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| Exhibit No.: | |
| Issues: | Capital Structure, Rate of Return on Equity |
| Witness: | Dr. Roger A. Morin |
| Exhibit Type: | Surrebuttal |
| Sponsoring Party: | Missouri-American Water Company |
| Case No.: | WR-2015-0301<br>SR-2015-0302 |
| Date: | March 4, 2016 |

**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NO. WR-2015-0301**
**CASE NO. WR-2015-0302**

# SURREBUTTAL TESTIMONY

**OF**

**DR. ROGER A. MORIN**

**ON BEHALF OF**

**MISSOURI-AMERICAN WATER COMPANY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

| | | |
|---|---|---|
| **IN THE MATTER OF MISSOURI-AMERICAN WATER COMPANY FOR AUTHORITY TO FILE TARIFFS REFLECTING INCREASED RATES FOR WATER AND SEWER SERVICE** | ) ) ) ) ) | **CASE NO. WR-2015-0301** **CASE NO. SR-2015-0302** |

## AFFIDAVIT OF ROGER A. MORIN

Roger A. Morin, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Surrebuttal Testimony of Roger A. Morin"; that said testimony was prepared by him and/or under his direction and supervision; that if inquiries were made as to the facts in said testimony, he would respond as therein set forth; and that the aforesaid testimony is true and correct to the best of his knowledge.

Roger A. Morin

**State of Georgia**
**County of Glynn**
**SUBSCRIBED and sworn to**
**Before me this** 19 **day of** Feb **2016.**

**Notary Public**

**My commission expires:** 04/10/17

BRANDI LEE NOTARY PUBLIC MY COMM. EXPIRES APR. 10, 2017 GLYNN COUNTY, GEORGIA

**SURREBUTTAL TESTIMONY**
**DR. ROGER A. MORIN**
**MISSOURI-AMERICAN WATER COMPANY**
**CASE NO. WR-2015-0301**
**CASE NO. WR-2015-0302**

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# SURREBUTTAL TESTIMONY

## DR. ROGER A. MORIN

## I. WITNESS INTRODUCTION

**Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.**

A. My name is Dr. Roger A. Morin. My business address is Georgia State University, Robinson College of Business, University Plaza, Atlanta, Georgia, 30303. I am Emeritus Professor of Finance at the College of Business, Georgia State University and Professor of Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia State University. I am also a principal in Utility Research International, an enterprise engaged in regulatory finance and economics consulting to business and government.

**Q. DID YOU FILE DIRECT TESTIMONY AND REBUTTAL TESTIMONY IN THIS PROCEEDING ON BEHALF OF MISSOURI-AMERICAN WATER COMPANY ("MAWC")?**

A. Yes, I did.

**Q. WHAT IS THE PURPOSE OF THIS SURREBUTTAL TESTIMONY?**

A. I have been asked to respond to Missouri Public Service Commission Staff witness David Murray's rebuttal testimony and to Office of Public Counsel

witness Charles Hyneman's rebuttal testimony. I also provide an update of my ROE results using 2016 capital market data.

## II. RATE OF RETURN RECOMMENDATION

**Q. HAS MR. MURRAY PROVIDED AN UPDATED ROE RECOMMENDATION IN REBUTTAL?**

A. He does not appear to have formally updated his ROE recommendation which is restated on page 41 of his rebuttal testimony. However, Mr. Murray states on Page 2 of his rebuttal on lines 1-2 that:

*"Using cost of capital models with fair and reasonable inputs shows that the COE for water utility companies is no higher than the 7% range."*

Because his recommendation that an ROE of 9.25% should be used by the Commission is still Staff's position, his statement on page 2 should be disregarded. Additionally, no support for his statement is offered, so there is no principled reason to consider it. Similarly, his statement on page 16 lines 12-14 that a further reduction in ROE of 50-55 basis points would bring the recommended ROE down to 6.45% - 6.50% has no apparent bearing on what Mr. Murray is actually recommending to the Commission.

