Exhibit No.:	
Issues:	Revenue Stabilization Mechanism, Rate Structure
Witness:	John M. Watkins
Exhibit Type:	Surrebuttal
Sponsoring Party:	Missouri-American Water Company
Case No.:	WR-2015-0301 SR-2015-0302
Date:	March 4, 2016

MISSOURI PUBLIC SERVICE COMMISSION

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

SURREBUTTAL TESTIMONY

OF

JOHN M. WATKINS

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 JOHN M. WATKINS

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

John M. Watkins

State of New Jersey
County of Camden
SUBSCRIBED and sworn to
Before me this 3RD **day of** MARCH **2016.**

Notary Public

My commission expires:

ANN G. ALFANO
NOTARY PUBLIC OF NEW JERSEY
ID # 50014130
My Commission Expires 4/15/2020

SURREBUTTAL TESTIMONY
John M. Watkins
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SURREBUTTAL TESTIMONY

John M. Watkins

I. WITNESS INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John M. Watkins, and my business address is 131 Woodcrest Road, Cherry Hill, New Jersey 08034.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by American Water Works Service Company, Inc. ("the Service Company") as Director Rates & Regulatory Support.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I am a graduate of Trenton State College with a Bachelor of Science Degree in Finance and Minors in Mathematics and Economics. I received a Masters in Business Administration with a concentration in Accounting from Drexel University.

From May 1996 to October 1998, I was employed by U.S. Vision as a Staff Accountant. I began my employment with the Service Company as a Rate Analyst for the Regional Companies in November 1998. At that time, the Region included American Water Works Company, Inc. ("American Water") subsidiary companies located in the states of Connecticut, Iowa, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, New York, Ohio, Tennessee and Virginia.

In May 2000, I transferred to Haddon Heights, New Jersey, in conjunction with the transfer of the Service Company's responsibility for the New England companies which, together with New Jersey American Water Company ("NJAWC"), at that time formed American Water's Northeast Region. In July 2000, I was promoted to Financial Analyst-Intermediate. In March 2003, I was promoted to Senior Financial Analyst. In September 2007, I was promoted to Principal Financial Analyst. In November 2010, I was promoted to Senior Manager – Rates & Regulation. In this position I led the Rates and Regulation group in supporting rate case filings for all American Water regulated operating subsidiary companies. At that time, I supported filings for American Water subsidiary companies located in the states of Arizona, California, Hawaii, Indiana, Illinois, Iowa, Kentucky, Maryland, Michigan, Missouri, New Jersey, New Mexico, New York, Pennsylvania, Ohio, Tennessee, Texas, Virginia and West Virginia. In April 2012, I was promoted to Director Regulatory Services. In this position my duties consisted of reviewing, preparing and assisting in regulatory filings and related activities for all of the regulated companies of American Water. In June 2014, I transferred into my current position of Director Rates & Regulatory Support.

Q. WHAT ARE YOUR CURRENT EMPLOYMENT RESPONSIBILITIES?

A. My duties consist of reviewing, preparing and assisting in regulatory filings and related activities for all of the regulated companies of American Water. My responsibilities and my team's responsibilities include the preparation of work

papers, exhibits, and pre-filed testimony in support of rate applications and other regulatory filings for among others, Missouri-American Water Company ("MAWC" or "the Company").

Q. HAVE YOU PREVIOUSLY PARTICIPATED IN RATE CASES AND REGULATORY PROCEEDINGS?

A. Yes. I have previously participated in the preparation and filing of rate cases, as an analyst, in Connecticut, Maryland, Massachusetts, Missouri, New Hampshire, New Jersey, New York, Ohio and Virginia. I have submitted testimony before State Commissions in Illinios (Docket No. 16-0093), Missouri (WR-2000-281), Massachusetts (DTE 00-105), New Jersey (WR03070511, WR06030257, WR08010020, WR10020149 and WR10040260) and New York (Case 04-W-0577, Case 07-W-0508 and Case 11-W-0200) and participated in the rate settlement processes in the states of Maryland, New Jersey, New York and New Hampshire. I have filed testimony and exhibits in support of NJAWC's Purchased Water Adjustment Clause (PWAC) and the Purchased Wastewater (Sewerage) Treatment Adjustment Clause (PSTAC). I have testified orally before the State Commissions of Connecticut (Case 99-08-32) and New Jersey (WR06030257). In my role as Senior Manager – Rates & Regulation, I provided support in the preparation of rate case filings, discovery requests and/or assisting in the preparation of rebuttal testimony in the states of Arizona, California, Hawaii, Indiana, Iowa, Missouri, New Jersey, New Mexico, New York, Pennsylvania and Ohio.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS CASE?

A. No, I have not.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. I will address Staff witness Busch's statements and contentions about utility rate structure and the Company's proposed Revenue Stabilization Mechanism ("RSM"). I also will address the statements and contentions by Mr. Hyneman on behalf of the Office of the Public Counsel ("OPC") with respect to the ratemaking theories he expresses, including his opposition to a RSM and his criticisms generally of testimony by MAWC witness Kartmann (subsequently adopted by Ms. Norton). Other aspects of Messrs. Busch's and Hyneman's testimony regarding revenue will be addressed by Ms. Tinsley and Mr. Roach. Dr. Morin will address Mr. Hyneman's misunderstanding of the appropriate treatment to be afforded to the RSM in the development of a just and reasonable rate of return on equity.

II. RESPONSE TO STAFF WITNESS BUSCH'S STATEMENTS ABOUT RATE STRUCTURE AND REVENUE STABILIZATION MECHANISM

Q. ON PAGE 16 OF HIS REBUTTAL TESTIMONY, MR. BUSCH RESPONDS TO THE QUESTION, "IS IT THE COMMISSION'S ROLE OR RESPONSIBILITY TO PROVIDE ANY GUARANTEE THAT A UTILITY HAS THE RIGHT TO EARN ITS 'AUTHORIZED REVENUE?'" WOULD YOU PLEASE RESPOND TO HIS DISCUSSION.

A. In response to that question, Mr. Busch provides the following response. "No. The Commission does not guarantee that the utility will actually earn its authorized revenue. The Commission does give the utility an opportunity to earn its authorized revenue." In discussing the concept of "earning" revenue, I believe Mr. Busch is mixing two important but different concepts. A regulator does not guarantee a return to a utility but the utility does have a right to a reasonable opportunity to earn that return. In the realm of expenses, for example, we can evaluate them and say there is a reasonable chance that the Company will incur them and might even reduce them with extraordinary effort. Revenues, however, are a completely different ball of wax. Given weather variability, alone, there is almost no likelihood that revenue will be exactly as forecasted. Mr. Busch, tacitly concedes this when he says at page 17, "In a perfect world, the utility would collect those revenues and the utility's actual cost will not change, so that revenues will equal cost and a fair return will be earned by shareholders. However, in the real world, usage will be greater or lesser than the level used in the rate case to create rates; costs will be lower or higher than the normalized costs used to develop the revenue requirement; or any combination of those and many other factors will occur causing revenues to be higher or lower." Where Mr. Busch appears to go astray is equating revenue with expenses in the context of the legal requirement that a utility be given a "reasonable opportunity" to earn the rate of return found appropriate. With expenses, a utility has a significant degree of control. Revenues based on a volumetric rate design, on the other hand, are significantly influenced by weather conditions that are outside of a

utility's control and subject to a persistent and continuing decline in the average usage per customer. Therefore, as Mr. Roach explains, where weather fluctuations are not considered and the trend in declining use per customer is ignored in establishing test year revenue levels, MAWC is not being afforded a reasonable opportunity to collect the revenue upon which rates are determined.

Q. MR. BUSCH STATES AT P. 17 OF HIS REBUTTAL TESTIMONY, "THE APPROPRIATE PRICE FOR WATER SERVICE IS ESTABLISHED AT THE TIME RATES ARE SET IN THE RATE CASE. UNDER THE RSM, RATES WILL BE ADJUSTED BETWEEN RATE CASES. THUS, THE RATE THAT THE CUSTOMER WILL PAY WILL EITHER BE GREATER OR LESSER THAN THE APPROPRIATE RATE THAT THE COMMISSION ESTABLISHED AS A JUST AND REASONABLE RATE IN THE RATE CASE." DO YOU AGREE?

A. No. The appropriate price for water service is premised upon a given assumption as to the collection of revenue. All that the RSM does is to correct the actual revenue to the revenue assumptions upon which the rate order is premised. The price relationship isn't changed at all. All that is changing is that forecasted revenue is reconciled to actual revenue. Rather than relying on sales volumes expected to produce a level of revenues, the Commission approves the revenue level and the mechanism for achieveing it. Said another way, the Company will collect the same amount of revenues that the Commission authorized under conventional regulation, independent of changes in sales volume. Furthermore, the RSM reconciles the production expenses associated

with greater or lesser usage to the actual usage. Consequently all elements envisioned in the level of sales on which the rate order was premised are maintained in balance.

Q. IS THE RSM CONSISTENT WITH APPROPRIATE UTILITY RATE DESIGN?

A. I believe so. Rates should yield the total revenue requirement, they should provide predictable and stable utility revenues and customer bills, and they should be set so as to promote economically efficient consumption. Without the RSM, the Company's current rate structure leads to customer behavior that results in less stable and, in the short run, significant over- or undercollections of revenue.

Q. ARE THERE RATE STRUCTURE ALTERNATIVES TO THE RSM THAT ADDRESS FIXED COST RECOVERY AND DECLINING USE?

A. Yes. One alternative is to file more frequent rate cases. As already discussed, rates are based in part on a test year forecast of sales. MAWC could manage future rate case filings so that new rates are established each year, with each successive test year factoring in lower sales. This approach has many undesirable consequences—including increased costs and inefficient use of utility and commission resources.

A number of other revenue stability measures are also used by public utility commissions. Some provide the same benefits as the proposed RSM, but all of

them fall short of the full range of benefits that the RSM provides—especially for customers and the environment. The following are some of the options and the concerns they raise.

- *Declining use adjustment* - Even though the authorized revenue requirement may have taken planned efficiency or conservation activity into account at the time rates were set, a declining use adjustment is only for the test year. There is no mechanism offsetting continuing revenue declines in between rate cases, and so once rates are set the fundamental sales-yields-revenues relationship (ak/a the throughput incentive) continues to incentivize a utility to maximize sales in order to maximize revenue.
- *Straight Fixed/Variable rate design* – Under this approach, fixed customer charges are increased so that payment for utility service is not based primarily on volumetric sales. This shifts more of the cost of service to lower water use customers and does not provide an incentive to utility companies or customers to improve water efficiency.
- *Weather Normalization Clause* – Degree days are a reasonable measure of weather variability for the gas and electric industry. As explained in the direct testimony of MAWC witness Greg Roach, however, for the water industry, there has not been a consistent definition of "weather" for weather normalization purposes, or a generally accepted weather normalization adjustment methodology. Moreover, this weather-only adjustment does not address lost sales due to either utility efficiency programs or consumer funded efficiency, and therefore, does not eliminate a utility's throughput incentive.
- *Lost margin recovery mechanism* – Some mechanisms provide recovery to electric and gas utilities for distribution margin that is lost when customers participate in the utility-sponsored energy efficiency programs.

These mechanisms do not eliminate the utility's throughput incentive, and may have the perverse consequence of removing a utility's incentive to support non-utility-sponsored water and energy efficiency programs.

Q. ON PAGE 18 OF HIS REBUTTAL TESTIMONY, MR. BUSCH CRITICIZES THE COMPANY FOR NOT FILING AN RSM TARIFF, CONCEDING THAT MS. TINSLEY GENERALLY DESCRIBES THE COMPONENTS .... "BUT THAT MAWC HAS NOT PROVIDED A CONCRETE EXAMPLE OR METHODOLOGY OF HOW THE RSM WOULD ACTUALLY WORK." IS THIS CRITICISM APPROPRIATE?

A. It is technically correct, but it also ignores several salient facts. RSMs are well understood and have been adopted in many jurisdictions so it isn't as if this was something entirely new. Ms. Tinsley was hoping to work with the parties to develop the specifics. I have included a draft tariff and description of the mechanism in Schedule JMW-1. As can be seen, it is consistent with Ms. Tinsley's description of the contours of the RSM and is not unduly complicated.

Q. PLEASE DESCRIBE THE COMPONENTS OF THE PROPOSED RSM AND HOW IT WOULD WORK.

A. The RSM would compare the rate case authorized amount of metered revenue and actual metered revenues by customer class, and defer/accrue the difference less the applicable change in production expenses on a monthly basis. The classes of customers that would be included in the metered revenue are

residential, commercial, OPA and Sale for Resale. Production expenses would include purchase water, power, chemicals and waste disposal. The annual amounts of metered revenues for each class identified and the annual amount of expenses for all production costs would be prorated to monthly amounts. The production costs for the entire company would be divided by the pro forma water sales to determine a cost per thousand gallons. This cost per thousand gallons would be multiplied by the water sales for that customer class, which is then allocated to monthly amounts to establish the monthly allowed amounts. This could be accomplished by using a weighted average of water sales for customers by class, or revenues or water sales over a period of five years or another agreed amount of time. These monthly amounts would be reset in the next base rate case proceeding.

Q. AT WHAT LEVEL WOULD THE COMPANY PROPOSE THE RSM BE RECONCILED?

A. The Company would propose that the RSM be reconciled by customer class by Rate District. The term Rate District would be defined as the consolidated districts per the final Order. Mr. Busch and Mr. Herbert both proposed 3 water Rate Districts. Mr. Busch proposed 5 sewer Rate Districts and Mr. Herbert proposed 2 sewer Rate Districts.

Q. DOES THE RSM HAVE A RECONCILIATION?

A. Yes, the Company is proposing that a reconciliation occur on an annual basis. The first credit or surcharge would occur in the second rate year which is to true up any over or under-collection in revenues less production costs from the first year. The Company is proposing that any credit be issued as soon as administratively possible and the credit would be determined based on the number of customers by class. The reason the Company would propose a one time credit that is equal to all customers in that class is that it benefits the low users at a greater percentage therefore those that conserve water would be rewarded with a higher percentage than those that use more water. The Company is proposing that any surcharge be based on a volumetric amount and should be targeted to recover the shortfall within the current rate year. The reason the Company would propose a volumetric surcharge is to ensure that the low usage customers would continue to benefit from their conservation because the volumetric rate would be equal for the entire class. Therefore if you conserve, you will save more money not only in paying the current bill but also if a surcharge is applied to collect any shortfall in revenues less production costs.

Q. QUESTIONS HAVE BEEN RAISED BY VARIOUS PARTIES AS TO THE LAWFULNESS OF A SURCHARGE/CREDIT MECHANISM. WHAT DO YOU PROPOSE IF SUCH A MECHANISM WERE FOUND TO BE UNLAWFUL?

A. We would propose the reconciliation of the regulatory asset or liability be deferred and addressed in the next general rate case.

Q. PLEASE DESCRIBE THE SPECIFIC ACCOUNTING TREATMENT FOR RSM.

A. Each month the Company would compare the actual metered revenues for each class of customers to the allowed amount of metered revenue by customer class. It would also compare the actual production costs, based on multiplying the actual billed sales to each customer class times the cost per thousand gallons discussed above, to the allowed amount of production costs associated with that class of customers. The difference in the revenue less the expenses would be deferred to a regulatory asset if the actual revenues fell short of the targeted allowed amount of revenues less production costs. The difference in the revenue less the expenses would be deferred to a regulatory liability if the actual revenues were more than the targeted allowed amount of revenues less production costs. Generally speaking, if the Company has additional revenues due to an increase in water sales, the Company will defer the additional revenue, less the additional cost to produce the water. On the other hand, if water sales are lower, then the Company has a shortfall in revenues due to a decrease in water sales, the Company will accrue the shortfall in revenues less the savings in production expense from producing less water.

Q. HOW DO YOU PROPOSE TO TREAT CUSTOMER GROWTH THROUGH ACQUISITIONS?

A. The Company believes that there are three options for the treatment of growth through acquisitions. The first is to exclude the revenue and production costs from the RSM. The second option is to record in the acquisition approval case

an amount for approved revenue and production costs which would be added to the rate case allowed amount to come up with a total allowed amount. The third is to record in the acquisition approval case an amount for approved revenue and production costs on a standalone basis for the acquired system, which would be reconciled separately until the next general rate case. Prorations would occur for any timeframe that does not coincide with the rate year. The Company recommends the second option.

Q. DOES THE COMPANY PROPOSE ANY TREATMENT FOR ORGANIC GROWTH?

A. Not at this time. The Company does not believe there will be much organic growth in the current districts. If there is organic growth, then that would add to the total actual metered revenues of the Company which would be returned through the RSM if revenues net of production costs exceded the allowed amounts.

Q. HOW WOULD DECLINING USE AFFECT THE CALCULATION?

A. Declining usage lowers the pro forma water volume. If the Commission chooses to approve both the RSM and recognize the declining use trend, and if the Company were to project too great a decline and sales volumes remain higher than forecasted, the Company will credit the over collection of the revenues. This would hold equally true even assuming the claims of several witnesses that there is no such trend or that the trend has abated. Rather than “guessing” about

such things, the RSM resolves the matter. This happens because if there are more sales than were forecasted in the case and hence more sales than were set in the RSM calculation (less the increase in production costs required to produce the greater volume of water) the RSM will self-correct. If on the other hand, an adjustment to recognize the declining usage is not adopted and revenues were to actually decline, then the Company would recover the shortfall through the RSM (less the decrease in production costs to produce a lower volume of water). Without the RSM adjustments described, the Company will either over or under collect the fixed service charges due to the fact that the volumetric rates collect more than three-quarters of the fixed costs of the Company.

Q. AT PAGES 18-19 OF HIS REBUTTAL TESTIMONY, MR. BUSCH POINTS TO A STATEMENT BY OPC WITNESS HYNEMAN THAT STARTING IN 2011, MAWC'S REVENUES WERE $241 MILLION, $276 MILLION, $261 MILLION, AND $266 MILLION, RESPECTIVELY. IS THIS OBSERVATION RELEVANT?

