited at page 80
5 of his direct testimony. Professor Wong's study is flawed because she attempts to
6 relate a change in size to beta, while beta accounts for only a small percentage of
7 diversifiable company-specific risk. Size is company-specific and therefore
8 diversifiable. For example, the average R-squared, or coefficient of determination for
9 Mr. Duah's proxy group is 0.2867 and for the nine water companies is only 0.2052 as
10 shown on Schedule PMA-25. An R-squared of 0.2867 means that 71.33% ($1.0000 -$
11 0.2867) of total risk is *unexplained* by beta and an R-squared of 0.2052 means that
12 79.48% ($1.0000 - 0.2052$) of total risk is *unexplained* by beta.

13 In response to Professor Wong's article, *The Quarterly Review of Economics and*
14 *Finance* published an article in 2003 authored by Thomas M. Zepp which commented
15 upon the Annie Wong article, cited by Mr. Duah. Relative to Ms. Wong's results, he
16 concluded in the Abstract on page 1 of Schedule PMA-26⁹: "Her weak results,
17 however, do not rule out the possibility of a small firm effect for utilities." He also
18 noted on page 5 of Schedule PMA-26 that: "Two other studies discussed here support a
19 conclusion that smaller water utility stocks are more risky than larger ones. To the
20 extent that water utilities are representative of all utilities, there is support for smaller
21 utilities being more risky than larger ones." In addition, although Mr. Duah criticizes
22 Dr. Zepp's article because his analysis consisted of a small group of water utilities on

⁹ Zepp, Thomas M. "Utility Stocks and the Size Effect --- Revisited", *The Quarterly Review of Economics and Finance*, 43 (2003) 578-582.

1 page 85, lines 6-16 of his direct testimony, Professor Wong’s study, while relying upon
2 a large group of gas and electric utilities, used no water utilities. Thus, Prof. Wong’s
3 contention is incorrect and should be disregarded.

4 In view of all the foregoing, Mr. Duah’s criticisms of the Ibbotson small size
5 study are unsupported, without merit and should be disregarded.

6 **33. Q. PLEASE COMMENT UPON THE ARTICLES BY RICHARD ROLL (1983)**
7 **ATTACHED AS EXHIBIT_(KXD-21) AND BY CHING-CHIH LU (2009)**
8 **ATTACHED AS EXHIBIT_(KXD-22) UPON WHICH MR. DUAH ALSO**
9 **RELIED IN HIS CRITICISM OF YOUR SIZE PREMIUM ADJUSTMENT.**

10 A. Both of those articles studied the historical market returns on large company common
11 stocks relative to small company common stocks without evaluating those returns
12 relative to investor expected returns. In contrast, the SBBI-2011 size premium study
13 analyzed the market returns for ten deciles of common stocks and the expected returns
14 on those deciles using “the CAPM to estimate the return in excess of the riskless rate
15 and compares this estimate to historical performance”¹⁰. As noted above, SBBI-2011
16 discovered that smaller deciles earned historical returns in excess of investor expected
17 returns based upon the CAPM.

18 In view of all the foregoing, a size adjustment to any recommended common
19 equity cost rate for LIAW based upon the market data of either Mr. Duah’s proxy group
20 of electric and water companies or proxy group of water companies must be adjusted to
21 reflect the greater relative risk of LIAW due to its smaller size relative to the average size
22 of the barometer group.

¹⁰ SBBI-2011 88

1 34. Q. ON PAGE 86, LINES 3-14 OF HIS DIRECT TESTIMONY, DR. DUAH
2 DISCUSSES “DELISTING BIAS”, ALSO KNOWN AS “SURVIVORSHIP
3 BIAS” AND THE SEASONALITY OF THE SIZE PREMIUM, ALSO KNOWN
4 AS THE “JANUARY EFFECT.” PLEASE COMMENT.

5 A. The concept of delisting or survivorship bias in the size adjustment is incorrect because
6 the size premium study conducted by Ibbotson Associates is based upon the NYSE, the
7 AMEX and the NASDAQ with data from the CRSP^{®11} US Stock Database and the
8 CRSP[®] US Indices Database. The NYSE, upon whom the deciles are built for the
9 SBBI-2011 size premium study, does not “suffer” from survivorship bias. As SBBI-
10 2011 notes on pages 54 and 55¹²:

11 The number of companies included in the deciles of the NYSE fluctuates
12 from quarter to quarter, and by September of 2010, deciles 1-2 contained
13 274 companies. Though one cannot draw a causal relationship between
14 the change in construction and the correlation of these two indices, this
15 analysis does indicate that the “S&P inclusion effect” does not appear to
16 be very significant in recent periods.