**Q. DR. MORIN, DID YOU PROVIDE ANY JUSTIFICATION AS TO WHY THE COMMISSION SHOULD ALLOW MAWC THE ROE THAT YOU RECOMMENDED?**

A. Yes, I did. On page 2 of his rebuttal Mr. Murray claims that I did not provide any justification as to why the Commission should allow MAWC the ROE that I recommended. I disagree. I provided the Commission with 72 pages of direct testimony, 7 exhibits, and 2 appendices of evidence that fully support and justify my ROE recommendation.

**Q. IS OTHER EVIDENCE OF THE REASONABLENESS OF YOUR ROE RECOMMENDATION AVAILABLE?**

A. Yes, on page 14 lines 20-21, Mr. Murray examines the adopted capital structures for the regulated water utility subsidiaries of American Water. Because capital structure is intimately and inexorably connected with cost of capital (return, risk), I direct the Commission's attention to the currently allowed ROEs for these 14water utility subsidiaries, shown on the table below. The average allowed ROE for the 14 water utilities is close to 10%.

| Company | % ROE |
|---|---|
| Indiana-American Water Co. | 9.75% |
| Iowa-American Water Company | 9.41% |
| Kentucky-American Water Co. | 9.70% |
| Maryland-American Water Co. | 10.00% |
| California-American Water Co. | 9.99% |
| Missouri-American Water Co. * | 10.00% |
| New Jersey-American Water Co. | 9.75% |
| Pennsylvania-American Water Co. * | 10.25% |
| Illinois-American Water Co. | 9.34% |
| Tennessee-American Water Co. | 10.00% |
| Virginia-American Water Co. | 9.75% |
| West Virginia-American Water | 9.75% |
| Hawaii-American Water Co. | 10.20% |
| New York American Water | 9.65% |
| **AVERAGE** | **9.82%** |

* The ROE listed is the Company's view of the ROE allowed in the case; the ROE was not disclosed in the Order or the applicable settlement agreement.

**Q. GIVEN THAT SOME OF THE ROE'S ABOVE WERE CONTAINED IN ORDERS ISSUED SEVERAL YEARS AGO, IS THERE RECENT EVIDENCE THAT THEY ARE REPRESENTATIVE OF CURRENT CONDITIONS?**

A. Yes, there is. On February 24, 2016, the Public Service Commission of West Virginia issued a rate order for West Virginia-American Water Company finding reasonable a rate of return on equity of 9.75%. I note that this was only 15 basis points lower than the previous rate of return on equity established for that company in 2013. Clearly, Mr. Murray's contention that the cost of equity is in the range of 7% or even lower, has no rational basis and, in fact, he does not actually support such a claim given his ultimate recommendation.

## III. CAPITAL STRUCTURE

**Q. DR. MORIN, PLEASE RESPOND TO MR. MURRAY'S VIEWS ON AN APPROPRIATE CAPITAL STRUCTURE FOR MAWC.**

A. Yes. On page 7, Mr. Murray reiterates his arguments for recommending that American Water's consolidated capital structure should be used for setting MAWC's allowed return instead of the Company's actual capital structure. While Company witness Rungren's surrebuttal deals with this issue in more detail, I wish to stress that Mr. Murray's recommended capital structure violates the stand-alone principle of financial economics.

Under the stand-alone core principle, any investment undertaken by an investor, whether it is by an individual or a financial institution or a parent company, should be viewed on its own merits and its own risks. Under this approach, a subsidiary is viewed as an independent operating company, and its cost of equity is inferred as the cost of equity of comparable-risk firms. The methodology rests on the basic premise that the required return on an investment depends on its risk, rather than on the parent's market data. According to Mr. Murray, MAWC should not be viewed on a stand-alone basis with capital costs based on its stand-alone risks (see Page 8 lines 20-21).

**Q. IS THERE A CONTRADICTION IN MR. MURRAY'S CAPITAL STRUCTURE RECOMMENDATION?**

A. Yes, there is a crucial inconsistency in Mr. Murray's capital structure recommendation. Mr. Murray has paired an ROE based on a peer group of water utilities with a capital structure based on an entirely different company, notably American Water.