A. No, I do not believe it is. As Mr. Roach and Ms. Tinsley point out, "revenue" growth is not a synonym for "sales" growth. If more customers are added through acquisitions or more plant is added, increasing ISRS revenue, revenue will increase but the effect on earnings is not affected. Only organic sales growth would be relevant and the growth in revenue, standing alone, says nothing about growth in sales per customer.

Q. AT PAGE 20 OF MR. BUSCH'S REBUTTAL TESTIMONY HE STATES THAT CUSTOMERS BENEFIT FROM THE TRADITIONAL APPROACH TO RATEMAKING WITHOUT AN RSM BECAUSE "RATES ARE SET APPROPRIATELY AFTER A THOROUGH REVIEW OF ALL THE UTILITIES BOOKS AND RECORDS ARE REVIEWED." DO YOU AGREE?

A. No, I do not. A thorough review of all the utility's books and records provides very little information about how weather affected such sales or if the sales accurately reflect a trend in use per customer. Presumably Mr. Busch agrees that the most accurate sales forecast achievable should inform the ratemaking process. In that regard, all the RSM is doing is conforming revenue to the revenue forecast approved for the Company.

Q ON PAGE 21 OF HIS REBUTTAL TESTIMONY, MR. BUSCH CRITICIZES THE RSM, STATING THAT "IF THE RATE A CUSTOMER PAYS FOR WATER INCREASES IN THE FUTURE BECAUSE THE CUSTOMER USED LESS TODAY, THEN THE CUSTOMER IS NOT ENCOURAGED OR REWARDED FOR CONSERVING ITS USAGE." IS THIS A FAIR CRITICISM?

A. No, I do not believe so for several reasons. First, if the actual usage were known in advance, then rates would be based on that usage, not the incorrect estimate. Second, if the customer uses less water, he or she is paying less than otherwise, and the only the difference is that some fixed charges are being recovered that otherwise would go unrecovered. Third, the Commission could also remedy this situation by including all fixed charges in the customer charge, thereby ensuring

that fixed costs would be collected. Fourth, if the Company were in a surcharge postion then it would apply the surcharge volumetric rate to the customer's usage, therefore a customer who conserves pays less and a customer who uses more pays more both from the standard rate and the volumentric RSM surcharge.

Q. AT PAGES 21-22 OF HIS REBUTTAL TESTIMONY, MR. BUSCH CONTENDS THAT "IF MAWC IS GRANTED A RSM, WITH AN ISRS IN PLACE, MAWC WILL LIKELY BE GUARANTEED TO COLLECT MORE REVENUES BETWEEN RATE CASES THAN WHAT THE COMMISSION APPROVED." IS THIS ACCURATE?

A. No, I do not believe this is the case. The ISRS simply matches investment with recovery of the cost of that investment. The RSM conforms actual revenue to the revenue forecasted in the rate case. If, due to a hot, dry summer, revenue were to exceed the forecast, MAWC might be collecting money under the ISRS but MAWC would be refunding money to customers under the RSM. The two mechanisms are not linked in any way. Also the ISRS has an annual reconciliation to ensure MAWC does not over or under collect the amount of authorized ISRS revenue. The RSM also has an annual reconciliation to ensure that it provides all of the credit back to the customers for any over-collection or collects any shortfalls from any under-collection. Therefore the Company can not collect more than the authorized revenues per the Commission.

Q. AT PAGE 22 OF HIS REBUTTAL TESTIMONY, MR. BUSCH STATES "THIS GRAPH, TO STAFF, INDICATES THAT THE CURRENT RATEMAKING MODEL WORKS. SOME YEARS, THE UTILITY MAY SEE REVENUES INCREASE AND SOME YEARS, THE UTILITY MAY SEE REVENUES DECREASE. THIS GRAPH SHOWS THAT A RSM IS NOT NECESSARY." DO YOU AGREE?

A. No and this is a variant of Mr. Busch's earlier point, which, as I pointed out, proves that for utilities with weather-affected revenue, there is a virtual 100% certainty that a forecast based on weather normalized revenue will be incorrect because weather is never 'normal." This is even worse if revenue is not normalized for weather in establishing the revenue forecast in the rate case. Of course, over time, revenue based on normal revenue might even out if the trend of declining use were ignored, because weather usually returns to the norm. But weather is not predictable and the chance of three (or even five) abnormally cool and wet summers or hot and dry summers following each other is very real and it can drastically affect revenue.

Q. IS MR. BUSCH'S DISCUSSION OF REPLACING THE RSM WITH STRAIGHT FIXED VARIABLE PRICING ("SFV") REALISTIC?

A. Not really because Mr. Busch appears to be offering it as an intellectual exercise rather than a realistic proposition given that such a rate design would require a monthly customer charge of approximately $56. This does not seem realistic because Staff's proposed customer charge varies by district, and is generally

lower than the Company's proposed $17.40 system-wide customer charge. Please note that Mr. Herbert's proposed $56 monthly fixed charge is for a 5/8 inch customer and larger meters would pay even more than this amount for their fixed charge. It should also be noted that Mr. Herbert's $56 fixed charge would recover MAWC's fixed costs which are 92.74% based on the filing. Mr Busch states on page 23 of his rebuttal testimony that the $56 "was designed to collect 90% of MAWC's fixed costs." The 90% from Mr. Herbert's testimony is referring to "a typical water company" per Mr. Herbert's testimony from the answer to question 38.

Q. DOES MR. BUSCH'S TESTIMONY OFFER ANY OTHER VIEWS OF THE RSM?

A. Yes, in his testimony summary on page 27, Mr. Busch states: "Staff is opposed to MAWC's proposed revenue stabilization mechanism as proposed in its direct case. With that said, Staff would not be opposed to increasing the customer charge if a RSM is not approved by the Commission in this case, [if] the Commission is interested in providing more stability to MAWC."

Given Staff's previous opposition to the higher monthly customer charges, it is difficult to understand Staff's position on this. For its part, MAWC would prefer the RSM to a higher customer charge for several reasons, not the least of which would be the economic effects on lower income, lower use customers. Given that the RSM is revenue neutral over time, we believe that it is a better alternative than SFV rate design and is more equitable to the Company and its

customers. Currently the Company is receiving only 23% of its revenue from fixed costs while the fixed costs are 91%, this is a shortfall of 68%. In the direct testimony of Mr. Herbert, question 38 he states that "only 7.26% of the total costs are considered variable" which means fixed costs are 92.74% in the current case. A small or even moderate move will not impact the differential in the Company's fixed costs compared to their fixed cost recovery.

III. RESPONSE TO OPC WITNESS HYNEMAN'S RSM COMMENTS

Q. MR. HYNEMAN CLAIMS THAT MR. KARTMANN'S (NOW MS. NORTON'S) TESTIMONY DOES NOT PORTRAY AN ACCURATE AND TRUE PICTURE OF RATEMAKING THEORY IN GENERAL AND, IN PARTICULAR, THE CURRENT RATEMAKING STRUCTURE IN MISSOURI. DO YOU AGREE WITH HIS ASSERTION?

A. No. As my rebuttal testimony will show, it is Mr. Hyneman who is out of step with mainstream regulatory policy and trends. In addition**,** Mr. Hyneman makes several mistakes in his analysis, identified by Ms. Tinsley and Mr. Roach, that likely led him to his faulty conclusions.

Q. IN THE EARLY PART OF HIS REBUTTAL TESTIMONY, MR. HYNEMAN LAUNCHES INTO AN EXPOSITION OF HIS THEORY OF "INDIRECT RATE RECOVERY" VERSUS "DIRECT RATE RECOVERY." DO YOU HAVE AN OBSERVATION ABOUT HIS THEORY?

A. Yes, Mr. Hyneman's "theory" devolves to his observation on page 6 that "[a]ll of these revenue requirement components that were matched in the rate-setting process are in a constant flux" and that "[i]ncreases or decreases in one component offsets the increases or decreases in other components." Of course, the components of a historic test year will never continue in exactly the same relationship in the years that rates are effective. That is precisely the reason why test years are normalized, a point to which I will return later in my testimony. Mr. Hyneman, however, is mistaken when he claims that increases and decreases somehow "offset." There is simply no basis for such a contention and, that they do not, is precisely the reason why trackers and rate adjustment mechanisms are appropriate – to keep the various rate relationships in synchronicity and preserve the utility's opportunity to earn the rate of return deemed reasonable by the regulator. This is especially the case where there is a persistent and continuing decline in the average usage per customer as identified by Mr. Roach, which virtually guarantees that increases and decreases do not "offset," but that there will be an under-recovery if the trend is not addressed. Or, as in this case, when the combination of a declining customer usage trend and increased infrastructure replacement capital investment for existing customers distort the matching relationship of revenues, expenses and rate base for the rate year from the matching relationship present in the test year.

Q. DOESN'T MR. HYNEMAN CLAIM THAT THE REMEDY FOR A CHANGE IN THE TEST YEAR RATE RELATIONSHIP THAT CREATES AN EARNINGS SHORTFALL IS TO FILE A NEW RATE CASE?

A. Yes, and, of course the utility could file a new rate case. The point, however, is that it is in the best interest of both the utility and its customers if rate cases can be forestalled by a rate mechanism that both provides an incentive for the utility to take positive action – such as accelerating pipe replacement – while extending the time to file for rate relief.

Q. HAVE YOU REVIEWED MR. HYNEMAN'S ARGUMENTS AGAINST SO-CALLED "SINGLE ISSUE RATEMAKING?"

A. Yes and they are confusing, at best. At page 23 of his rebuttal testimony he states that expense trackers, fuel adjustment clauses, ISRS, ECAMs, RSMs and AAOs are all examples of single issue ratemaking and opines, that they are generally prohibited in Missouri. That statement, however, appears to be demonstrably inconsistent with his claim on page 12 that "[t]he use of regulatory mechanisms such as trackers, fuel adjustment clauses, ISRS and others which are all too common in Missouri ratemaking….." It seems odd that mechanisms that are "prohibited" would be "all too common."

Q. IS MR. HYNEMAN'S RELIANCE ON MR. SMITH'S 2012 PRESENTATION TO A NATIONAL ENERGY AND UTILITY AFFORDABILITY COALITION

CONFERENCE AN INDICATION THAT ADJUSTMENT CLAUSES ARE DISFAVORED RATEMAKING CONVENTIONS?

A. No, it is evidence simply of what Mr. Smith believes. Quite the contrary, such innovative ratemaking mechanisms have become quite common. A 2013 study by the Brattle Group entitled "Alternative Regulation and Ratemaking Approaches for Water Companies: Supporting the Capital Investment Needs of the 21st Century," attached as Schedule JMW-2, that was prepared for the National Association of Water Companies, (September 30, 2013) found the following:

- Revenue Stabilization. These mechanisms, which include conservation adjustments and decoupling mechanisms, adjust base revenues, without addressing costs, between rate cases. They remove the conflict in the utility promoting efficiency and deal with falling sales from various sources. 27 states for electricity and 30 states for natural gas delivery participate in this kind of alternative regulation. For water, 5 states have been identified as having this policy.

- Comprehensive Alternative Ratemaking and Timely Recovery. These are ways to move beyond the general rate cases of cost of service regulation and bring into rates future costs from investment projects and other sources. 34 states for electricity and 18 states for natural gas delivery have some form of comprehensive alternative regulation. For water, 4 states have been identified as having some form of comprehensive alternative regulation. In addition a number of states have the positive feature of a future or partially future test year in the traditional general rate case, which is a related, traditional policy that is surveyed, but not included in the count of states above.

- Alternative Ratemaking for Capital Expenditures. Distribution System Improvement Charge ("DSIC") and Capital Expenditure (Capex) Riders are innovative means to collect the costs of standard investments to maintain the integrity of distribution systems. 17 states for electricity and 22 states for natural gas delivery have at least one kind of this alternative regulation. For

> Water, 14 states have been identified as having these policies. Another alternative ratemaking option for Capital Expenditures is including Construction Work in Progress (CWIP) in rate base. 19 states for electricity and 3 states for natural gas delivery have this form of alternative regulation. For Water, 21 states have been identified as having this policy. There are 28 states for electricity, 25 states for natural gas and 31 states for water that have one form of the Alternative Ratemaking for Capital Expenditures discussed above.

Consequently, it should be fairly obvious that Mr. Smith's contention that these types of rate mechanisms are "disfavored" is unsupported by the fact that they enjoy widespread favor.

Q. CAN YOU POINT TO ADDITIONAL EVIDENCE OF THE WIDESPREAD USE OF THESE RATE MECHANISMS BY PUBLIC UTILITY REGULATORY COMMISSIONS TO SUPPLEMENT TRADITIONAL WATER AND WASTEWATER UTILITY RATE DESIGN?

A. Yes, I can. In 2005, the National Association of Regulatory Utility Commissioners ("NARUC") adopted a resolution stating the following:

> **WHEREAS,** During a recent educational dialogue, the "2005 NAWC Water Policy Forum," held among representatives from the water industry, State economic regulators, and State and federal drinking water program administrators, participants discussed (consensus was not sought nor determined) and identified over 30 innovative policies and mechanisms that have been summarized in a report of the Forum to be available on the website of the Committee on Water at www.naruc.org; *and*
>
> **WHEREAS,** As public utility commissions continue to grapple with finding solutions to meet the myriad water and wastewater industry challenges, the Committee on Water hereby acknowledges the Forum's *Summary Report* as a starting point in a commission's review of available and proven regulatory mechanisms whenever additional regulatory policies and mechanisms are being considered; *and*

WHEREAS, To meet the challenges of the water and wastewater industry which may face a combined capital investment requirement nearing one trillion dollars over a 20-year period, the following policies and mechanisms were identified to help ensure sustainable practices in promoting needed capital investment and cost-effective rates: a) the use of prospectively relevant test years; b) the distribution system improvement charge; c) construction work in progress; d) passthrough adjustments; e) staff-assisted rate cases; f) consolidation to achieve economies of scale; g) acquisition adjustment policies to promote consolidation and elimination of non-viable systems; h) a streamlined rate case process; i) mediation and settlement procedures; j) defined timeframes for rate cases; k) integrated water resource management; l) a fair return on capital investment; *and* m) improved communications with ratepayers and stakeholders; and

RESOLVED, That the National Association of Regulatory Utility Commissioners (NARUC), convened in its July 2005 Summer Meetings in Austin, Texas, conceptually supports review and consideration of the innovative regulatory policies and practices identified herein as "best practices;" and be it further

RESOLVED, That NARUC recommends that economic regulators consider and adopt as many as appropriate of the regulatory mechanisms identified herein as best practices…[1]

Q. HAS NARUC ISSUED A MORE RECENT VIEW ON THE SUBJECT?

A. Yes, it has. In July 2013, NARUC's Board of Directors reiterated the use of the 2005 Report as a best practice for water companies. NARUC found:

RESOLVED, That the Board of Directors of the National Association of Regulatory Utility Commissioners, convened at its 2013 Summer Meeting in Denver, Colorado, identifies the implementation and effective use of sound regulatory practice and the innovative regulatory policies identified in the *Resolution Supporting Consideration of Regulatory Policies Deemed as "Best Practices"* (2005) as a critical component of a water and/or wastewater utility's reasonable ability to earn its authorized return; *and be it further*

RESOLVED, That NARUC recommends that economic regulators carefully consider and implement appropriate ratemaking measures as

[1] Adopted by the NARUC Board of Directors July 27, 2005.

needed so that water and wastewater utilities have a reasonable opportunity to earn their authorized returns within their jurisdictions; *and be it further*

RESOLVED, That the Committee on Water stands ready to assist economic regulators with the execution of a sound regulatory environment for regulated water utilities, and will continue to monitor progress on this issue at future national committee meetings until satisfactorily improved.[2]

Again, at its November 2013 annual meeting, the National Association of Regulatory Utility Commissioners ("NARUC") adopted a resolution that supports consideration of alternative recovery mechanisms for water and wastewater utilities. The NARUC resolution states, in part:

WHEREAS, Traditional cost of service ratemaking, which has worked reasonably well in the past for water and wastewater utilities, no longer adequately addresses the challenges of today and tomorrow. Revenue, driven by declining use per customer, is flat to decreasing, while the nature of investment (rate base) has shifted largely from plant needed for serving new customers to non-revenue producing infrastructure replacement and compliance with new drinking water standards; and

WHEREAS, The traditional cost of service model is not well adapted to a no/low growth, high investment utility environment and is unlikely to encourage the necessary future investment in infrastructure replacement; and

WHEREAS, Compared to the water and wastewater industry, the electric and natural gas delivery industries have in place a larger number and a greater variety of alternative regulation policies, such as multiyear rate plans and rate stabilization programs, and those set forth in the 2005 Resolution; and

WHEREAS, The U.S. water industry is the most capital intensive sector of regulated utilities and faces critical investment needs that are expected to total $335 billion to $1 trillion over the next quarter century, as noted in the

[2] Sponsored by the Committee on Water, Adopted by the NARUC Board of Directors, July 24, 2013.http://www.naruc.org/Resolutions/Resolution%20Addressing%20Gap%20Between%20Authorized%20Versus%20Actual%20Returns%20on%20Equity%20in%20Regulation%20of%20Water%20and%20Wastewater%20Utilities.pdf

American Society of Civil Engineers 2013 Report Card for America's Infrastructure…[3]

NARUC's resolution expressly supports alternative recovery mechanisms for water and wastewater utilities that address the above concerns. The NARUC resolution goes on to state that:

> **WHEREAS**, Alternative regulatory mechanisms can enhance the efficiency and effectiveness of water and wastewater utility regulation by reducing regulatory costs, increasing rates for customers, when necessary, on a more gradual basis; and providing the predictability and regulatory certainty that supports the attraction of debt and equity capital at reasonable costs and maintains that access at all times.