17 * * *

18
19
20 Another possible explanation could be differences in how survivorship is
21 treated when calculating returns. The Center for Research in Security
22 Prices includes the return for a company in the average decile return for
23 the period following the company’s removal from the decile, whether
24 caused by a shift to a different decile portfolio, bankruptcy, or other such
25 reason.

26
27 Therefore, if a company is removed due to poor performance, its declining
28 performance will be reflected in the decile up to the time and for at least for a period
29 following their removal. Thus, any potential poor performance for a company which will
30 be removed from the NYSE is reflected prior to and shortly after removal. Moreover,

¹¹ Center for Research in Security Prices, The University of Chicago Booth School of Business.
¹² SBBI – 2011 54-55

1 during the period 1926-2010, CRSP data reflects the NYSE, AMEX and NASDAQ as
2 they were constituted in each time period. Hence, any aggregation of the returns, equity
3 risk premiums or size premiums over that period reflects the companies in existence
4 during each time period and not a backward look at how each of those “indices”
5 performed based upon the current constituents of those “indices”. In addition, all of the
6 companies in either Mr. Duah’s proxy group or the nine water company group are listed
7 on the NYSE or the NASDAQ and are therefore included in SBBI-2011’s size premium
8 study.

9 In addition, while the seasonality of the size premium may be true Mr. Duah has
10 provided no rationale or support that this negates the existence of a size effect and the
11 necessity for a size adjustment to the cost of common equity. SBBI-2011¹³ states:

12 . . . the January effect seems to pervade all size groups. Yet, simply
13 demonstrating that the size premium is largely produced by the January
14 effect does nothing to refute the existence of such a premium.
15

16 Hence, Mr. Duah’s comments relative to the both delisting bias (survivorship) and
17 seasonality (January effect) are meaningless and irrelevant.

18 **35. Q. DO YOU HAVE ANY COMMENTS CONCERNING MR. DUAH’S “STUDY TO**
19 **INVESTIGATE IF THERE IS AN [SIC] EVIDENCE OF ANY SIZE EFFECT IN**
20 **THE WATER SECTOR?”**

21 A. Yes. Mr. Duah’s analysis is flawed as his regression attempted to relate market
22 capitalization with earned returns on book common equity. Since size is a risk factor
23 which must be taken into account in the investor expected return, the proper
24 relationship to analyze is the relationship between market returns, historical or

¹³ SBBI-2011 96

1 expected, and market capitalization. Mr. Duah's regression analysis is therefore
2 meaningless and irrelevant.

3 **36. Q. MR. DUAH'S PRIME CRITICISM OF YOUR FLOTATION COST**
4 **ADJUSTMENT IS THAT "THE COMMISSION DOES NOT ALLOW A**
5 **UTILITY TO RETROACTIVELY RECOVER COMMON EQUITY ISSUANCE**
6 **COSTS FROM RATEPAYERS." PLEASE COMMENT.**

7 A. As discussed in my prepared direct testimony at page 66, line 16 through page 67, line
8 7, there is no mechanism in the ratemaking paradigm to recapture flotation costs other
9 than an adjustment to the allowed common equity cost rate. Since common equity have
10 a very long and indefinite life, flotation costs should be recovered through an
11 adjustment to common equity cost rate even when there has not been an issuance
12 during the test year or in the absence of an expected imminent issuance. Morin¹⁴ states:

13 Another controversy is whether the flotation cost allowance should still be
14 applied when the utility is not contemplating an imminent common stock
15 issue. Some argue that flotation costs are real and should be recognized in
16 calculating the fair return on equity, but should be made in the year in
17 wh8ich the sale of securities occurs, with no need for continuing
18 compensation in future years. This argument implies that the company
19 has already been compensated for these costs and/or the initial contributed
20 capital was obtained freely, devoid of any flotation costs, which is an
21 unlikely assumption, and certainly not applicable to most utilities. If the
22 flotation costs of past stock issues have been fully recovered, the argument
23 has merit. If that assumption is not met, the argument is without merit.
24 The flotation cost adjustment cannot be strictly forward-looking unless all
25 past flotation costs associated with past issues have been recovered.