Succinctly, because Mr. Murray's cost of equity estimates (return requirements of investors) are predicated on the market data of a group of water utility companies, it logically follows that these cost of equity estimates should also be paired with these same companies' capital structure. Combining a peer group of companies' capital costs with a capital structure derived from a different company is an apples and oranges comparison. Basic capital structure theory tells us that cost of capital estimates based on a company's current market data and current

capital structure expected by investors cannot be applied to any other capital structure without the required leverage adjustment that I discussed in my rebuttal.

## IV. FORECAST DATA

**Q. PLEASE COMMENT ON MR. MURRAY'S CRITICISM OF YOUR DCF ESTIMATES.**

A. On page 22 of his rebuttal, Mr. Murray claims that my DCF estimates are overstated due to an unrealistic assumption that water utility stock prices can grow at a 6.2%- 7.2% growth rate. I disagree. First, I made no such assumption; my growth assumption was based on earnings growth and not on stock price growth. Second, in my direct testimony, I described an extensive empirical literature that shows that investors rely on such forecasts. Third, Mr. Murray states at page 22 lines 18-20 that it is illogical that investors expect some 2/3 of their returns from water utility stocks to come from capital gains as compared to dividends, however, Mr. Murray's own data contradicts this assertion. Current dividend yields for water utility stocks are approximately 2.5%, while Mr. Murray's original DCF estimates are in the 7.0% range, that is, dividend yields account for about 1/3 of the return and the other 2/3 is due to capital gains.

**Q. DO YOU AGREE WITH MR. MURRAY'S ASSERTION THAT ANALYSTS USE CONSTANT AND/OR PERPETUAL GROWTH RATES IN THE RANGE OF 4% TO 5%?**

A. No, I do not. I am very familiar with the sources, literature, empirical studies concerning this question and I am not aware of anything which would support such a claim. On Exhibits RAM-2 and RAM-3 of my direct testimony I show that Value Line forecasts a growth rate of 7.2% for water utility stocks and analysts forecast an average growth rate of 6.2% and not the 4% - 5% range suggested by Mr. Murray.

## V. INTEREST RATE FORECASTS

**Q. DO YOU AGREE WITH MR. MURRAY'S STATEMENT THAT A FORECAST RISK-FREE RATE BEARS NO RELATIONSHIP TO COST OF CAPITAL?**

A. No, not at all. Value Line, Blue Chip, Global Insight, Consensus Forecast Economics Inc., Wall Street Journal, Federal Reserve banks, Congressional Budget Office, Energy Administration Institute, and White House Budget Office all publish such interest rate forecasts, and investors rely on such forecasts. Finance is a forward-looking discipline, whereby investors value securities on the basis of prospective data such as future interest rates, estimated cash flows and risk. I have relied on projected yields. Mr. Murray should have done as well for the simple reason that investors price securities on the basis on long-term expectations, including interest rates. The DCF model is prospective in nature. One need only look at the first component of the DCF formula where it is the prospective dividend expected by the investor, $D_1$, that is valued by investors. The CAPM is also a prospective, that is, forward-looking, model. Cost of capital is not set for ratemaking purposes by looking at what happened in the past.

Equity capital cost estimates are forward-looking and must take into account current market expectations for the future.

On page 23 lines 17-18, Mr. Murray claims that current interest rates already consider rising future interest rates. I disagree. Given the current shape of the yield curve, which is upward sloping, it is clear that investors are buying short-term bonds in anticipation of higher yields, thus lowering yields on short-term securities, and selling long-term bonds, thus increasing long-term yields.

On page 24, Mr. Murray argues that using a projected interest rate in a CAPM analysis would be similar to using projected stock prices in a DCF analysis. This is a false analogy. Under the auspices of the DCF model, stock prices equal the present value of projected dividends. The DCF model does not in any way rely on projected stock prices.

Finally, the Commission should note that while Mr. Murray criticizes my use of forecast data he himself relies on analyst growth forecasts data in his DCF analyses.

## VI. MARKET RISK PREMIUM

**Q. DO YOU AGREE WITH MR. MURRAY'S CLAIM THAT A TYPICAL MARKET RISK PREMIUM ("MRP") USED BY INVESTORS IS AROUND 5%?**

A. No, I do not. On page 25 lines 21-23, Mr. Murray claims that investors use a MRP of around 5%. He bases this unorthodox position on assumptions used by two Wall Street firms, JP Morgan Asset Management and Duff & Phelps.