NARUC's resolution encourages utility regulatory commissions to adopt alternative rate mechanisms as a means to remove the disincentives to capital investment from the ratemaking process and provide regulatory incentives to capital investment as a way of supporting the ongoing need to attract debt and equity capital at reasonable costs. The resolution also recognizes that alternative regulatory mechanisms can improve the ratemaking process by reducing regulatory costs and increasing rates, when needed, on a more gradual basis. In light of the preceding evidence, it appears that it is Mr. Hyneman who is out of step with mainstream regulatory practice.

Q. ARE YOU FAMILIAR WITH MR. HYNEMAN'S DISCUSSION OF REGULATORY LAG?

[3] *Resolution Endorsing Consideration of Alternative Regulation that Supports Capital Investment in the 21st Century for Water and Wastewater Utilities* **-** Sponsored by the Committee on Water, Recommended by the NARUC Board of Directors November 19, 2013, Adopted by the NARUC Committee of the Whole November 20, 2013.

A. Yes, I am.

Q. DO YOU HAVE ANY GENERAL OBSERVATIONS ABOUT HIS VIEWS ON THAT SUBJECT?

A. Yes, Mr. Hyneman's discussion is very general and not at all related to the specific situation of MAWC. For example, he speaks in general terms of "all utilities," other utilities that have no connection to MAWC, and to general principles that either have no relevance to the issues at hand or which misstate the principle or the relevant facts.

Q. IN DISCUSSING REGULATORY LAG, MR. HYNEMAN HARKENS BACK TO HIS 'SINGLE ISSUE RATEMAKING' DISCUSSION AND CLAIMS THAT "SINGLE-ISSUE RATEMAKING MECHANISMS REMOVE OR SIGNIFICANTLY DEGRADE ONE OF THE ESSENTIAL POSITIVE ELEMENTS OF REGULATORY LAG, WHICH IS THE INCENTIVE PLACED ON UTILITY MANAGEMENT TO CONTROL COST INCREASES BETWEEN RATE CASES." EVEN ASSUMING THAT MR. HYNEMAN'S THESIS WERE CORRECT, IS IT CORRECT IN THE CASE OF MAWC?

A. No, it is demonstrably incorrect in the case of MAWC. As has been shown, the Company's expenses in the test year in this case are actually lower than its expenses in the test year in the Company's previous rate case filed in 2011. If expenses had simply been inflated, using the the Consumer Price Index, from the 2010 actual level of $120.231 million, the expenses would have been

approximately $130.772 million at the end of December 2015. Instead they are only $122.712 million in the current case, this is a cost savings of $8.060 million. But the $122.712 million actually includes expenses from acquired systems since the beginning of 2011, the amount of expenses included in the case for new acquisitions since the 2010 actual amount is $4.572 million. For an apples to apples comparision with inflation, we need to deduct the $4.572 million from the $122.712 million in the case which equates to $118.140 million which shows a savings of $12.632 million ($130.772-$118.140). Please refer to Schedule JMW-3 for the calculations for the savings in expenses. The savings are $13.594 million if the true-up numbers are used which is reflected in the last column of Schedule JMW-3. This is clearly a very significant achievement in cost containment and productivity. Obviously, in the case of MAWC, it is not necessary to provide incentives to achieve greater productivity because MAWC's productivity is palpable. Rather, improving water efficiency is a core value at American Water and is consistent throughout our system. Later in my testimony, I will address the errors and inconsistencies behind Mr. Hyneman's objection to the RSM. In this context, however, I only wish to point out that one of the factors affecting the variability of MAWC's revenue is weather. Given Mr. Hyneman's belief that an important element of regulatory lag is to provide an incentive for utility behavior (such as cost control), it is difficult to imagine what an incentive to "control" weather could be other than an exercise in futility. As I will explain, while a RSM might be adopted to eliminate any disincentive for a utility to support

improving water efficiency, it is difficult to envision what “incentive” a utility could be provided to control weather.

Q. DOES MR. HYNEMAN CLAIM THAT THE RENOWNED REGULATORY ECONOMIST, DR. ALFRED E. KAHN, WAS A PROPONENT OF REGULATORY LAG?

A. Yes, Mr. Hyneman claims that Dr. Kahn lauded regulatory lag as a positive benefit of regulation. Mr. Hyneman is, perhaps, uninformed about Dr. Kahn’s later, practical work as Chairman of the New York Public Service Commission when he was in a position to address the actual effects of regulatory lag on a utility’s earnings. Dr. Kahn served as Chairman of the New York Commission from 1974 to 1977, when he left the Commission at the behest of President Carter to head the Civil Aeronautics Board to deregulate the airlines. In a series of decisions during his tenure, the New York Commission moved increasingly toward the use of forecasted test years in an effort to stave off the negative effects of regulatory lag that resulted from stale, historic test years. What the New York Commission said in a Consolidated Edison decision in late April 1977, with Dr. Kahn as Chairman, is particularly on point to the discussion here:

> The large number of test years presented in this case and the tortuous disputation over their theoretical merit and practical implications have obscured a basic point that should be made clear: a so-called fully adjusted historic test year requires the making of forecasts – projections - no less than does a so-called fully forecast test year. *In each case, the goal is to estimate as accurately as possible the*

conditions that will prevail in the future, when the new rates will be in effect.

Case 27029, Consolidated Edison Company of New York, Inc., 17 NYPSC 241 (April 29 1977)(emphasis added). Set in proper context and in his practical application of theory to ratemaking, it should be clear that Dr. Kahn was not talking about there being any benefit whatsoever to the "regulatory lag" from using a stale and unrepresentative historic test year to deprive a utility of a reasonable opportunity to actually earn its allowed return. Whether the issue was rapidly increasing expenses due to inflation that was the case in the 1970s, or the trend of declining revenue due to conservation that we see today, the point is the same – a regulator cannot turn a blind eye to trends that render historic data unrepresentative. This is patently evident in the New York Commission's insistence that the test year used "estimate as accurately as possible the conditions that will prevail…when the new rates will be in effect." It is only in that case, where the most accurate forecasts are used, that the efficient utility has the opportunity to prosper while the inefficient utility will lag. That, however, is not the case where a stale test year is used or overly optomistic revenue forecasts are imposed on a utility, as Mr. Hyneman advocates.

Q. AT PAGE 32, LINES 12-19 OF HIS REBUTTAL TESTIMONY, MR. HYNEMAN STATES "THAT REGULATORY LAG … PLAYS A VITAL ROLE IN MAKING RATE OF RETURN REGULATION WORK FAIRLY AND EQUITABLY … REGULATORY LAG IS NECESSARY AND ESSENTIAL IN SETTING PRICES FOR A MONOPOLY. THAT IT IS ONLY THROUGH REGULATORY LAG THAT

COST REDUCTION INCENTIVES ARE CREATED AND PROVIDE THE MOST SIGNIFICANT, IF NOT THE ONLY INCENTIVE FOR UTILITY MANAGEMENT TO OPERATE THE UTILITY AT ITS LOWEST REASONABLE COST BETWEEN RATE CASES". IS USING REGULATORY LAG NECESSARY TO SET PRICES AND INCENT MORE EFFICIENT OPERATIONS GOOD REGULATORY OR PUBLIC POLICY?

A. No, it is not. Essentially this argument boils down to saying if one deprives a utility of a reasonable opportunity to recover its costs by using stale data, then the utility will be forced to be more efficient. I suppose that forcing a utility to act to forestall losses will result in some lower costs in the short run; however, I do not believe that a policy of withholding recovery of prudently incurred costs is a proper regulatory tool. For a utility that is provided a reasonable opportunity to recover all of its reasonably likely cost increases and a full return on its plant additions in a fully forecasted rate year (i.e., the first year that rates are in effect), regulatory lag might provide an appropriate incentive to be more efficient. Under those circumstances, an increasingly efficient utility would likely exceed its authorized cost of equity, while a less efficient utility would fall short of the authorized cost of equity. Such an efficient utility also could potentially delay filing for new rates. That, however, is not the situation that exists here. At a time when significant capital investment in the water industry is needed to replace our aging transmission and distribution water and wastewater infrastructure, the regulatory lag included in Mr. Hyneman's proposal does not provide any meaningful incentive. Instead, it would constitute an inappropriate disincentive to investment

in infrastructure needed to maintain high-quality service to customers. It can also adversely affect operating efficiencies and delay necessary investment, thereby increasing the costs due to the impacts of inflation and other factors. A policy that can produce these negative impacts on service quality or cost should not be viewed as positive from either a regulatory or public policy perspective.

Q. PLEASE EXPLAIN.

A. Rather than encouraging operating efficiencies, the only "incentive" created by the policy advocated by Mr. Hyneman is for a utility to reduce expenses and capital investment from what they might be in the absence of regulatory lag, in order to mitigate the loss of a rate of return on invested capital. This is true whether the Commission affirmatively adopts regulatory lag as a positive policy or whether significant regulatory lag is simply tolerated as part of the ratemaking process. The situation is worse, however, if this loss is due to a deliberate policy to induce a delay through the regulatory process or otherwise impair a utility's opportunity to earn a return of and on capital plant that is used and useful, because investors will see this as a conscious policy to deprive a utility of a return on its investment, rather than simply an incidental effect of deficient ratemaking policy. In the former case, investors likely will regard the policy merely as misguided, while in the latter case it will be interpreted as deliberately hostile, warranting higher risks and capital costs. Therefore, rather than producing operating efficiencies, as Mr. Hyneman claims will result, an official policy of providing for significant regulatory lag is much more likely to induce operating inefficiencies precisely in those areas that can have the most adverse

impact on service and costs to customers – the Company's capital investment and construction program. It encourages the utility to avoid making any investment beyond the bare necessities and to try to time the replacement of infrastructure to avoid impairment of the allowed returns on capital investment, rather than promoting optimal construction cycles and scheduling and the underlying operating needs of the utility.

Properly conducted, the rate case review process provides that a utility's costs in the coming year after rates are set would be reviewed and that any excessive costs would be disallowed. Once rates are set using those costs, there is an incentive for the utility to seek out greater efficiencies and cost reductions. Under this scenario, if the utility achieves additional efficiencies, it will earn a greater return than the cost of equity determined in the case. A deliberate regulatory policy to delay the opportunity to earn the allowed return, however, is neither necessary nor appropriate. What Mr. Hyneman is essentially advocating is a policy of deliberately withholding recovery of a return on capital investment and reasonable expenses as a way to improve operating efficiencies. Not only is this a woefully indirect and inappropriate way to provide an incentive for efficient operation, but it also has the effect of providing a disincentive for plant investment. Thus, Mr. Hyneman's brand of regulatory lag is an especially poor policy at a time when the water industry in general, the State of Missouri, and MAWC all face such significant infrastructure replacement needs.

Q. IS ONE OF THE SIGNIFICANT CONCERNS FACING MAWC THE FACT THAT REVENUES THAT ARE BASED ON AVERAGE HISTORIC USAGE PER CUSTOMER FAIL TO CAPTURE THE SYSTEMIC DECLINE IN USAGE?

A. Yes, it is and Mr. Roach discusses that phenomenon extensively in his direct and rebuttal testimony. That phenomenon of declining, but unrecognized usage per customer, coupled with the need to normalize usage for weather effects, are well recognized in the industry and by regulators but are wholly unrecognized by Mr. Hyneman.

Q DOES MR. HYNEMAN PROPERLY RECOGNIZE THESE EFFECTS?

A. To the contrary, he seems to trivialize them; ignoring the effect of weather and the well-recognized trend of declining use per customer and claiming (at p. 40 of his rebuttal testimony) that the "revenue growth numbers provided by Mr. Roach show a robust increase in revenue growth from 2011 through 2014 of 12%, with an average annual increase during this period of 4%". He also quibbles with Mr. Roach's use of the term "allowed revenues" claiming that the Commission has never "allowed" revenue.

Q. IS MR. ROACH'S USE OF THE TERM ALLOWED REVENUE SOMEHOW INCORRECT?

A. Not at all. Mr. Roach was clearly explaining the concept of revenue that would be expected to be collected in the first year that rates would be in effect. That is a well-known concept and the very reason why sales forecasts are almost

universally employed in rate cases. If a regulatory commission did not have a sense of the direction in which sales were headed, any attempt to establish a rate that would provide the utility with its constitutionally protected opportunity to earn a fair rate of return would be relegated to guesswork – which is essentially what Mr. Hyneman is advocating, especially in his opposition to the RSM, which I will discuss below.

Q. MR. HYNEMAN OPPOSES ADOPTION OF MAWC'S PROPOSED RSM BECAUSE HE CLAIMS AT PAGE 20 OF HIS REBUTTAL TESTIMONY THAT MAWC's REVENUES ARE STRONG AND GROWING." IS HIS CLAIM ACCURATE?

A. No, it is not. Based on a chart he presents on page 18 of his rebuttal testimony, Mr. Hyneman claims that "MAWC's revenue growth in the period 2011 through 2014 have averaged greater than 3% per year." As Ms. Tinsley demonstrates in her surrebuttal testimony, his claim suffers from several fatal deficiencies including failure to account for rate increases and acquisitions and the effect of recoveries under adjustment clauses. Mr. Roach further points out that Mr. Hyneman failed to normalize his revenue for weather and gave no effect to the well-recognized trend of reduced water usage per customer. Therefore, the premise upon which Mr. Hyneman bases his opposition to the RSM is flawed.

Q. ONE ELEMENT IDENTIFIED BY MS. TINSLEY IN HER RESPONSE TO MR. HYNEMAN'S CLAIM THAT REVENUE IS GROWING IS THAT HE FAILED TO

CONSIDER RECENT ACQUISITIONS OF WATER SYSTEMS. BUT IF CUSTOMERS ARE INCREASING FROM SUCH ACQUISITIONS, WON'T EARNINGS INCREASE ACCORDINGLY?

A. Not necessarily. If customers are simply being acquired, they bring along with them associated expenses and rate base. Therefore, unless those customers are producing earnings that are exceeding the system rate of return, the simple addition of customers will not affect the Company's return on equity ("ROE"). And, if the systems are troubled systems that require investment or which have inadequate earnings, they will degrade the system rate of return, all things equal.

Q. MR. HYNEMAN SEEMS TO LUMP THE COMPANY's PROPOSED RSM UNDER THE RUBRIC OF "SINGLE ISSUE RATEMAKING." DO YOU AGREE WITH HIM?

A. No, I do not. As I explained previously, the Company' proposed RSM considers revenues net of production costs. Production costs vary with sales volumes. Delivering more water costs more just as delivering less water costs less. Netting production costs will ensure that customers pay only those production costs for the actual amount of water delivered.

Q. WHAT IS THE EFFECT OF THE DECLINING USE PER CUSTOMER ON THE COMPANY'S ABILITY TO EARN A REASONABLE RATE OF RETURN?

A It is an elementary ratemaking tenet that a utility is entitled to rates that will afford it the opportunity to earn a compensatory rate of return, assuming efficient

management. Under this principle, forecasts of a utility's revenue and expenses are compared to its rate base to determine if a reasonable rate of return will be produced - in other words, the very matching principle to which Mr. Hyneman references but ignores in practical terms. Adjustments to all elements of this calculus are made for known and measurable changes. Mr. Roach has demonstrated that the use of historic test year revenue had resulted in weather adjusted revenue shortfalls because, with declining use of approximately 2% per year, it is impossible to earn the authorized rate of return even if all elements of expenses and rate base are perfectly forecasted. One way to address this earnings shortfall is to reflect a sales forecast that includes an appropriate trend of declining use per customer. Another way is to employ a mechanism that will true up for the difference between forecasted and realized revenue.

Q. IS ONE METHOD PREFERRED OVER ANOTHER?

A. Yes. A forecast that includes an appropriate trend of declining use per customer will properly take into effect the reduced, weather normalized revenue that will be realized in the year when rates are in effect. The problem is that use per customer will continue to decline after the test year and the year after, and the year after that, and most likely every subsequent year. The RSM is necessary to stabilize revenues between base rate cases. On the other hand, however, even a proper forecast that incorporates declining use per customer will not correct for actual weather variability.

Q. WILL AN RSM IMPROVE THE RATEMAKING PROCESS AND REDUCE RATE CASE CONTROVERSY?

A. As a ratemaking tool, MAWC's proposed RSM will effectively reduce or even eliminate the contentiousness related to the process of determining the projected pro forma water volumes used to set water rates, and will help ensure that the Company would receive the authorized revenue, and customers would pay the appropriate price for water service in their monthly bills, whether collected through the fixed service charge or the volumetric charge. In any event, the RSM is an even-handed, well used regulatory tool that reduces controversy in rate cases and serves many of the valuable purposes explained above. Mr. Hyneman's objections to it are not warranted or supported.

Q. ARE MECHANISMS SUCH AS THE RSM RECOGNIZED IN THE REGULATORY COMMUNITY AS AN EFFECTIVE MEANS OF ADDRESSING THE SHORTCOMINGS OF VOLUMETRIC RATE DESIGN?

A. Yes. Revenue decoupling is a regulatory tool that has been adopted in many states as a way to eliminate the "throughput incentive" to water and energy efficiency initiatives and investment. Clauses similar to the RSM proposed here have been successfully used for some time for water utilities in New York and California, and a revenue decoupling mechanism was recently adopted for a water utility in Connecticut. In addition, revenue decoupling has been approved for gas utilities in 21 states, according to the December 2015 report from the American Gas Association entitled "Innovative Rates, Non-Volumetric Rates, and

Tracking Mechanisms: Current List." The Report also states that Weather Normalization Adjustments have been allowed in 24 states. A December 2014 report by the Institute for Electric Innovation lists 33 states that have approved fixed cost recovery mechanisms. As stated previously, the Brattle Group's 2013 study "Alternative Regulation and Ratemaking Approaches for Water Companies: Supporting the Capital Investment Needs of the 21st Century," shows that Revenue Stabilization mechanisms have been allowed in 27 states for electricity, 30 states for natural gas delivery and 5 states for water.