26
27 **37. Q. DO YOU HAVE ANY COMMENT UPON MR. DUAH'S REASONABLENESS**
28 **CHECK?**

29 A. Yes. Mr. Duah states on page 91, lines 13-17 that "[g]iven the decline in the interest
30 rate environment that has occurred since that decision, it is reasonable that equity

1 investors would require slightly lower returns at this time.” The referenced decision is
2 a June 16, 2011 decision relative to Orange & Rockland Utilities, Inc., (O&R) (Case
3 10-E-0362) in which O&R was authorized an ROE of 9.2%. As can be gleaned from
4 the data shown on Schedule PMA-27, the average authorized ROE for electric
5 companies thus far in 2011 was 10.27% more than 100 basis points about the 9.2%
6 authorized for O&R. As Regulatory Research Associates (RRA) states in its Final
7 Report on the O&R case (see page 1 of Exhibit PMA-28):

8 This New York Public Service Commission (PSC) decision for Orange
9 and Rockland utilities (ORU) is slightly negative from an investor
10 viewpoint. The PSC adopted a return on equity (ROE) that is *well below*
11 *the average ROE authorized energy utilities in the U.S. over the past 12*
12 *months, and is 20 basis points below that authorized the company in its*
13 *previous electric rate case. We note that this proceeding was one of the*
14 *few in New York decided without a multi-year settlement by the parties,*
15 *and we note that in such fully-litigated cases the PSC has generally*
16 *authorized ROEs that were well below prevailing nationwide averages.*
17 While the Commission made several adjustments to rate base and net
18 operating income, many of these were timing related, thereby negatively
19 impacting cash flow, but not necessarily affecting the company’s
20 opportunity to earn the authorized return during the first year of new rates.
21 ORU is a subsidiary of Consolidated Edison Inc. We continue to accord
22 New York regulation and Average/3 rating. (italics added)
23

24 In view of RRA’s opinion on the O&R decision and the average recently
25 authorized ROES through the U.S., comparing Mr. Duah’s recommended common
26 equity cost rate of 8.9% to this decision is not appropriate.

27 Moreover, while interest rates have declined somewhat since June 2011, they
28 clearly are expected to rise over the next six quarters as shown on page 3 of Schedule
29 PMA-20. As shown on page 3, 30-year U.S. Treasury note yields are expected to rise
30 from a 2nd quarter 2011 average yield of 4.34% to 5.6% by the 4th quarter 2012, a 126

1 basis point increase. Likewise, corporate Aaa bond yields are expected to rise 56 basis
2 points from a 2nd quarter 2011 average of 5.04% to 6.5% by the 4th quarter 2012.
3 Interest rates are currently at near record lows as a result of the policy of the Federal
4 Reserve to keep them at such levels through mid-2013¹⁵. In addition, since June 2011,
5 the volatility of the capital markets as measured by the VIX index (a measure of the
6 implied volatility of S&P500 options and, hence, investor perception of risk) has
7 increased dramatically rising from 15 in June 2011 to near 40 in September 2011.
8 Therefore, notwithstanding a low interest rate environment, investors are indicating
9 through the volatility of the market that common stock investment is riskier now than in
10 June 2011. The ongoing turmoil and volatility of the markets is an indication of greater
11 common equity risk and, in my opinion, a higher cost of capital.

12 Therefore, Mr. Duah's reasonableness check is misplaced and without merit.

13 **38. Q. DO YOU AGREE WITH MR. DUAH'S RECOMMENDED COMMON EQUITY**
14 **COST RATE OF 8.90%?**

15 A. No. Mr. Duah's recommended common equity cost rate of 8.90% is based the Public
16 Service Commission's policy of using a two-thirds (2/3) / one-third (1/3) weighting to
17 the results of his Discounted Cash Flow (DCF) analysis and his Capital Asset Pricing
18 Analysis (CAPM), respectively. As discussed in my prepared direct testimony at page
19 28, line 11 through page 29, line 14, by placing greater weight, i.e., 2 / 3 weight, on the
20 results of the application of the DCF, the Staff's methodology is inconsistent with the
21 Efficient Market Hypothesis (EMH) upon which the DCF is predicated. Moreover,
22 giving 2/3 weight to a DCF derived cost rate exacerbates its tendency to understate the
23 investors' true required return in the current market environment where market-to-book

¹⁵ Federal Reserve Press Release, August 9, 2011 32

1 ratios significantly exceed one, especially when combined with the results of but one,
2 incorrectly applied, additional cost of common equity model, CAPM. Without
3 challenging Commission policy, my direct testimony demonstrates that there are
4 different schools of thought on the proper way to calculate the cost of common equity
5 or ROE and that the Commission should not mechanically adhere to any witnesses', but
6 especially Mr. Duah's calculations which, in my opinion, underestimate a common
7 equity cost rate applicable to LIAW