Relying on two Wall Street bankers' procedures to support his contention that the MRP is in the 5% range, Mr. Murray does not provide the kind of rigorous analysis that would allow the Commission to make a reasonable determination of the appropriate MRP. Notwithstanding the fact that reliance on two Wall Street bankers is a highly questionable source of information in assessing an appropriate MRP and in gauging the academic state of the art in the field of finance, Mr. Murray ignores the fertile academic literature published in scholarly journals on the subject of MRPs. As I stated in my direct testimony, Professors Brealey, Myers, and Allen[1] in their authoritative corporate finance textbook, conclude from their review of the literature on the MRP that a range of 5% to 8% is reasonable for the MRP in the United States. My own survey of the MRP literature, which appears in Chapter 5 of my latest textbook, The New Regulatory Finance, is also quite consistent with this range.

## VII. GEOMETRIC MEAN

**Q. IS IT APPROPRIATE TO USE GEOMETRIC AVERAGES IN MEASURING HISTORICAL MRPs?**

A. No, it is not. On pages 27-28, Mr. Murray argues that for purposes of estimating the cost of capital, geometric mean returns should be employed rather than arithmetic mean returns. This is incorrect. Only arithmetic means are appropriate for forecasting and estimating the cost of capital, while geometric

[1]Richard A. Brealey, Stewart C. Myers, and Paul Allen, Principles of Corporate Finance, 8th Edition, Irwin McGraw-Hill, 2006.

means are not.[2] Indeed, the Morningstar (formerly Ibbotson Associates) publication upon which Staff has relied in past testimonies and possibly in this case contains a detailed and rigorous discussion of the impropriety of using geometric averages in estimating the cost of capital. There is no theoretical or empirical justification for the use of geometric mean rates of return. To the extent Mr. Murray contends otherwise, he is well out of the mainstream.

Briefly, the disparity between the arithmetic average return and the geometric average return raises the question as to what purposes should these different return measures be used. The answer is that the geometric average return should be used for measuring historical returns that are compounded over multiple time periods. The arithmetic average return should be used for future-oriented analysis, where the use of expected values is appropriate.

The arithmetic and geometric average return measure different quantities in different ways. Chapter 6 of my recent book The New Regulatory Finance explains this issue in detail, provides illustrative mathematical examples, and cites authoritative financial texts, all of which confirm the need to use arithmetic means, and not geometric means, to properly estimate a utility's cost of equity.

Mr. Murray's argument in favor of geometric means is based on the curriculum for the CFA Program which emphasizes geometric means for an entirely different purpose. I believe that Mr. Murray's position reflects a fundamental misunderstanding of how geometric and arithmetic means are used in financial analysis. Geometric means are properly used in evaluating historic performance

[2] See Roger A. Morin, *The New Regulatory Finance*, chapter 4 (2006); Brealey, Myers, and Allen, *Principles of Corporate Finance* (8th ed. 2006).

of stocks or portfolios of stocks as the CFA program suggests, whereas determining investor expectations, which define the cost of equity capital, requires use of arithmetic means.

The fact that the CFA Program curriculum cites geometric mean returns does not support their use in estimating the cost of equity. Morningstar's (formerly Ibbotson Associates) Valuation Yearbook, a source of data well-known to investors and to Staff and used by Staff in prior testimonies, could not be clearer in defending *arithmetic* means as the correct measure of the cost of equity, while geometric means are useful for reporting past performance:

*"The arithmetic average equity risk premium can be demonstrated to be most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because both the CAPM and the building block approach are additive models, in which the cost of capital is the sum of its parts. The geometric average is more appropriate for reporting past performance, since it represents the compound average return.*

*"The argument for using the arithmetic average is quite straightforward. In looking at projected cash flows, the equity risk premium that should be employed is the equity risk premium that is expected to actually be incurred over the future time periods*[3]*.*

In short, the best estimate of the expected value of a variable that has behaved randomly in the past such as the MRP is the average (or arithmetic mean) of its past values.