Q. DO ANY AMERICAN WATER UTILITIES OPERATE WITH REVENUE DECOUPLING MECHANISMS LIKE THE RSM?

A. Yes, New York-American Water Company's first Revenue Adjustment Clause ("RAC") was established in October 1988. The RAC reconciles metered revenues, fuel, power and chemicals between what was allowed and actuals. The difference is surcharged or credited within the following rate year. The first California-American Water Company Revenue Adjustment Mechanism and Modified Cost Balancing Account (WRAM/MCBA) was implemented in the fourth quarter of 2008. The MCBA tracks the difference between authorized and actual purchased water, power costs and pumping taxes.

Q. TO THE BEST OF YOUR KNOWLEDGE, HAVE ANY PROBLEMS ARISEN FROM THE REVENUE STABILIZATION MECHANISMS ADOPTED IN NEW YORK OR CALIFORNIA?

A. Not to my knowledge, and they have been functioning for years.

Q. WHY IS AN RSM NECESSARY WHEN DECLINING USAGE CAN BE FACTORED INTO THE SALES FORECAST?

A. The problem is that use per customer will continue to decline after the test year and the year after, and the year after that, and most likely every subsequent year. The RSM is thus necessary to stabilize rates between base rate cases and it can provide a mechanism to attenuate the need for rate cases.

Q. WHAT ARE THE MAIN CRITICISMS OF REVENUE DECOUPLING?

A. Critics of revenue decoupling usually oppose such mechanisms on three grounds: (1) That decoupling "guarantees" a profit to the utility, (2) That decoupling reduces the utility's incentives to control costs, and (3) Decoupling punishes customers who actively seek to conserve water and lower their bills, and rewards customers who do not.

Q. WILL THE RSM GUARANTEE THAT MAWC EARNS A PROFIT?

A. No. The RSM only operates to see that MAWC will receive the revenue upon which its rates were premised. If MAWC's costs increase, its revenues will not change and its net income declines. Therefore, MAWC must still manage its costs to earn a profit.

Q. WILL THE RSM REDUCE INCENTIVES TO CONTROL COSTS?

A. No. To the contrary, the RSM will increase the incentive to control costs because there will be a direct link between costs and profit, with the latter increasing if the former decreases.

Q. UNDER THE RSM WOULD CUSTOMERS WHO USE LESS PAY LESS?

A. Yes, they would pay less in the current bill because they are using less water. They would also pay less when and if a surcharge was issued because the surcharge is volumetric based and they are using less water which saves them from paying more in regards to the surcharge.

Q. PLEASE SUMMARIZE WHY THE COMMISSION SHOULD ADOPT THE RSM.

A. Tying a water utility company's recovery of fixed costs directly to its volumetric sales has prompted two widespread concerns in modern utility regulation. First, the water utility industry is historically the most capital intensive of the utility industries, and it is expected to incur significant capital expenditure needs over the next 20 years. Second, the fact that approximately 77 percent of MAWC's revenues come from water sales volumes means that MAWC is incented to sell more water—the more revenues we collect, the better our financial performance. So MAWC's current rate structure rewards it for promoting sales—regardless of whether it is cost-effective, environmentally responsible, or proper for system support. Moreover, our current rate structure creates a disincentive for efficiency and conservation efforts. This misalignment is troubling because utilities are often the best-positioned to improve water efficiency and promote conservation.

The RSM would make MAWC relatively indifferent to selling less water, recognize that normal weather is a condition that will likely never be achieved, and effectively reduce the adverse impacts of weather variability for both the utility and its customers. The result is a better alignment of stakeholders' interests to provide for more economically and environmentally efficient resource decisions. Implementation of the RSM will remove a disincentive to promote water efficiency and will support continued water efficiency investments. Removing barriers to improving efficiency and needed investment is in MAWC's customers' interests because, over time, it reduces the cost of providing water service to customers and promotes the sustainability of natural resources. Improvements in efficiency can reduce or mitigate increases operating costs that are passed on to customers in the next rate case, including the cost of energy, treatment, and storage. In addition, increases in efficiency can reduce the need to develop new water supplies, leaving more for future use and improving water quality and the aquatic habitat. The RSM will allow MAWC to support demand-side water efficiency measures without worrying about whether that support will reduce sales and revenues. Also, by allowing MAWC to collect its authorized revenues less production costs each year, the RSM may, depending on the effect of other factors such as levels of investment and the operating cost environment, may reduce the frequency of rate cases.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes, it does.

FORM NO. 13 P.S.C MO NO. 13 Original Sheet No. _____
Sheet No. _____

Missouri-American Water Company For _____
Name of Issuing Corporation Community, Town or City

Revenue Stability Mechanism (RSM)

AVAILABILITY – This rate is available to all residential ("domestic"), commercial, other public authority and sale for resale metered customers.

Commission Order in WR-2015-0301, dated Xxxxx X, 2016, directed that the rates applicable to all metered customer accounts, as defined above, be subject to automatic adjustment by way of a surcharge, or credit, based on the difference between the actual net revenues (operating revenues less production costs) for the preceding rate year and the net revenue target as estimated in the most recent rate case. The difference is then surcharged to be recovered over the ensuing year or refunded in a lump sum as soon as administratively possible. Production costs will be defined as purchase water, power, chemicals and waste disposal. In the proceeding WR-2015-0301, target levels for revenues and production costs were set for future years as follows, with the levels carrying forward for all future years until new target levels are set in the next rate proceeding:

Revenues	$
Production Costs	$
Usage per 1,000 gallons	
Cost per 1,000 gallons	$

The surcharge/credit for the year ending June 30, 2017 is calculated as follows:

The actual net revenues for the year ended June 30, 2017 of $ was compared to the target level set forth above. The difference results in a surcharge/credit to customers of $

The net amount to be surcharged/refunded to customers derived from the calculation described above, during the ensuing year ending June 30, 2018 is: $

Since the total number of metered customers is:

The credit per customer amounts to: $

The surcharge amount will be $ per 100 gallons.

Any refunds due ratepayers from any net over-recovery in the rate year will be credited to customers' bills in the earliest month, as administratively practical, of the following rate year. Customer bills will be surcharged to recover any deferral of cost recovery in the rate year beginning in the earliest month, as administratively practical, of the following rate year and continue each month thereafter, as necessary, until the entire deferral is recovered.

The Company shall file with the Commission on or before March 20 of each year, an information sheet that specifies the annual adjustments to be effective under the RSM. The Company shall include with its filing a report which shows a determination of how the surcharge/credit was calculated. The Company will file an annual reconciliation, with the annual RSM filing, to ensure that the amount surcharged/credited to customers matches the under/over-collection from the previous filing.

DATE OF ISSUE: _____ DATE OF EFFECTIVE: _____

ISSUED BY: Cheryl Norton, President
727 Craig Road, St. Louis, MO 63141

Alternative Regulation and Ratemaking Approaches for Water Companies

Supporting the Capital Investment Needs of 21st Century

PREPARED FOR

National Association of Water Companies

PREPARED BY

Joe Wharton, Ph.D.
Bente Villadsen, Ph.D.
Heidi Bishop

September 23, 2013

THE Brattle GROUP

This report was prepared for the National Association of Water Companies. All results and any errors are the responsibility of the authors and do not represent the opinion of The Brattle Group, Inc. or its clients.

Acknowledgement: We acknowledge the valuable contributions of many individuals to this report and to the underlying analysis, including members of the NAWC and The Brattle Group for peer review.

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Alternative Regulation and Ratemaking Approaches for Water Companies

I. Executive Summary

Today, private water companies directly or through public-private partnerships provide the essential water and wastewater services to nearly 73 million people in the United States, one fourth of our nation's population. It is undeniable that the U.S. water industry provides a vital public service, which is to maintain the highest standards of water quality set under federal and state laws. Over the next quarter century, the U.S. water industry faces a set of critical infrastructure investment needs that is expected to total between $335 billion to $1 trillion. This is to replace aging infrastructure and make needed investment to maintain water quality. In addition, the EPA estimates that after years of drought, up to 70% of the states face some form of water shortage and this will increase costs of water and perhaps require separate investments to insure long term reliable water supply.

This report provides a comprehensive review of policies that state regulators across the U.S. have developed to meet these challenges by improving traditional cost of service ratemaking in the electric, natural gas distribution and water industries. The report shows that the electric and natural gas delivery industries have in place a larger number and a greater variety of alternative regulation policies compared to the private water industry. The water industry has made recent progress in innovative ways to recover capital investments in their distribution systems.

Under the general "regulatory compact", all private utilities are presumed to have a fair opportunity to earn their cost of capital, including the Commission-determined allowed return on equity. The traditional regulatory approach for setting prices is known as cost of service regulation and has been in place for at least half a century. During the formative stages in the second half of the 20th century, all infrastructure industries saw the demand for their products grow, usually faster than the economy. Growth rates in unit sales of water, electricity, and natural gas for residential and commercial customers have fallen and in some regions have been negative. This has taken away a source of funds for future investments and for overcoming regulatory lag that is built into the regulatory process. Today traditional cost of service regulation alone is not well designed to meet the future needs of the water industry.

There are several unique issues for the water industry in using traditional cost of service ratemaking. First, the water utility industry is the most capital intensive among state regulated infrastructure industries. Recovery of these dominant capital investments solely through the traditional general rate cases is challenging. Second, the majority of private water utilities are relatively small. Third, it may be difficult to overcome a perception by some members of the

public of water as a natural product that is cheap and readily available, so the water utility industry may need to be prepared to educate customers and rate case participants about costs and their relevance.

Because the water industry is the most capital intensive regulated industry, an efficient regulatory policy that puts private capital to work meeting a substantial share of the future infrastructure needs is vital. Maintaining creditworthiness and the ability to attract capital is therefore key. If after large investments are made, the regulatory process does not allow the recovery of capital costs in a timely manner, the capital markets will recognize the associated loss of earnings and will price capital accordingly. All of these issues could trigger a pattern of under earning if major capital investments were initiated. They imply that traditional cost of service regulation is unlikely by itself to be sufficient to facilitate the necessary future investment in the water industry.

This report focuses on policies that states have explicitly developed that go beyond the normal limits of traditional cost of service regulation to improve the outcomes. Electric and natural gas utilities, reflecting perhaps a greater degree of consolidation and historically larger cost of energy, are further along in developing and implementing alternative regulatory policies and ratemaking mechanisms to overcome the difficulties of traditional regulation. Here are the current results of the survey[1] for three important categories of alternative policies.

- **Revenue Stabilization**. These mechanisms, which include conservation adjustments and decoupling mechanisms, adjust base revenues, without addressing costs, between rate cases. They remove the conflict in the utility promoting efficiency and deal with falling sales from various sources. 27 states for Electricity and 30 states for Natural Gas Delivery participate in this kind of alternative regulation. For Water, only 5 states have been identified as having this policy.

- **Comprehensive Alternative Ratemaking and Timely Recovery.** These are ways to move beyond the general rate cases of cost of service regulation and bring into rates future costs from investment projects and other sources. 34 states for Electricity and 18 states for Natural Gas Delivery have some form of comprehensive alternative regulation. For Water, 4 states have been identified as having some form of comprehensive alternative regulation. In addition a number of states have the positive feature of a future or partially future test year in the

[1] State counts often include DC. These are the current numbers at the date of publication, but this large set of regulatory policies frequently experiences a change in some state. Water industry people working in the area will need to keep up with the status of policies in place. NAWC is active in tracking this.

traditional general rate case, which is a related, traditional policy that is surveyed, but not included in the count of states above.

- **Alternative Ratemaking for Capital Expenditures[2].** Distribution System Improvement Charge (DSIC) and Capital Expenditure (Capex) Riders are innovative means to collect the costs of standard investments to maintain the integrity of distribution systems. 17 states for Electricity and 22 states for Natural Gas Delivery have at least one kind of this alternative regulation For Water, 14 states have been identified as having these policies. While many of the water DSICs are recently enacted and not fully implemented, this is an important sign that progress is occurring in the water industry. The report focuses on Capex Riders as the timely recovery of capital expenditure is vital for an industry that is as capital intensive as the water industry.

  CWIP in rate base is a useful way of collecting the carrying charges during construction for large, independent, approved investment projects to reduce rate shock and maintain financial ratios. CWIP in rate base recovers financing cost of investment projects earlier than does the traditional AFUDC accounting. Because the nature of the CWIP that is allowed into the rate base differs across states and industries, the policies are not included in the count above.

All three industries are comparable because they are generally regulated by the same state commissions, serve a similar customer mix, and have very large infrastructure investments. The electric and gas utilities have a longer history of using innovative policies, so the water industry can learn from that experience. This is shown above in the higher count of states using the first two policies. However, all of these policies still have a long way to go - the maximum "penetration" is for revenue stabilization policies in the gas industry and that is 61%. Moreover, the average penetration across the three policies and the three industries is 34%.

For the third group, alternative ratemaking for recovering capital expenditures, water utilities have a level of experience and a penetration that resembles that of the electric and gas industry. This is an encouraging recent development. While the adoption of alternative regulation is very much an ongoing process, the water industry can certainly gain from understanding what has been accomplished and what barriers are still to be overcome. Then the lessons and the new approaches can be tailored to the unique issues the water industry must address in the future.

[2] Spelled out, these are Construction Work in Progress, Distribution System Improvement Charges, and Capital Expenditure Riders.

List Of Figures

II. Introduction – the Current Ratemaking Challenges of the Water Industry

A. Water Industry Challenges and Capital Requirements

Today, private water companies directly or through public-private partnerships provide essential water and waste-water services to nearly 73 million people in the United States, one fourth of our nation's population[3]. It is undeniable that the U.S. water industry provides a vital public service, which must maintain the highest standards of water quality. The water quality standards are numerous and increasing, coming from the Clean Water Act and the Safe Drinking Water Act, with enforcement through the federal Environmental Protection Agency (EPA) and the state departments of environmental protection. The standards help safeguard the health and safety of American families.

The U.S. water industry now faces a set of critical infrastructure investment needs that is expected to total between $335 billion to $1 trillion over the next 20 to 25 years[4] and will substantially increase the overall investment in our national water and waste-water infrastructure. The National Association of Water Companies (NAWC) asked The Brattle Group (Brattle) to review the regulatory processes through which these massive investments will be regulated and recovered in rates. As part of NAWC continuing efforts to draw attention to these important public policy issues,[5] this report provides a comprehensive review of policies that state regulators across the U.S. have developed to meet challenges by improving traditional cost of service ratemaking in the water, electric, and natural gas distribution industries[6,7]. NAWC

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3 NAWC, *Private Water Service Providers Quick Facts.* "Nearly 73 million Americans receive water service from a privately owned water utility or a municipal utility operating under a public-private partnership". Population of U.S. currently estimated to be about 317 million.

4 Lower value is over 20 years and from: EPA Drinking *Water Infrastructure Needs Survey and Assessment, Fourth Report to Congress*, March, 2009. Higher value over 25 years from: American Society of Civil Engineers, *2013 Report Card for America's Infrastructure*, pp. 18-19.

5 This report continues the efforts reported in NAWC, *Moving Water Forward, Summary Report of Water Policy Forum for State Public Utility Commissioners*, April 22-24, 2012, prepared by Lila A. Jaber.

6 The scope of this survey does not include the variety of riders, trackers, clauses and adjustment mechanisms for operating costs. Some examples not covered are fuel and purchase power clauses in electric, commodity gas costs in gas delivery, and water and electric costs in water. There many more and a complete survey of these was too extensive for this study. Some are discussed. This report focuses on timely recovery of capital expenditures, which are vital for a highly capital intensive like the water industry. This is further discussed in Chapter III and IV.

7 The discussion of the alternative regulatory policies relies in part on several good sources, including Edison Electric Institute, *Alternative Regulation for Evolving Utility Challenges: An Updated Survey*,

Continued on next page

represents the companies in the private side of the water industry, who are both owners and operators of water and waste-water utilities as well as members of a variety of public-private partnerships with public water companies.

In addition to aging infrastructure, the EPA estimates that after years of drought 36 states face some form of water shortage[8] and the cost of the water itself is increasing in many locations. Access to water has always been challenging in the Southwestern part of the U.S. and the 10 Western states that depend on the Colorado River and Rio Grande basins are seeing acute water shortages at this time.[9] As a result of the water shortage, water companies in the West may have to invest substantially in procuring new water resources. In other areas of the country, water supplies are becoming degraded through contamination or reduced capacity.

All of these new requirements are to be met by an aging water infrastructure, increasing the demand for limited capital resources. Insufficient infrastructure investment can lead to the possible future degradation of drinking water and ecosystems, as well as inefficient operation of systems, greater water loss, and higher cost. The experience of other regulated industries shows there are innovations in regulation that make more efficient use of regulatory resources by both utilities and regulators and still protect the public interest. Without some use of alternative regulatory approaches, today's users may be unwittingly passing an even larger burden on to the next generation.

The future of water needs effective and efficient regulatory policy that puts private capital to work meeting a substantial share of the future infrastructure needs. Modern capital markets, while not without their issues, are highly developed mechanisms to assess expected returns and risks on the wide variety of national and international investments. The expected returns in the water industry must ultimately be reasonable in comparison with the available expected returns on other investments of similar risk. This is backed by legal precedent, finance theory and considerable evidence. The greater the "non-diversifiable" risks[10] of the investment, the larger must be the return so as to compensate.

Continued from previous page

Pacific Economics Group Research LLC, Jan. 2013, and Institute of Electric Efficiency, *State Electric Efficiency Regulatory Frameworks*, July 2013.