8 Nevertheless, as discussed in more detail above, using the Commission's 2/3 / 1/3
9 weighting of the DCF and CAPM, and correcting for Mr. Duah's flawed application of
10 those models, results in a greatly underestimated ROE. In addition, such a cost rate
11 does not adequately reflect the additional business risk experienced by LIAW due to its
12 small size relative to the companies in his proxy group, the greater financial risk of his
13 recommended capital structure ratios or flotation costs.

14 **39. Q. HOW DOES MR. DUAH'S RECOMMENDED COMMON EQUITY COST**
15 **RATE of 8.90% COMPARE WITH AUTHORIZED RETURN RATES ON**
16 **COMMON EQUITY FOR OTHER UTILITIES, BOTH ELECTRIC AND**
17 **WATER?**

18 A. Mr. Duah's recommended common equity cost rate of 8.90%, essentially based upon an
19 electric company proxy group, is not consistent with the authorized ROEs for electric
20 utilities from January 2009 through August 2011. As shown on Schedule PMA-20, the
21 average authorized ROE for an electric utility was 10.30% relative to a common equity
22 ratio of 48.18%. Nor is consistent with water company ROEs authorized by this

1 Commission during 2010 which averaged 10.18% relative to an average 45.45%
2 common equity ratio.¹⁶

3 However, ROEs of both 10.30% and 10.18% understate the common equity cost
4 rate for LIAW because they neither recognize the greater financial risk of Mr. Duah's
5 proposed capital structure ratios, LIAW's smaller relative size or a flotation cost
6 adjustment.

7 **40. Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

8 A. Although there are many cost of common equity models and a myriad of inputs into
9 those models which can be used to estimate a cost rate of common equity, my rebuttal
10 testimony has demonstrated that Mr. Duah's mechanistic approach to the application of
11 the DCF and CAPM models using unsupported inputs and based upon an
12 inappropriately selected proxy group of primarily electric companies results in a grossly
13 understated common equity cost rate of 8.90% for LIAW. My rebuttal testimony has
14 demonstrated that Mr. Duah's recommended 8.90% common equity cost rate is
15 understated when compared with recently authorized ROEs for electric companies
16 throughout the United States and specifically when compared with authorized water
17 company ROEs in New York. This rebuttal testimony has also demonstrated that Mr.
18 Duah's reasonableness check on his recommended 8.90% common equity cost rate is
19 anything but a reasonableness check as it is based upon a recent New York decision for
20 O&R which is perceived as negative for investors. Mr. Duah's reasonableness check
21 relative to lower interest rates since the O&R decision does not support an ROE of

¹⁶ Case No. 09-W-0828 re United Water Westchester, Inc. 12/7/10, 10.0% ROE, 45% common equity ratio; Case No. 09-W-0824 re United Water New Rochelle, Inc., 10/5/10, 10.0% ROE, 45% common equity ratio; Case No. 09-W-0731, United Water New York, 7/20/10, 10.2% ROE, 45% common equity ratio; Case No. 09-W-0237, New York Water Service, 1/29/10, 10.3% (+0.2* stayout premium), 46.8% common equity ratio,

1 8.9%, given the expectation that interest rates will increase over the next six quarters as
2 well as the current turmoil and volatility in the capital markets. In addition, it is also
3 understated relative what, in my informed expert judgment, is the proper application of
4 the DCF and CAPM models as discussed above.

5 Using a more appropriate approach to the application of the DCF and CAPM
6 models and empirical and academically supported inputs results in an indicated
7 common equity cost rate of 9.85% for Mr. Duah's proxy group and 10.80% for the
8 more appropriate proxy group of nine water companies. As shown on Schedule PMA-
9 29 adding the necessary financial risk adjustments of 0.38% and 0.53% relative to each
10 proxy group, flotation cost adjustment of 0.11% and business risk adjustment of 0.50%
11 and 0.35% relative each proxy group results in risk- and flotation cost adjusted
12 indicated common equity cost rates of 10.84% for Mr. Duah's proxy group of twenty-
13 nine electric and water utilities and 11.79% for the nine water companies based upon
14 the Commission's 2/3 / 1/3 weighting of the DCF and CAPM models.

15 **41. Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

16 A. Yes.