[3] Morningstar, 2013 Valuation Yearbook, *Market Results for Stocks, Bonds, Bills and Inflation 1926-2012*, p. 56.

## VIII. REVENUE STABILITY MECHANISM (RSM)

**Q. PLEASE RESPOND TO MR. MURRAY'S CRITICISM OF YOUR POSITION ON THE RSM.**

A. On page 32 lines 5-12, Mr. Murray claims that on one hand, I argue that investors will require a higher return if earnings are more volatile and on the other that the Commission should not adjust the allowed ROE downward if it were to allow a volatility-reducing RSM. Mr. Murray has simply confused the facts and/or has misrepresented my position.

While I certainly agree that ratemaking mechanisms, such as RSM, may reduce regulatory risk when viewed in isolation, they do not necessarily do so on a relative basis (i.e., compared to other utilities). For example, a purchased water adjustment mechanism may reduce regulatory risk, but it does not reduce relative risk because most water utilities in the industry have similar mechanisms. Regulation assumes that the utility's expenses, rate base and revenue will be reasonably set and that the utility will have a reasonable opportunity to collect the revenue projected in the rate case order. If, however, revenue estimates are unreasonably ebullient, because weather effects or declining use trends were ignored, then risk has been increased and the use of the RSM would actually be required in order to bring the regulatory risk created by the uncertain revenue collections back to a more normal level. As I discussed in my rebuttal, the approval of adjustment clauses, revenue decoupling mechanisms such as RSM, trackers, forward test years, and cost recovery mechanisms by regulatory commissions has become widespread in the utility business and is already

largely embedded in financial data, such as stock prices, bond ratings, and business risk scores.

My view is that any risk-mitigating impact that decoupling could have on the Company's risk profile is already reflected in the capital market data of the comparable companies and that the risk impact of these mechanisms is offset by several factors that work in the reverse direction. As explained in my direct testimony, the market-derived cost of common equity for other utility companies already incorporates the results of decoupling and/or similar mechanisms so that no further adjustment is appropriate or reasonable in determining the cost of common equity for MAWC. In short, a downward ROE adjustment, if applied, would constitute double-counting.

I believe regulators are quite aware of this. To the best of my knowledge, not since 2011 has a regulatory commission applied such a downward return adjustment, presumably for the reasons that I have outlined.

## IX. ALLOWED ROEs AND COST OF CAPITAL

**Q. DR. MORIN, WHAT DO YOU THINK OF MR. MURRAY'S CONTENTION THAT ALLOWED ROEs ARE NOT THE SAME AS THE COST OF EQUITY?**

A. I was surprised by Mr. Murray's statement on page 33 lines 15-17 that "*it is commonly understood in the investment community that allowed ROEs are not the same as the COE*." He offers no published studies, academic articles, empirical studies to support his claim, and it seems to contravene the clear language in the *Hope* case that "the return to the equity owner should be

commensurate with returns on investments in other enterprises having corresponding risks [and t]hat return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital".

The heart and soul of rate of return regulation since the *Hope* case was decided is to set the allowed return equal to the utility's cost of capital. The regulator must set the allowed rate of return equal to the cost of capital so that the utility can achieve the optimal rate of investment at the minimum price to the ratepayers. Aside from legal considerations, if the utility is allowed a return less than its cost of capital, capital investments will not be undertaken and investors' opportunity costs are less than achieved. In this case, the wealth transfer occurs from investors to ratepayers. Conversely, if the allowed rate of return is greater than the cost of capital, capital investments are undertaken and investors' opportunity costs are more than achieved. In this case, the wealth transfer occurs from ratepayers to shareholders. Investments are undertaken by the utility with no wealth transfer between ratepayers and shareholders only if the allowed rate of return is set equal to the cost of capital. In this case, the expected earnings generated from investments are just sufficient to service the claims of the debt and equity holders. Setting the allowed return equal to the cost of capital is the only policy that will produce optimal investment rates at the minimum price to the ratepayer.