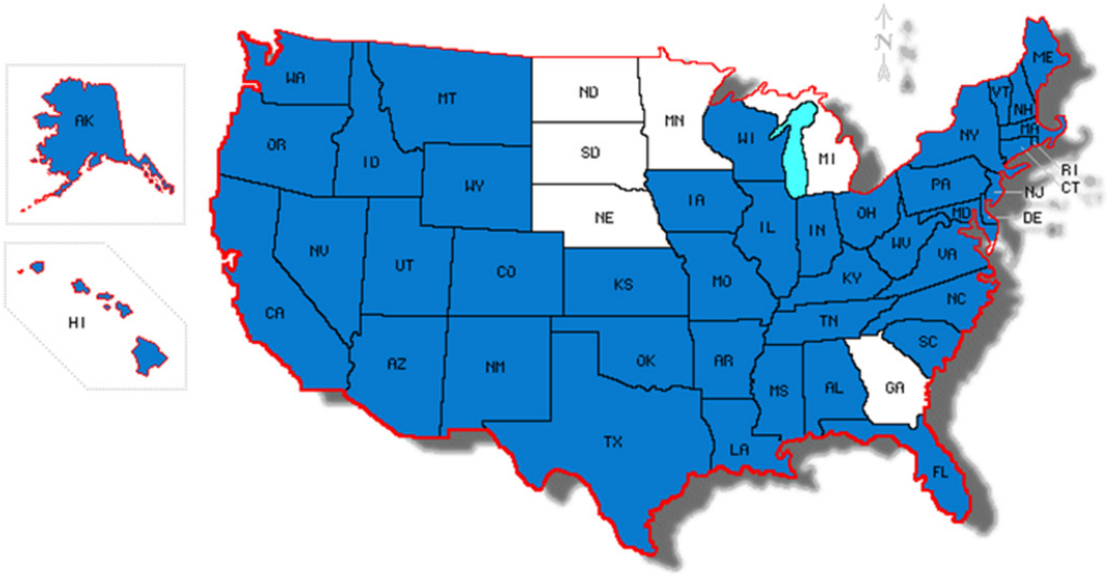
8 EPA, Water Conservation (http://www.epa.gov/oaintrnt/water/).

9 This was reported by Ken Salazar, former Secretary of the Interior, in the National Journal, "Salazar: Western U.S. Facing Water Shortages," October 5, 2011.

10 Diversifiable risks are those variations in the returns of individual stocks that are unpredictable, but statistically regular. Weather variation for electric utility stocks is diversifiable. Inside a portfolio of stocks, they cancel each other out, leaving the portfolio value stable. Non-diversifiable risks are those that cannot be hedged within a portfolio.

At the state level, the private water utilities are regulated by independent public utility commissions. Figure 2.1 shows the states with regulated private water companies and by comparison the seven states that do not have regulated private water companies: Georgia, Michigan, Minnesota, Nebraska, North Dakota, South Dakota, and the District of Columbia.

Figure 2.1: States Having Private Water Company Regulation[11]



States With Regulated Private Water Companies	States Without Regulated Private Water Companies
Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Idaho, Illinois, Indiana , Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri, Montana , Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont , Virginia, Washington, West Virginia, Wisconsin*, Wyoming	District of Columbia, Georgia, Michigan, Minnesota, Nebraska, North Dakota, South Dakota

*Wisconsin allows private water companies, but the Public Utilities Holding Act of WI creates a high legal/regulatory barrier for them to enter the market.

[11] Sources: The Brattle Group © 2013 and NAWC.

Water regulation involves the traditional "regulatory compact" in which the water utility gets a franchise or exclusive right to provide water in a defined service territory and a fair opportunity to earn its cost of capital. In response the utility agrees to provide clean water in compliance with all national, state, and local laws and regulations to its customers and to charge rates that are expressly approved as just and reasonable by its regulatory commission. The traditional regulatory approach for setting prices is known as cost of service regulation (COSR) and has been in place for at least half a century, since the classic treatise was published in 1961[12]. Just and reasonable base rates recover all prudent costs for capital, labor, materials, and input services used in the production function (including the cost of capital). A "general rate case" is the specific regulatory process in a state used to determine and then adjudicate in a full hearing process the cost of service[13], with the purpose of balancing the interests of ratepayers and investors.

As discussed above, water rates will need to be adjusted to recover the large coming capital investments in water infrastructure and any water scarcity costs, in addition to the normal increase in overhead and maintenance costs, like health and pensions. The usage of water per capita has been decreasing, so no significant investment funds will come from growing unit sales. Because the general rate case reviews all capital and operating cost items and judges whether they are "prudent", it is very time and resource-intensive and frequently backward looking as well. Thus, traditional cost of service regulation is not designed to meet the future needs of the water industry. As utility income and investors' expected return depend on the revenue, costs and the prices charged for water service, the future of the regulatory framework is a crucial element for any regulated utility's investors and therefore for its capital attraction.[14]

B. Unique Water Industry Issues with Traditional Cost of Service Regulation

There are several unique issues for the water industry in using traditional cost of service. First, the majority of private water utilities are relatively small. Second, the water utility industry is

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12 James Bonbright, *Principles of Public Utility Rates*, 1961.

13 COSR is a two-step process, with the first step being what cost of service should be recovered when, as discussed above. The second step is the determination of the precise rates charged for all services of the different classes of customers so that the aggregate cost of service will be collected. This report only addresses the first step

14 This was a key issue in the resolutions regarding the water industry that the National Association of Regulatory Utility Commissioners' recently passed. Specifically, resolution WA-3 asks that "economic regulators carefully consider and implement appropriate ratemaking measures as needed so that water and wastewater utilities have a reasonable opportunity to earn their authorized returns within their jurisdictions" and WA-2 "conceptually supports review and consideration of the innovative regulatory policies and practices identified herein as 'best practices' in the regulation of small water systems." Passed July 24, 2013.

very capital intensive. Third, it may be difficult to overcome a perception that water is cheap and readily available, so the water utility industry may need to be prepared to educate rate case participants and consumers in general about costs and their relevance.

Differences in the Number and Size Distribution of Companies across the Three Industries

Regulated electricity and natural gas utilities are comprised of relatively fewer, larger regulated entities than are in the water industry. This was not always the case, but the consolidation of the electric and natural gas industries was actively pursued for most of the 20th century and still continues. The water industry has some large holding companies[15], but in contrast has many more and smaller regulated operating units than is common in the electric and gas utilities industry. Moreover, rate consolidation or single tariff pricing is much less common than in the electric or natural gas industry.

There are about 3,200 electric companies[16], and 94% are smaller, non-profit municipal systems and rural cooperatives that are small on average[17]. The remaining 193 companies, or 6%, are large private, investor-owned systems and account for 55% of the retail, end-use electric service provided to U.S. consumers and a larger share of the distribution revenues and investment.

There are about 1,300 natural gas local distribution companies (LDCs), which excludes entities in the intrastate and interstate gas pipeline business. The total number of companies can be broken down into investor-owned (20%), public municipalities (71%), public coops (1%), and private companies (8%)[18]. In terms of volumes of gas distributed, the sizes are: investor owned utilities (92%), municipalities (6%), and coops and privates, together (2%). In terms of the numbers of end-use customers, which do not include power plants, the sizes are investor owned utilities (91%), municipalities (7%), and coops and privates, together (1%).

In contrast, there are just over 50,000 community water systems with a wide distribution of sizes. In a variety of ways, the water companies act to maintain compliance with the provisions of the Safe Drinking Water Act, the Clean Water Act, and a variety of state and local policies. Within

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15 For example, the total market capitalization of American Water, at more than $7 billion, is larger than that of most of the natural gas delivery holding companies.

16 "2013-14 Annual Directory & Statistical Report - U.S. Electric Utility Industry Statistics," The American Public Power Association. Available at: http://www.publicpower.org/files/PDFs/USElectricUtilityIndustryStatistics.pdf

17 There are some large, public, non-profit electric systems, like the Long Island Power Authority and Los Angeles Department of Water and Power. See http://www.publicpower.org/files/PDFs/100LargestPublicPowerUtilitiesbyElectricRevenues2009.pdf

18 This is 2008 data. See EIA, *Distribution of Natural Gas: The Final Step in the Transmission Process*, Office of Oil and Gas, June 2008.

this large and diffuse water industry, the private, investor-owned water companies provide water to just under one-quarter, or 23%, of people in the U.S. by ownership and as operator through public-private partnerships.

The cost of preparing detailed rate filings is not necessarily proportional to the dollar values that are at stake in these proceedings. The smaller the company, the larger the cost of a traditional rate proceeding is relative to the amount of revenue at issue. This can absorb too many resources in the regulatory process, so the approaches need to be different for large and small water utilities. Because of the small size of many water utilities, alternative mechanisms that allow for a more streamlined approach to setting rates have a greater appeal in the water industry than among other regulated utilities. For example, regulation of water companies by the California Public Utilities Commission separates the Class A utilities, with over 10,000 connections, from all smaller, Class B utilities. The regulation of Class B utilities is relatively simple and there is a policy to provide incentives for larger companies to acquire or to operate small water and sewer utilities, because "smaller water companies often do not have the resources or expertise to operate in full compliance with increasingly stringent and complex water quality regulations."[19,20]

One of the involved parts of COSR is the determination of the cost of capital, which is the weighted average of, first, the cost of equity that is complicated and controversial, and, second, the cost of debt that is known and measurable. A good example of simplification of traditional COSR is the determination of the cost of equity for water companies in Massachusetts. The water companies may use an "Optional Formula for Determining Allowed Rates of Return on Equity for Water Companies," which allows the use of a simple formula to determine the return on equity[21].

Capital Intensiveness of Water Relative to Electricity and Gas

The water industry is the most capital intensive among regulated infrastructure industries. It has an asset turnover ratio (revenues to total average assets) that averages 23%, while the revenues to assets ratio for the electric and natural gas utilities average 36% and 61%, respectively.[22] The comparable figure for industries that are not capital intensive is much higher. Because most of the assets belonging to a water utility are long-term fixed property, plant, and equipment, most costs cannot readily be reduced in the short or even medium run. Therefore, any reduction in

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19 See the CPUC, *Water Action Plan*, October 2010.

20 Ibid. p. 9. Moreover, the regulation of the Class A water companies has considerable similarities with that for California's very large electric and gas utilities, which employ extensive alternate regulation approaches and go far beyond traditional COSR.

21 220 CMR 31.00; M.G.L. c. 165 §§ 1B, 2.

22 Source: *The Brattle Group* based on data from *Value Line Investment Survey*.

revenues has a very large impact on the utility's bottom line (income or earnings), so timely and full recovery of capital expenditures is crucial for the financial health of the water industry. The recent legislation and rule making regarding capital recovery mechanisms (the Distribution System Improvement Charge, or DSIC) are good measures to address part of this issue.

C. Similarities in Policy-Driven Capital Requirements for the Electric and Natural Gas Industries

As discussed above, there are two other large infrastructure industries, electricity and natural gas distribution. These two industries face capital needs for major upgrades and have traditionally been regulated by the similar cost of service processes. Let us first look at similarities with water in terms of the investment challenges. Some specific challenges for the electric industry are:

- Retirement or upgrading of coal plants in the face of EPA's timetable on meeting the Mercury and Air Toxic Standards (MATS).[23]
- Investment in new transmission, generation, and systems to integrate remotely-located, renewable, generally intermittent resources to meet renewable portfolio standards.
- An aging transmission and distribution infrastructure in many of the nation's older cities.

The natural gas industry faces major challenges, including:

- The changing landscape for U.S. natural gas supply brought about by shale gas.
- Aging infrastructure and safety concerns that create the need for many gas mains need to be dug up and replaced
- Efficiency technologies, conservation programs and the expectation of high future natural gas prices led in the past to stagnation in gas consumption by residential and commercial sectors, the locus of delivery companies' investment.

In many states, the private electric and natural gas delivery utilities are in a good position to meet these new challenges both in terms of raising capital and adjusting rates. This is because they have long been working with their regulators to find innovative ways to adjust rates to recover specific kinds of costs and to move base rates in general in a forward looking manner. This report covers a wide variety of these existing state policies and discusses them in three broad categories:

- Revenue Stabilization including Conservation Adjustments, and Decoupling

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[23] See for example: EPA, *Fact Sheet UPDATES OF THE LIMITS FOR NEW POWER PLANTS UNDER THE MERCURY AND AIR TOXICS STANDARDS (MATS)*, 2013.

- Comprehensive Alternative Regulation including more traditional timely recovery mechanisms
- Alternative Ratemaking for Capital Expenditure including DSIC, Capital Expenditure Riders, and CWIP.

In general, many of the lessons from the electric and gas industries are applicable to the water industry, particularly when the companies are comparable in size. Before we move on to that discussion, there are two caveats that need to be mentioned.

State Regulatory Structures for Electricity and Natural Gas

State by state, most of the same regulatory agencies oversee the investment decisions and the ratemaking processes through which the infrastructure investments are recovered for the three industries. Unlike water, there are two different structural forms for both the electric and the natural gas industries in the U.S., depending on the state. The first form is the traditional vertically integrated utility. The second form is to separate the delivery services of the wires or pipeline business from the commodity electricity (kilowatt hours) and natural gas (thousands of cubic feet). Delivery remains rate regulated by COSR, but the retailing of the commodity is open to competitive entry and choice (sometimes called retail power deregulation) in some states[24]. These differences are useful to recognize when considering different states. However, in the opinion of the authors, the infrastructure investment costs related to distribution and transmission of both electricity and natural gas are still regulated in all U.S. states, whether the state is vertically integrated or using retail choice. There are important lessons for the water industry in all states.

To meet the new challenges, the electric and natural gas industries have in the last decade worked to improve regulatory institutions, tax policies, and create a business climate that encourages the investor-owned utilities to invest and efficiently manage their operations. Because of the larger consolidation and the historically larger cost of energy, the electric and natural gas utilities have developed and implemented a wide variety of alternative regulatory policies and ratemaking mechanisms to overcome the difficulties of traditional COSR. While this is very much an ongoing process, the water industry can gain from understanding the application of alternative regulatory policies and ratemaking mechanisms in the electric and

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[24] For retail electricity, there are 18 states (incl. DC) that currently have competitive choice.

See www.eia.gov/todayinenergy/detail.cfm?id=6250. For retail natural gas, there are 14 states that currently have competitive choice for a substantial set of customers, although some states are inactive or restricted.

See http://www.eia.gov/oil_gas/natural_gas/restructure/restructure.html

natural gas utilities industry. Then the lessons and the new approaches can be tailored to the issues the water industry faces.

The rest of the report is organized as follows. Chapter III has two sections that discuss, first, traditional cost of service regulation in more depth and second, the nature of regulatory lag for high fixed cost industries in the modern era of low or no growth in the total consumption of the commodity. Chapter IV has three sections and they discuss the major categories of alternative regulatory and ratemaking polices. For each, the policies sanctioned for use across the states by electric and natural gas distribution utilities are compared with the water utilities in the same states. Chapter V summarizes the conclusions for future regulation in the water industry from the review carried out in Chapter IV.

III. Traditional Regulatory Institutions in the Modern Era of Conservation and Low Growth

A. Traditional Cost of Service Regulation

At the state level, all three industries are generally regulated by independent public utility commissions. The traditional regulatory approach known as cost of service regulation (COSR) has been in effect since the 1950's. A regulated utility in general cannot change its base rates without first getting permission from its regulator. Base rates recover all prudent costs for capital, labor, materials, and input services used in the production function. A "general rate case", or GRC, is the regulatory process specific to each state used to adjudicate and determine in a full hearing process the precise rates that can be charged for all services to all classes of customers. This is a three step process.

- The level of all the capital and cost elements that go into producing and distributing the services are determined and summed to get the aggregate revenue requirements.
- Revenue requirements are allocated across functional categories such as the total size of the commodity taken and the maximum through-put rate, then to rate classes, like residential, commercial and industrial.
- Individual rates are set by dividing the aggregate dollars by the expected number of billing units for each class: E.g., Acre-Feet for water, Thousand Cubic Feet (MCF) for gas, and kilowatt-hours (kWh) and kilowatts (kW) for electricity.[25]

The GRC by its nature is detailed and precise, but is also a very resource and time intensive process for the utility, the commission and its staff, and the interveners. A GRC can take from six months to twelve months, and sometimes years. Regulatory lag can be measured as the number of months between the last month of the test period for which the data used in the GRC was collected, and the first month that the new rates actually go into effect. If the utility is investing substantially in new infrastructure (or during times of inflation), has increasing expenses, a longer regulatory lag makes it difficult to recover costs and earn the allowed rate of return.

B. Regulatory Lag and Its Solutions

With fuel and later purchased power out of the base rates, the electric utilities still collected the majority of their costs in base rates set in a GRC. Therefore, the balance discussed above was very real and depended on the growth in revenues being driven by an underlying growth in demand for electricity. Natural gas had a similar removal of the commodity gas costs from base rates.

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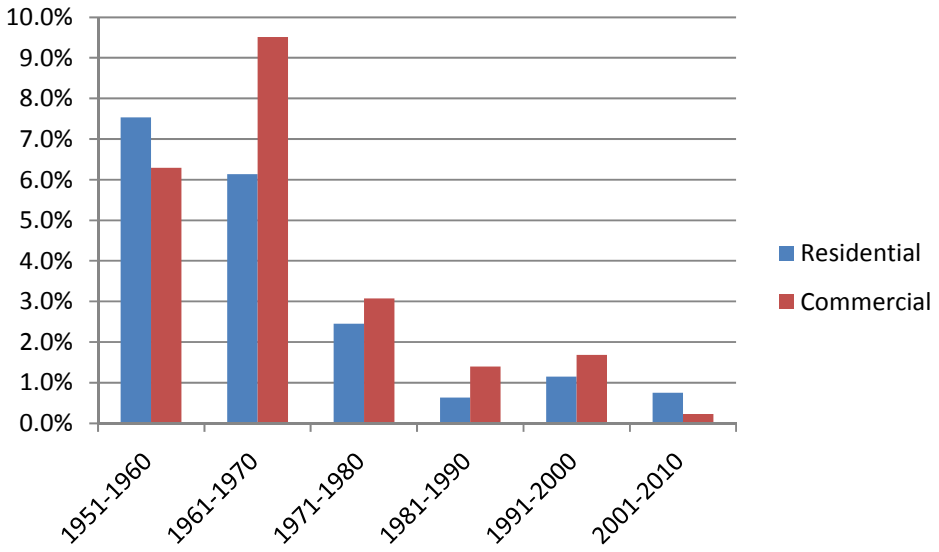
[25] It is becoming more common to include some monthly fixed charges on the customers' bills, so that not all charges vary with volume. The fixed charge is usually small relative to the utility's fixed costs.

For electricity, Figure 3.1 indicates the history of the sales growth on average in the U.S. residential and commercial sectors that supported this cost of service regulation balance. The bold values show that in the modern period, especially when economy has faltered, sales growth has become very small. Whether sales are truly going to zero or negative is not the key issue, since the problem of regulatory lag appears before that. However, industry commenters have pointed out that negative growth will certainly make the problem worse.[26]

Figure 3.1: Trends in Annual Growth Rate of Total Electricity Use by U.S. Residential and Commercial Customers, 1950 – 2010[27]

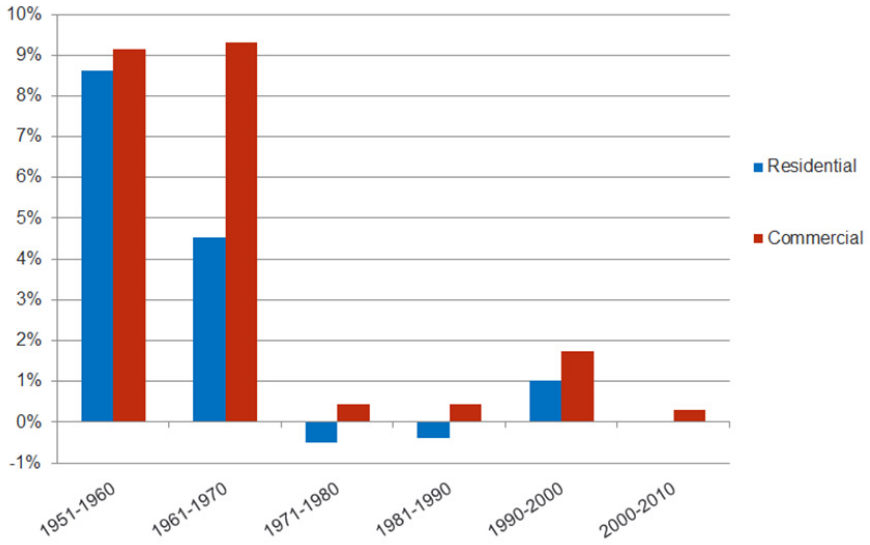


For natural gas delivery, Figure 3.2 indicates the history of the sales growth in the residential and commercial sectors.

[26] See Peter Fox-Penner, *Smart Power: Climate Change, the Smart Grid, and the Future of Electric Utilities*, 2010 and updated editions.

[27] "U.S. Natural Electricity Total Consumption (MMcf)," *Energy Information Administration*, April 13, 2013.

Figure 3.2: Trends in Annual Growth Rate of Total Natural Gas Use by U.S. Residential and Commercial Customers, 1950 – 2010[28]

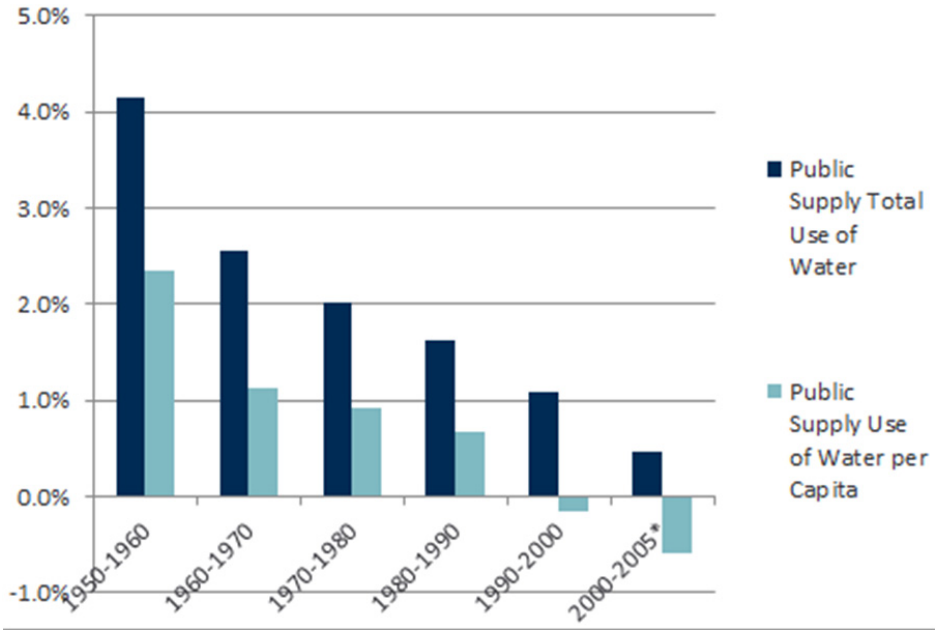


Note: From 2000 to 2010, the growth rate for residential was zero.

There is a comparable trend in water usage as shown in Figure 3.3.

28 "U.S. Natural Gas Total Consumption (MMcf)," *Energy Information Administration*, April 13, 2013.

Figure 3.3: Trends in Annual Growth Rates of Public Supply Water in Total Use and Use Per Capita in U.S., 1950 – 2005[29]



Some regulators may be subject to public pressure, particularly in hard economic times, to hold down prices of vital services. An enduring Supreme Court standard is that when private utilities make prudent investments "in the public interest" regulatory bodies must provide a fair opportunity to earn the allowed rate of return on capital.[30] Rates for low income customers can address the equity issue.

Between GRCs and decisions by the regulatory commission, the existing rates remain in effect and revenue grows or shrinks with billing units based on sales. Thus rates are fixed even when there is clear and known inflation in many cost elements and a given utility continues to invest in the production and distribution systems to serve new customers. This was achieved by a "Cost and Sales Balance". For much of the last 60 years in many states, the time intensive GRC for electric and gas utilities could be done only every few years, and yet a reasonable balance could still be achieved, investment continue to be undertaken, and profits earned at neither too low

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[29] U.S. Department of the Interior and U.S. Geological Survey, *Estimated Use of Water in the United States in 2005*, Circular 1344.

[30] The Hope Natural Gas decision established the principle that utilities making investments in the public interest should have a fair opportunity to earn their cost of capital, which is what is earned by other investments of similar risk. U.S. Supreme Court, Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944).

nor too high a level. These outcomes were monitored frequently by the interested parties, certainly including the investment community. One reason was because as the U.S. economy was growing, the base revenues increased from increased usage, especially usage per customer. This rising revenue frequently covered the two most important rising cost categories: first, the recovery of capital costs of new investments and second, inflation in O&M. Estimates vary across industries and states, but 1% to 2% per year productivity growth is indicative of U.S. experience. The growth of aggregate costs is 4% historically.

The figures above show that rising billing units coming from a growing economy no longer provide a reliable balance in cost of service ratemaking. In fact, in the face of resource scarcity and the expected benefits of efficiency in energy and water consumption, the reduction or elimination of growth is an explicit policy goal, in which the regulated utilities are a prime mover. The alternative regulatory policies discussed in this report are the new ways to achieve the old balance the general rate cases no longer provide.

Today, the combination of low expected future growth combined with high future investments requirements and rising environmental costs has destroyed the prospect that traditional cost of service regulation through general rate cases can reestablish a balance. Balance in all three industries can be established only by strongly supplementing COSR with alternative regulatory mechanisms. These alternatives can either lead to a broad reshaping of rate regulation or a more focused and targeted regulatory solution. The electric and natural gas industries came to this realization in the last decade. It has been challenging in many states and not universally achieved, but alternative regulatory policies by legislative bodies and regulatory commissions have been pursued.

IV. Types of Alternative Regulatory Policies: Comparing Electric and Gas with Water Industry

A. Introduction

There are a variety of alternative regulatory policies that have been developed to phase in rate increases, assist utilities in meeting financial obligations, and to reduce the regulatory burden. This report surveys three classes of such mechanisms starting with features that either help update the costs and investments relied upon in rates or take a more forward looking approach to setting rates. First, the report covers mechanisms that help stabilize revenue and recover incurred fixed cost, when use declines, often related to efficiency and conservation. Second, the report discusses more comprehensive regulatory mechanisms that may allow for rates to be recalculated outside the single general rate case paradigm by, for example, the use of formula rates that change over time or multi-year rate cases. Use of a future test year, an older policy, is discussed as well. Third, the report discusses using Capital Expenditure riders and Distribution System Improvement Charges (DSIC) that recover certain kinds of capital expenditures outside of the rate case. In the third section, the allowance of Construction Work in Progress (CWIP) in rate base for major construction projects is also discussed, although it is a more traditional form of regulation.

In addition to Capex Riders and DSIC, there are a host of other riders and trackers that recover specified kinds of operating costs without a rate case and can be an important way to reduce regulatory lag. The report focuses on and surveys states with Capex Riders and DSICs for several reasons. First, these riders relate more directly to the future infrastructure investment issues the water industry faces. Second, other riders vary substantially in numbers and types across states and utilities and they were not covered in the secondary sources on electric and gas industries that this report has cited. Thus, surveying other riders in the electric, gas and water industries would have constituted a much larger survey effort and was beyond the scope of the project. Their absence from this survey does not imply that these other types of riders are not important. The authors are aware that other riders can be very important and believe them to be numerous for certain industries or states.[31].

[31] As anecdotal evidence, consider Pacific Gas & Electric's current Tariff Book. In the Table of Contents, there is a list of riders for electric service (as we have used the term), which are listed under the names of Adjustments, Memorandum Accounts, Revenue Adjustment Mechanisms, and Balancing Accounts. While they may not all be active and are of different sizes, the total number of riders is more than 80. http://www.pge.com/tariffs/ Electric and gas utility tariff books all contain lists, although most are not that extensive. For more information on the prevalence of such riders and trackers in the electric and natural gas utility industry, see Regulatory Research Analysts, "Regulatory Focus: Adjustment Clauses," June 6, 2013. Regulatory Research Associates do not provide similar publications for the water industry.

B. REVENUE STABILIZATION

Between general rate cases, revenue can be stabilized by conservation adjustment or decoupling policies that disconnect the amount base dollar revenue collected from actual billing unit sales[32] and target revenues to other metrics.[33] Decoupling policies do nothing about cost changes; that is not their purpose. Decoupling policies are generally limited to the residential and commercial classes, where most of the base revenue is collected to cover the investment and O&M costs of distribution and sometimes transmission.

Decoupling polices differ in the scope of the target and means to stabilize. There are three decoupling schemes that are surveyed although we caution that the implementation of the mechanisms vary across jurisdictions:

- Conservation Adjustments and General Decoupling with Periodic True-up (including separation of revenue from total billing unit sales, from usage per customer sales, and other schemes)
- Lost Revenue Adjustment Mechanism
- Fixed Variable Rate Design

In many cases, decoupling policies continue to evolve from the same policy basis of the earliest decoupling, which was instituted in California in the early 1980's. Decoupling is found by regulators as being "in the public interest" when they determine that decoupling increases and restores the base revenue lost when utilities carry out policy directives to pursue aggressive conservation or energy efficiency (EE) targets. There is little dispute that when conservation programs achieve their targets, at the same time they reduce collection of base revenues until another general rate case. Customers cannot achieve the promised bill savings without this revenue reduction. Thus, the utility starts with internal disincentive, sometimes called the "throughput disincentive", to aggressively meet conservation goals.

Decoupling has an additional benefit if while costs continue to increase, the billing unit sales are decreasing over the long run for reasons outside of the utility's programs. This has frequently been found in natural gas delivery.

a. Revenue Stabilization

This the most common form of revenue stabilization. As well as curing the disincentive from conservation impacts, this can help mitigate the situation where slowing or falling unit sales increased the problem of regulatory lag. There are two components to a general decoupling

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[32] For the different industries, the typical billing units are kWh and kW demand of electricity, thousand cubic feet (MCF) of gas, and hundred cubic feet (CCF) of water.

[33] See EEI, *Alternative Regulation for Evolving Utility Challenges: An Updated Survey*, Chapter III Revenue Decoupling, Pacific Economics Group Research LLC, Jan. 2013 and IEE, *State Electric Efficiency Regulatory Frameworks*, July 2013.

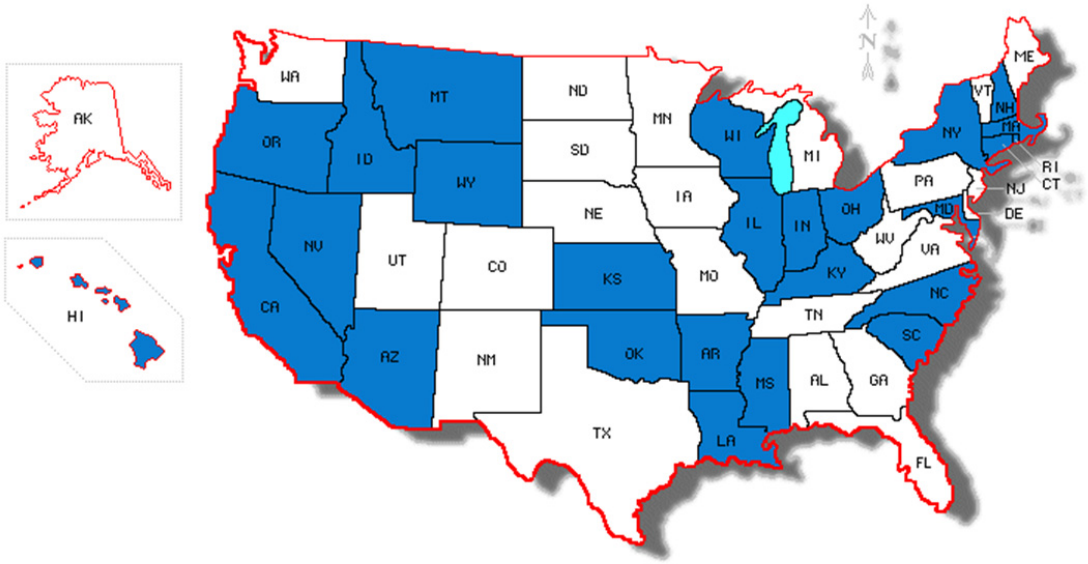
scheme. First is a revenue target adjustment mechanism and second is the decoupling mechanism. The revenue target mechanism sets the level of revenues that are allowed to be collected in each period[34]. Periods may be one year or less. One target is to increase the revenue in the same proportion as customers increase. This is revenue per customer freeze decoupling, a very common variety. This allows revenues to grow in proportion to the growth in customers.

A broad based revenue target mechanism may compensate the utility for several kinds of cost pressures. In this effect, decoupling can be very similar to a multi-year rate plan, discussed above in this chapter.

The decoupling mechanism adjusts rates to achieve the revenue target. The mechanism may or may not have caps on the adjustment in one period, with so-called "soft" decoupling allowing the utility to recover the revenue shortfalls that occur under the cap. Decoupling mechanisms are frequently directed only at the residential and commercial business customers, who account for a large share of the distribution base revenues. These rate classes may or may not be disaggregated for truing up. Figures 4.1, 4.2, and 4.3 below show the states that support one or more of the forms of the Conservation Adjustment and the General Decoupling for electric, gas distribution, and water utilities, respectively.

[34] See EEI, *Alternative Regulation for Evolving Utility Challenges: An Updated Survey*, Chapter III Revenue Decoupling, Pacific Economics Group Research LLC, Jan. 2013.

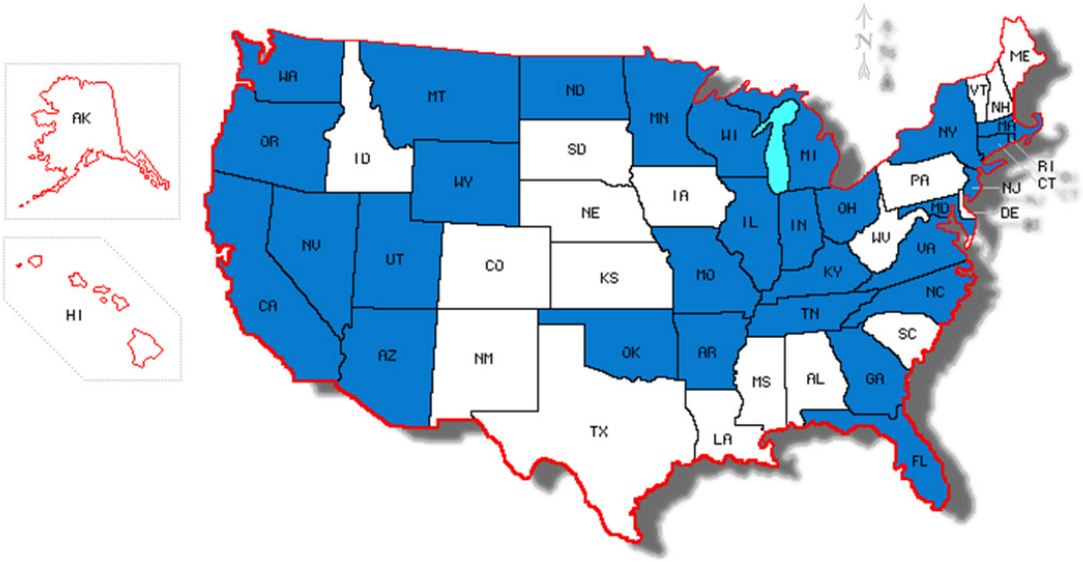
Figure 4.1[35]: Conservation Adjustments and General Decoupling with Periodic True-up for Electric Companies



Conservation Adjustments and General Decoupling with Periodic True-up for Electric Companies
Arizona, Arkansas, California, Connecticut, District of Columbia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Montana, North Carolina, New Hampshire, Nevada, New York, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Wisconsin, Wyoming

[35] The Brattle Group © 2013 and EEI, *Alternative Regulation for Evolving Utility Challenges: An Updated Survey*, Prepared by: Pacific Economics Group Research LLC, January 2013. This category includes all decoupling, fixed variable rate design, and LRAM.