## X. FLOTATION COSTS

**Q. DO YOU AGREE WITH MR. MURRAY'S VIEW THAT THE RECOVERY OF FLOTATION COSTS SHOULD BE THROUGH AN EXPENSE ALLOWANCE RATHER THAN THROUGH A RETURN ADJUSTMENT?**

A. In theory, I agree with Mr. Murray that flotation costs could be expensed and recovered through rates as they are incurred. This procedure, although simple in implementation, is not considered appropriate, however, because the equity capital raised in a given stock issue remains on the utility's common equity account and continues to provide benefits to ratepayers indefinitely. It would be unfair to burden the current generation of ratepayers with the full costs of raising capital when the benefits of that capital extend indefinitely. The common practice of capitalizing rather than expensing eliminates the intergenerational transfers that would prevail if today's ratepayers were asked to bear the full burden of flotation costs of bond/stock issues in order to finance capital projects designed to serve future as well as current generations.

Moreover, expensing flotation costs as they are incurred implies that the company has already been compensated for these costs and/or the initial contributed capital was obtained freely, devoid of any flotation costs, which is an unlikely assumption, and certainly not applicable to most utilities. If the flotation costs of past stock issues have been fully recovered, the argument has merit. If that assumption is not met, the argument is without merit. The flotation cost adjustment cannot be strictly forward-looking unless all past flotation costs associated with past issues have been recovered.

**Q. DO YOU HAVE ANY MORE COMMENTS ON MR. MURRAY'S REBUTTAL?**

A. Yes, one more comment. On page 34, Mr. Murray states that "*it really should be fairly intuitive that the COE for regulated utility companies is in the 6% to 7% range*." While the determination of the cost of equity capital requires the application of judgment, it certainly is not intuitive. His comment is more in the nature of speculation than a fact-based, disciplined opinion. The bottom line is that Mr. Murray recommends a ROE of 9.25% in his direct testimony and not 6% - 7%.

## XI. MR. HYNEMAN AND FLOTATION COSTS

**Q. PLEASE RESPOND TO MR. HYNEMAN'S VIEW OF FLOTATION COSTS.**

A. On page 42 of his rebuttal, Mr. Hyneman argues that a flotation cost allowance is inappropriate if the utility is a subsidiary whose equity capital is obtained from its parent. This objection is unfounded because the parent-subsidiary relationship does not eliminate the costs of a new issue, but merely transfers them to the parent. It would be unfair and discriminatory to subject parent shareholders to dilution of this nature while individual shareholders are absolved from such dilution. Fair treatment must consider that if the utility subsidiary had gone to the capital marketplace directly, flotation costs would have been incurred and appropriate compensation would have been provided in rates.

**Q. IS MR. HYNEMAN CORRECT THAT YOU HAVE ALLOWED 40 BASIS POINTS FOR FLOTATION COSTS?**

A. No, he is not. One only has to look at the two DCF analyses shown on page 2 of Exhibits RAM-2 and RAM-3 and compare the ROE estimate unadjusted for flotation cost with the ROE estimate adjusted for flotation cost. The difference is 10 basis points and 20 basis points, respectively, and not 40 basis points as Mr. Hyneman contends. Moreover, there is not such adjustment with the Allowed Risk Premium analysis shown on Exhibit RAM-7. In short, Mr. Hyneman's numerical calculations on the impact of flotation costs on revenue requirements are severely overstated.

## XII. UPDATED RESULTS

**Q. PLEASE SUMMARIZE YOUR UPDATED RESULTS FROM THE VARIOUS METHODOLOGIES YOU APPLIED IN YOUR DIRECT TESTIMONY.**

A. The revised ROE estimates using 2016 market data are summarized in the table below.

| STUDY | Updated ROE |
|---|---|
| CAPM | 10.1% |
| Empirical CAPM | 10.5% |
| Historical Risk Premium | 10.6% |
| Allowed Risk Premium | 10.7% |
| DCF Water Utilities Value Line Growth | 9.3% |
| DCF Water Utilities Analyst Growth | 9.2% |

The results range from 9.2% to 10.7%, with a midpoint of 10.0%. As I demonstrated in my direct testimony, the ROE should be set in the upper portion of my recommended range, 10.0% - 10.7% in order to account for MAWC being more risky than the average water utility.

**Q. DOES THIS COMPLETE YOUR SURREBUTTAL?**

A. Yes, it does.