Figure 4.2[36]: Conservation Adjustments and General Decoupling with Periodic True-up for Gas Companies

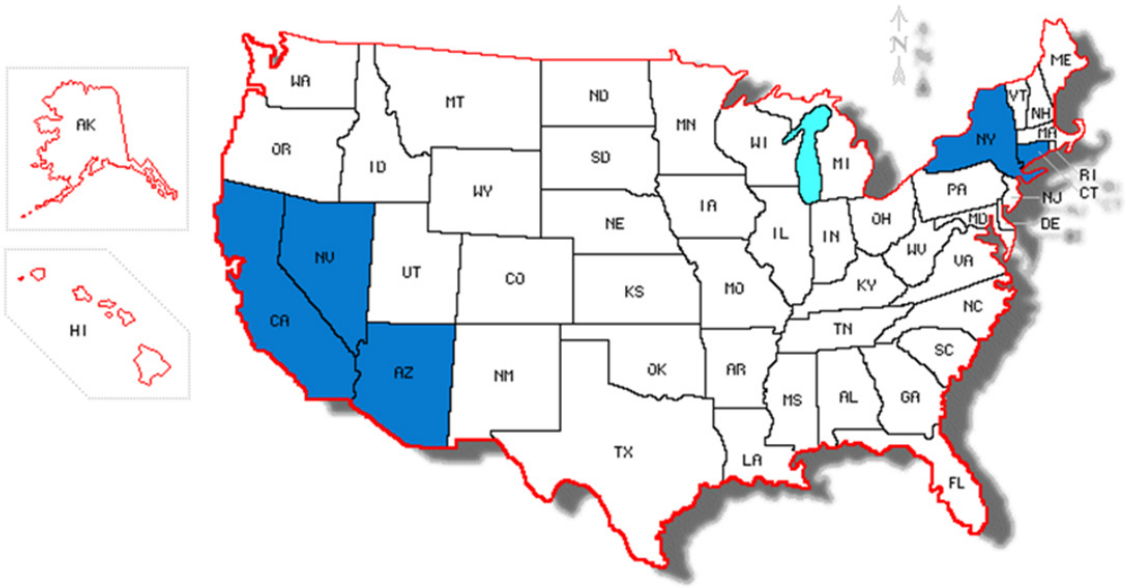


Conservation Adjustments and General Decoupling with Periodic True-up for Gas Companies
Arkansas, Arizona, California, Connecticut, Georgia, Illinois, Indiana, Kentucky, Massachusetts, Maine, Maryland, Michigan, Minnesota, Missouri, Montana, North Carolina, North Dakota, New Jersey, Nevada, New York, Ohio, Oklahoma, Oregon, Rhode Island, Tennessee, Utah, Virginia, Washington, Wisconsin, Wyoming

A small but growing number of states have decoupling or similar mechanisms for water: AZ, CA, CT, NV and NY. They are concentrated in the West where water is scarce and the Northeast, where conservation is an important public policy. Clean water, saving the aquifers, and other water policies are viewed as socially beneficial in the same way as energy efficiency.

[36] The Brattle Group © 2013 and EEI, *Alternative Regulation for Evolving Utility Challenges: An Updated Survey*, Prepared by Pacific Economics Group Research LLC, January 2013.

Figure 4.3[37]: Conservation Adjustments and General Decoupling with Periodic True-up for Water Companies



Conservation Adjustments and General Decoupling with Periodic True-up for Water Companies
Arizona, California, Connecticut, New York, Nevada

b. Lost Revenue Adjustment Mechanism

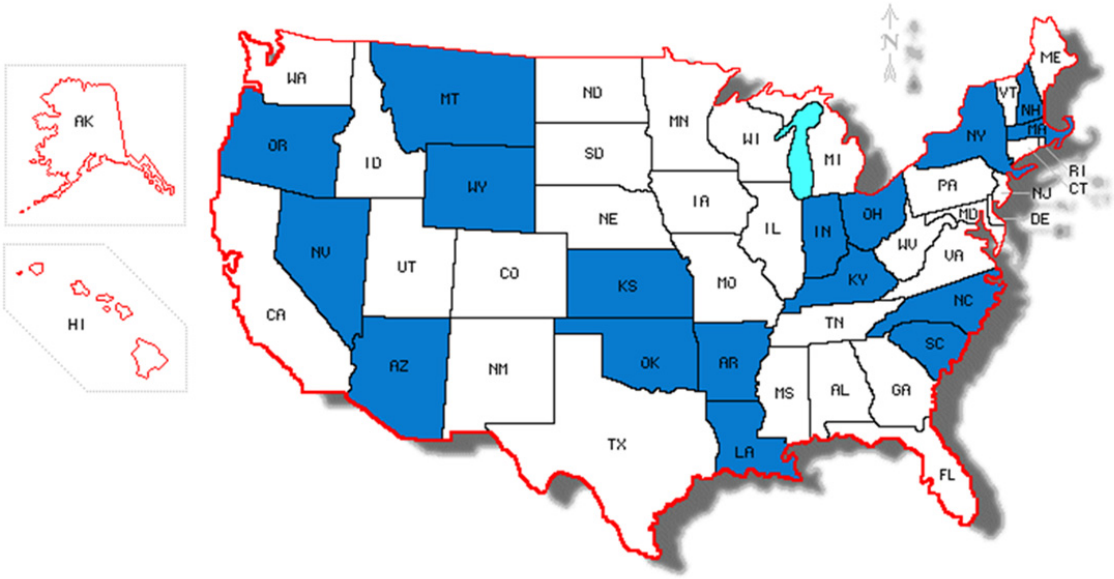
The second form of decoupling focuses only the lost revenue that can be attributed to the utility's own Conservation, Energy Efficiency, Demand Side Management, and sometimes Distributed Generation programs. To date this mechanism has only been used in the electric and natural gas industries. Other well-known factors that impact sales are weather, economic activity, total and marginal price changes, and randomness. They are not considered here. The total revenue impacts of the conservation programs each year are the product of the total billing unit impacts *multiplied by* the volumetric unit base rates. Those billing unit impacts are reduced kWh of electricity (and sometimes billing kW), MCF of natural gas, and CCF of water. They must be

[37] The Brattle Group © 2013 and NAWC.

estimated based not on the program's plan, but rather on the program's actual results. This can be projected and later trued up or the recovery can be delayed until the measurement and evaluation is complete, typically a year or so.

The estimated impacts are a combination of the annual program savings and some part of the expected impact lifetimes, which lead to growing impacts as the programs are repeated over the years. Past impacts would generally be incorporated in the test year sales, so a general rate case will truncate the lost revenue recovery[38,39].

Figure 4.4[40]: States with Lost Revenue Adjustment Mechanisms (LRAM) for Electric Companies



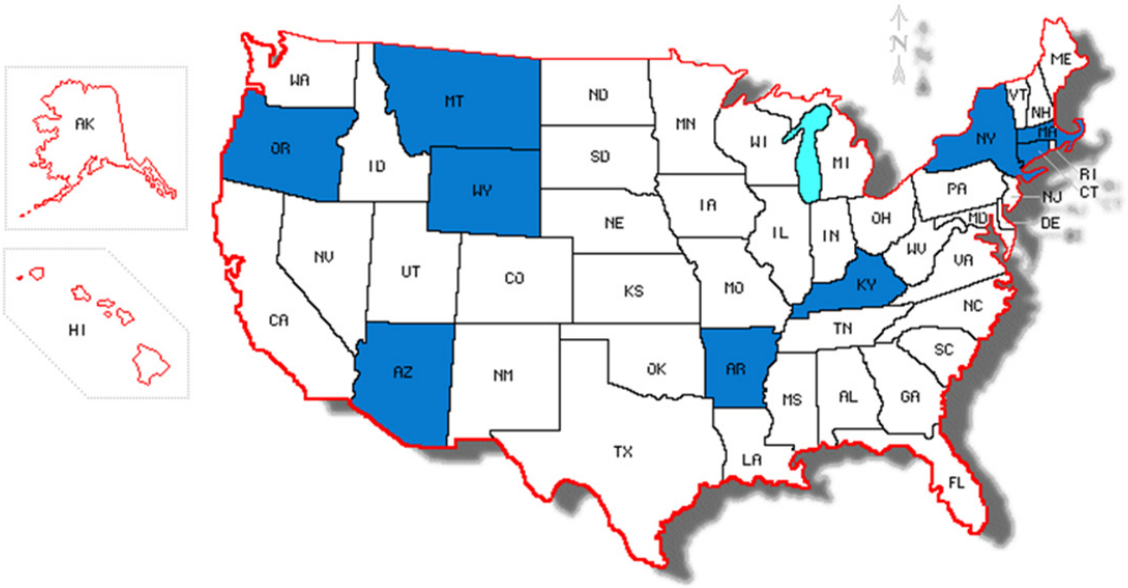
[38] For example, in the Duke North Carolina Save-A-Watt programs, the LRAM for annual savings covered programs for the past 3 years and, although the EE measures were expected to last much longer, the revenue recovery was then truncated. Duke NC was allowed to collect the lost revenue on a contemporary basis with the program impacts, but this was set at 80% of the expected level of planned annual savings, which was meant to be conservative and result in little need to refund monies to the consumers.

[39] North Carolina Utilities Commission, Duke Energy Carolinas, *Order Approving Agreement and Joint Stipulation of Settlement Subject to Certain Commission-Required Modifications and Decisions on Contested Issue*s, Docket No. E-7, Sub 831, Feb. 9, 2010.

[40] The Brattle Group © 2013 and NAWC.

States with Lost Revenue Adjustment Mechanisms (LRAM) for Electric Companies
Arizona, Arkansas, Indiana, Kansas, Kentucky, Louisiana, Massachusetts, Montana, Nevada, New Hampshire, New York, North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Wyoming

Figure 4.5[41]: States with Lost Revenue Adjustment Mechanisms (LRAM) for Gas Companies



States with Lost Revenue Adjustment Mechanisms (LRAM) for Gas Companies
Arizona, Arkansas, Connecticut, Kentucky, Massachusetts, Montana, New York, Oregon, Wyoming

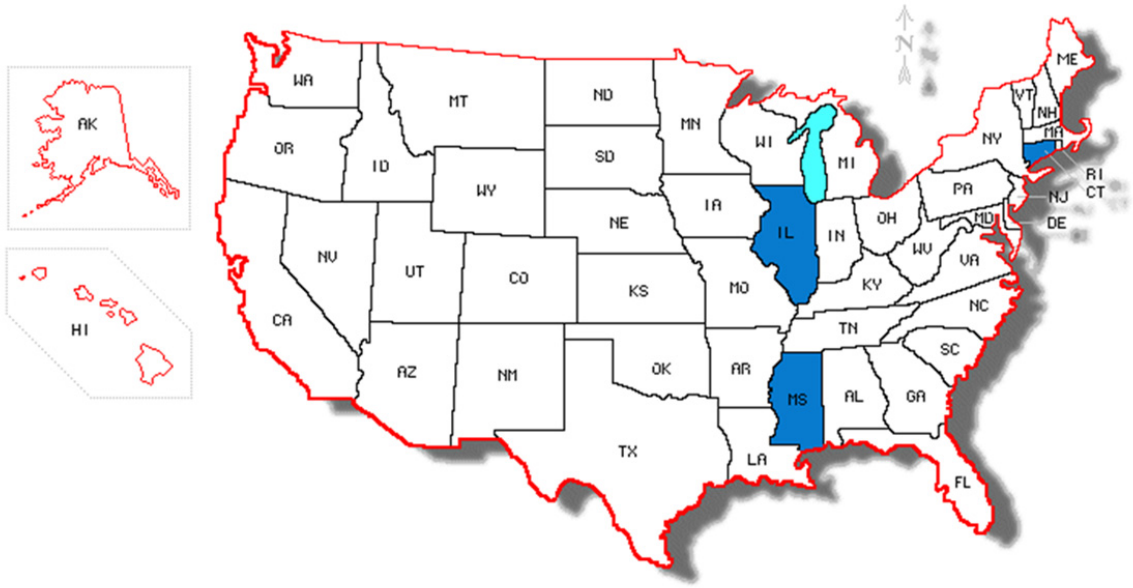
All states that were identified as having implemented some form of revenue stabilization for water utilities were identified in Table 4.3.

[41] The Brattle Group © 2013 and NAWC.

c. Fixed Variable Rate Design.

Fixed variable rate designs are another way to decouple base revenues from unit sales. The rates are set to recover all or a large proportion of the fixed costs, as established in the last general rate case, in the fixed charges. Straight fixed variable rates indicate that all fixed costs are in the customer charges. Under this kind of decoupling, the revenue targets between general rate cases will change proportional to the number of customers. The volumetric charges then recover largely or exclusively the variable costs.

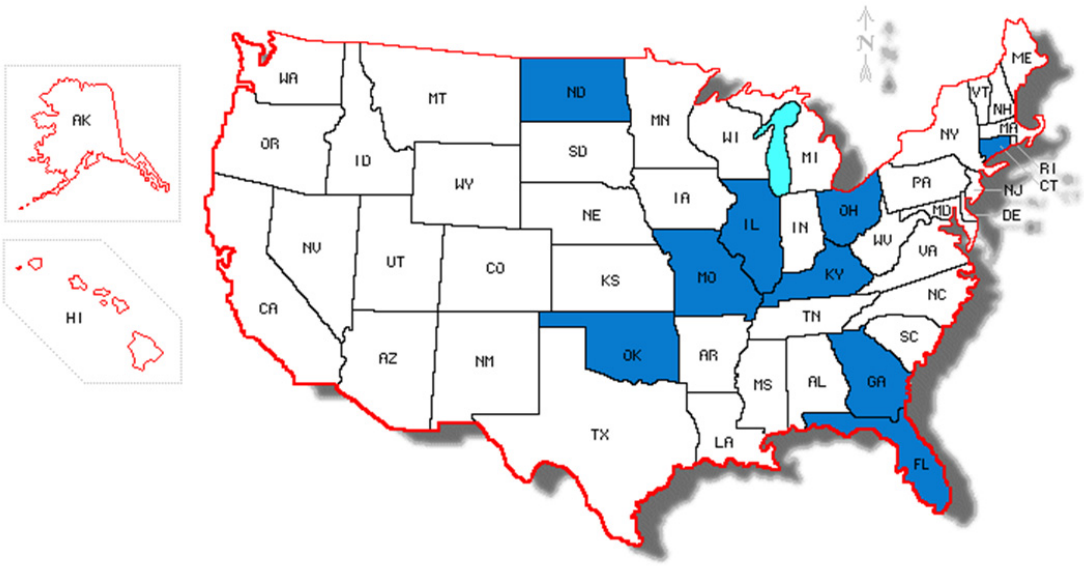
Figure 4.6[42]: States with Fixed Variable Rate Design for Electric Companies



States with Fixed Variable Rate Design for Electric Companies
Connecticut, Illinois, Mississippi

[42] The Brattle Group © 2013 and NAWC.

Figure 4.7[43]: States with Fixed Variable Rate Design for Gas Companies



States with Fixed Variable Rate Design for Gas Companies
Connecticut, Florida, Georgia, Illinois, Kentucky, Missouri, North Dakota, Ohio, Oklahoma

C. Comprehensive Alternative Ratemaking and Timely Recovery

Among the comprehensive alternatives we review that are used by the states are:

- Formula rates
- Multi-year rate mechanisms
- Earnings sharing and performance based rate making
- Future test year

For clarification, our count of states with a comprehensive alternative rate mechanism does not include the future test year states, which are treated as a separate category.

[43] The Brattle Group © 2013 and NAWC.

a. Formula Rates

The use of formula or formulaic rates and partially formulaic rates is common at both the state and federal level. Formula rates have many advantages including:

- The facilitation of prompt recovery of cost (both operating and capital expenditures)
- Avoiding frequent and costly rate filings
- More up-to-date reflection of actual costs in rates
- Reduction in regulatory risk

We note that Alabama, Georgia, Illinois, Louisiana, Oklahoma, South Carolina, and Texas have utilities that operate under formula rates. Several electric utilities in Alabama operate under a so-called Rate Stabilization and Equalization (RSE) mechanism, which has been used since 1982. Every year, the utility submits to the Alabama PSC a projected cost and expected ROE figure. If the projected ROE is less than or greater than the equity return range provided for under the rate, a corresponding increase or decrease is made in the RSE Factor to bring the ROE back to the midpoint of the approved return range. The benefits of the mechanism is that the PSC reviews costs annually instead of just during rate cases and that the rate impact of any changes in costs are recognized early and results in less rate impact than under traditional cost of service regulation.[44] In addition, there are examples of formulaic approaches to specific aspects of rate making. For example, Massachusetts Department of Public Utilities allows (but does not require) water utilities to use a formulaic approach to determine the allowed ROE.

Importantly, the National Association of Regulatory Utility Commissioners recently found the use of formulaic approaches to the determination of cost of equity for small water utilities to be a best practice.[45]

At the federal level, the FERC uses formula rate for "upward 75% of the more than 130 public utility transmission owners across the country."[46] In FERC jurisdiction the formula rather than the rates is approved by the regulator. For example, the formula rates for transmission often specify the allowed return on equity, the capital structure (which could be based on either the actual capital structure or a hypothetical structure deemed more appropriate for rate setting purposes), and the uniform system of accounts cost categories that can be recovered. The formula may specify that costs included in accounts such as fuel and purchased power costs,

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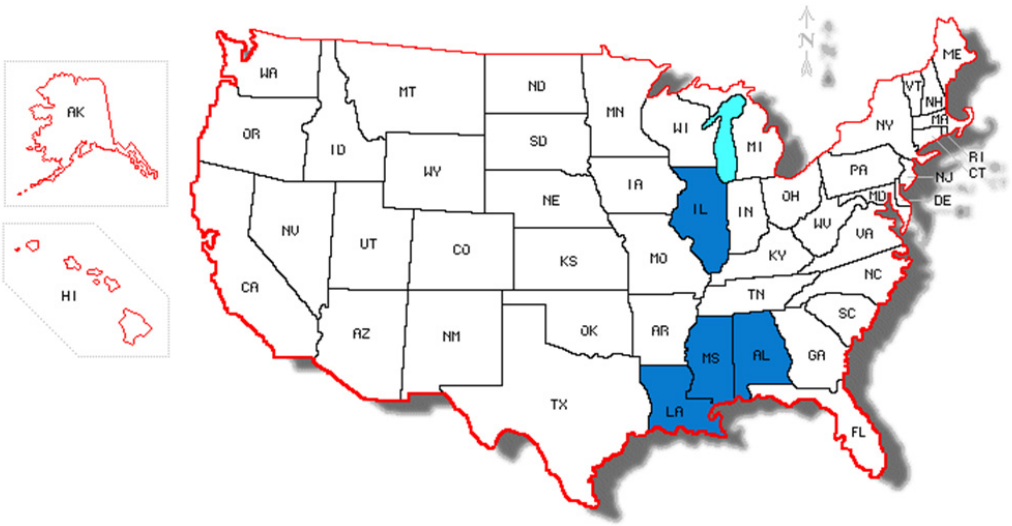
44 For additional details on the mechanism, see *Edison Electric Institute*, "Case Study of Alabama Rate Stabilization and Equalization Mechanism," June 2011.

45 Board of Directors, *National Association of Regulatory Utility Commissioners*, "WA-2 Resolution Supporting the Consideration of Regulatory Mechanisms and Policies Deemed "Best Practices" for the Regulation of Small Water Systems," July 24, 2013.

46 Commissioner John R. Norris Statement, May 16, 2013, Docket No. EL 12-35-000, Item No. E-7.

specific operating & maintenance costs, depreciation, allowed ROE, taxes, etc. with a deduction of tax credits can be recovered.[47] We note that for this approach to work, it is necessary that the utility and regulator have a well-defined regulatory accounting system that can be used in updating the formula rates.

Figure 4.8[48]: States Allowing Formula Rates for Electric Companies

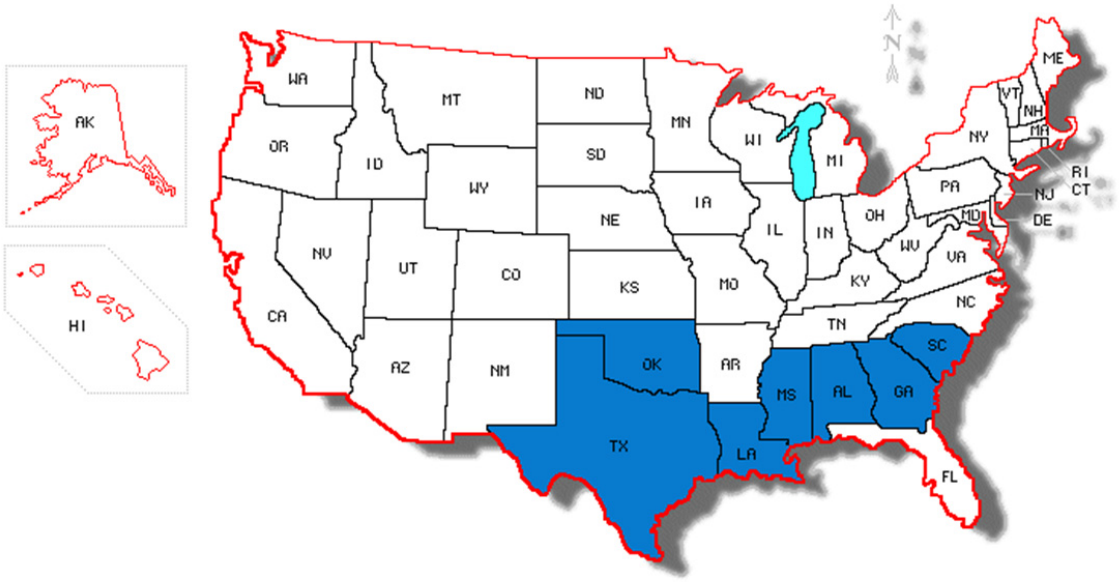


States Allowing Formula Rates for Electric Companies
Alabama, Illinois, Louisiana, Mississippi

[47] For an example, see, Wisconsin Electric Power Company, Formula Rate Wholesale, FERC Electric Tariff Volume 9.

[48] The Brattle Group © 2013 and NAWC.

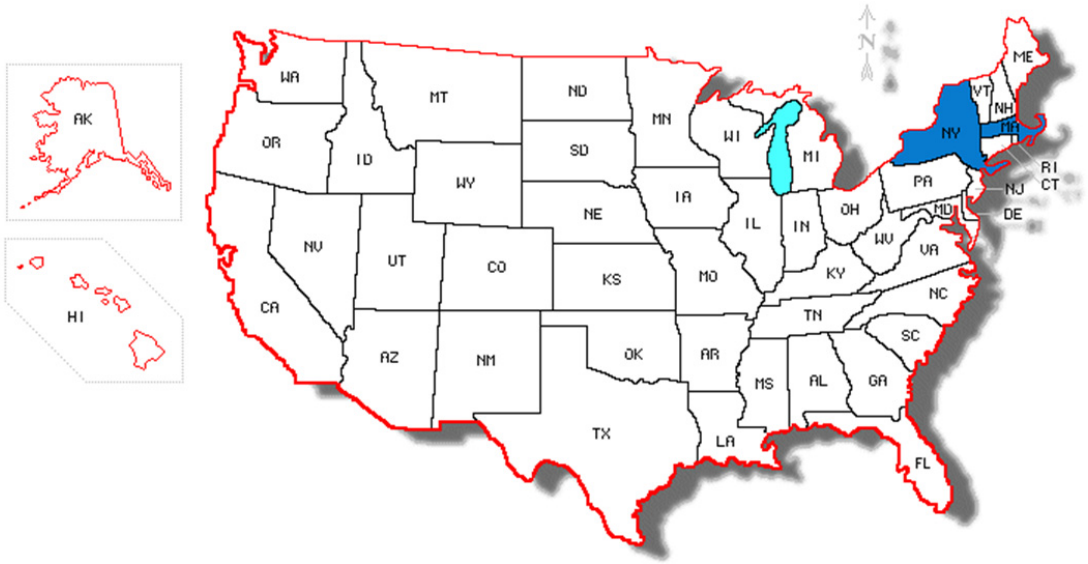
Figure 4.9[49]: States Allowing Formula Rate Making for Gas Companies



States Allowing Formula Rates for Gas Companies
Alabama, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina, Texas

[49] The Brattle Group © 2013 and NAWC.

Figure 4.10[50]: States Allowing Formula Rate Making for Water Companies



States Allowing Formula Rates for Water Companies
Massachusetts, New York

b. *Multi-Year Rate Approach*

Reliance on multi-year rate approach is not at all wide-spread in the U.S. although they are common outside the U.S.[51] However, the states indicated in the three Figures 4.11, 4.12, and 4.13 below, for electric, gas delivery, and water, respectively, have allowed a multi-year rate approach. The fact that a state has allowed a multi-year approach does not necessarily mean that the approach is commonly used in either industry.

A multi-year rate mechanism combined with, for example, an indexation to an inflation measure can be a powerful mechanism to recover incurred cost and at the same time avoid costly and time consuming rate cases.

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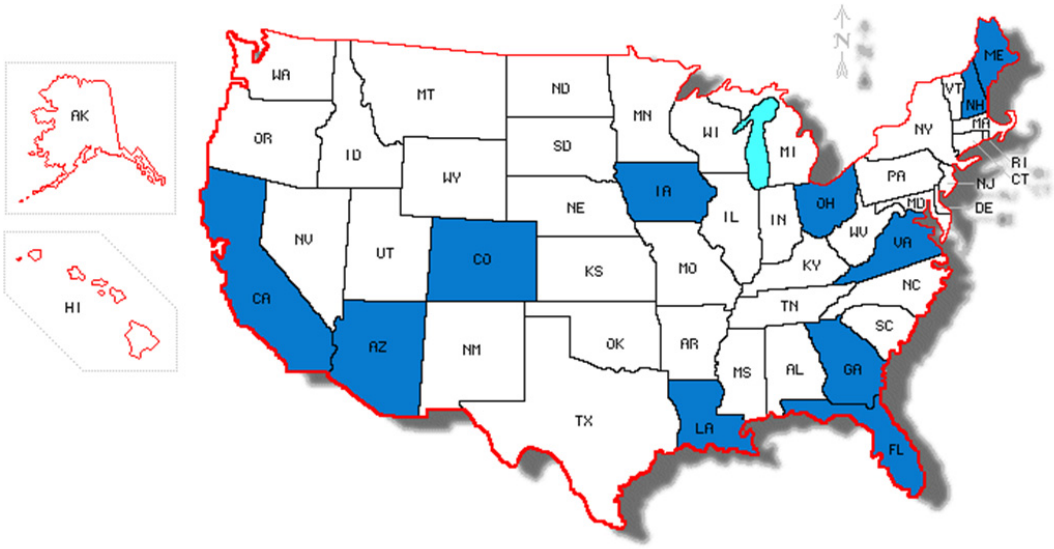
50 The Brattle Group © 2013 and NAWC.

51 For example, the U.K. regulator has recently gone to an 8-year rate period. The regulator uses a revenue cap form of regulation.

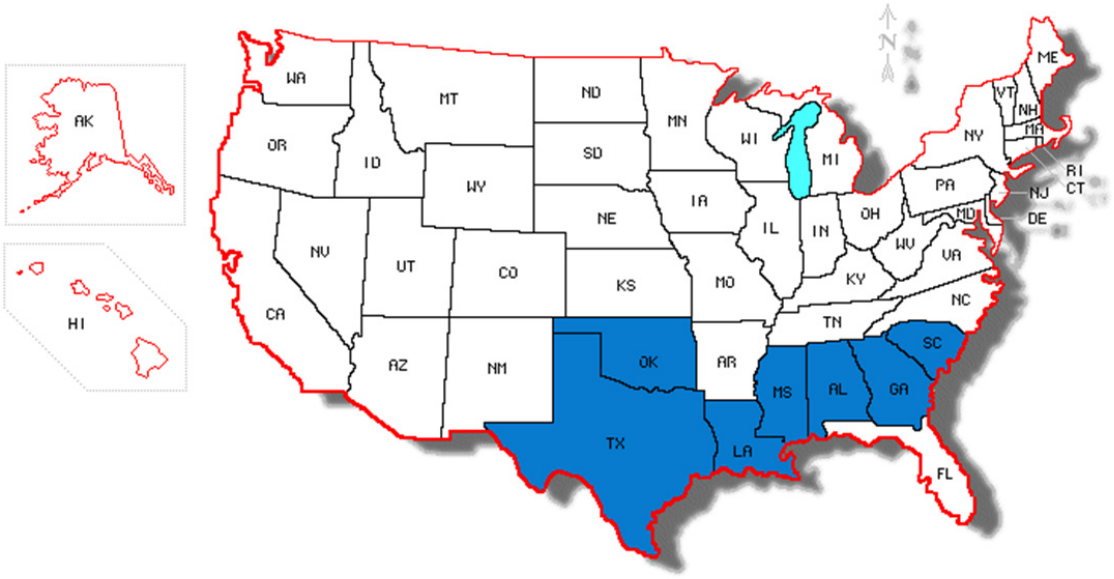
Figure 4.11: States that Allow Multi-Year Rate Mechanisms for Electric Companies[52]



States that Allow Multi-Year Rate Mechanisms For Electric Companies
Arizona, California, Colorado, Florida, Georgia, Iowa, Louisiana, Maine, New Hampshire, Ohio, Virginia

[52] The Brattle Group © 2013 and NAWC.

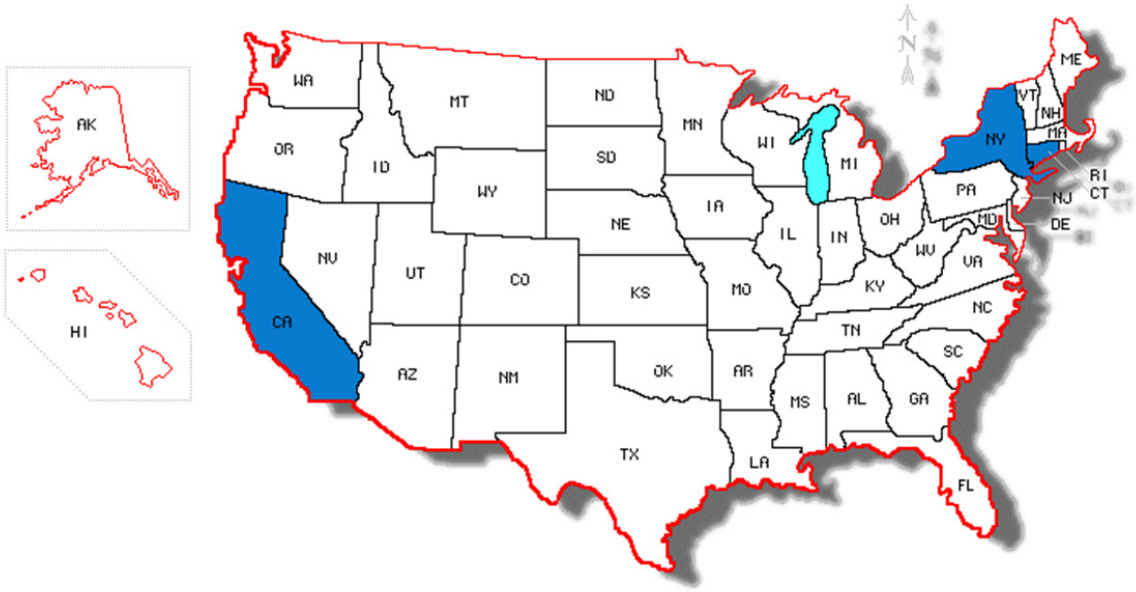
Figure 4.12: States that Allow Multi-Year Rate Mechanisms for Gas Companies[53]



States that Allow Multi-Year Rate Mechanisms For Gas Companies
Alabama, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina, Texas

53 The Brattle Group © 2013 and NAWC.

Figure 4.13: States that Allow Multi-Year Rate Mechanisms for Water Companies[54]



States that Allow Multi-Year Rate Mechanisms For Water Companies
California, Connecticut, New York

A multi-year rate mechanism can be advantageous for both the utility and consumers as it provides certainty to rates and avoids frequent and costly rate cases. A recent example of an electric multi-year rate mechanism is Xcel's settlement in Colorado, where the utility entered into a three-year mechanism in 2012. Specifically, the mechanism involved a phased-in rate increase, leaves riders for fuel and purchased power in place, includes an earnings' test and an agreement on no rate cases before 2015.

The multi-year settlement in Colorado has some common characteristics of multi-year deals such as the option to change rates if specific production costs change (e.g., fuel) and a provision that should earnings exceed a pre-specified amount, then refunds needs to be made.

54 The Brattle Group © 2013 and NAWC.

c. Earnings Sharing and Performance-Based Rate Making

Traditionally, performance-based rate making is a mechanism that provides utilities with incentives to increase their efficiency. However, "in practice, incentive regulation is more a complement to than a substitute for traditional approaches to regulating legal monopolies."[55] In its simplest form, performance-based rates are determined as:

$$P_t = P_{t-1} \times (1 + (I - X))$$

where

P_t = price in current year t
P_{t-1} = price in prior year, t-1
I = inflation factor
X = productivity factor

The basic formula above is used in, for example, the U.K., where the initial price, P_0, is determined using a cost of service approach and reset every 8'th year using forecasted rate base and costs.[56] However, performance-based rate making has declined in popularity in the U.S.[57] and is currently mostly used as part of a rate making process. For example, some jurisdictions have targeted incentives for, for example:

- Procurement costs (fuel, purchased power, water)
- Plant operations (plant availability and efficiency)
- "External" system costs (losses, congestion, ancillary services)
- Infrastructure investments (mains replacement, transmission, renewables, cost control)
- Non-cost goals: reliability, service quality, end-use conservation.

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55 Paul L. Joskow, "Incentive Regulation in Theory and Practice: Electricity Distribution and Transmission Networks," MIT and NBER Working Paper, August 2007 with edits March 2013, p. 65.

56 The U.K. has extensive experience with performance-based rate making and currently allows utilities to choose from a menu of performance options that have a varying degree of incentives and risks build in. The intention is for each utility to choose a mechanism that (1) fit the utility's profile (e.g., need for infrastructure investments and (2) avoids the utility games the system. For example, if a utility files for rates involving a large capital expenditure, but it does not invest in infrastructure, there is a true-up mechanism that takes back any additional revenue with interest.

57 For example, while 16 states had some form of broad-based performance-based rates in 2000, the figure had dropped to 5 by 2007. See, for example, Toby Brown, Paul Carpenter, and Johannes Pfeifenberger, "Incentive Regulation: Lessons from other Jurisdictions," AUC PBR Workshop, May 2010.

Many of the prevailing performance-based mechanisms involve earnings sharing. Typically, the annual earnings (realized income) is compared to the allowed ROE[58] above (or sometimes below) a certain "dead band" range. A portion of any over or under earning may be shared with customers although not necessarily symmetrically.

The advantages of combining performance-based rates with earnings sharing are that it ensures results in any one year do not deviate substantially from the targeted rate and customers benefit immediately from any over earnings, while the utility is protected against substantial under earning. However, the disadvantages are that the implementation requires detailed reporting and monitoring, while at the same time it may attenuate the efficiency of the incentives associated with the performance-based plan in the first place.

In the U.S., broad performance-based rate mechanisms are limited, but a number of states incorporate aspects of performance-based rates in their rate making. For example, Mississippi Power and Alabama Power in Mississippi and Alabama, respectively, operate under a form of performance-based rate plan. For example, the Mississippi Performance Evaluation Plan (PEP) determines Mississippi Power's rates using a formulaic approach and then evaluates the utility's performance based on customer price, customer satisfaction, and reliability. The plan does have adjustments for major capital expenditures and natural disasters.[59] Similarly, the Missouri PSC has approved performance incentives for demand-side programs based on an "after-the-fact" verification that the 3-year energy saving program worked.[60]

Figure 4.14 and 4.15 below shows states that have some form for performance-based rate making and states that have some form of earnings sharing, respectively.

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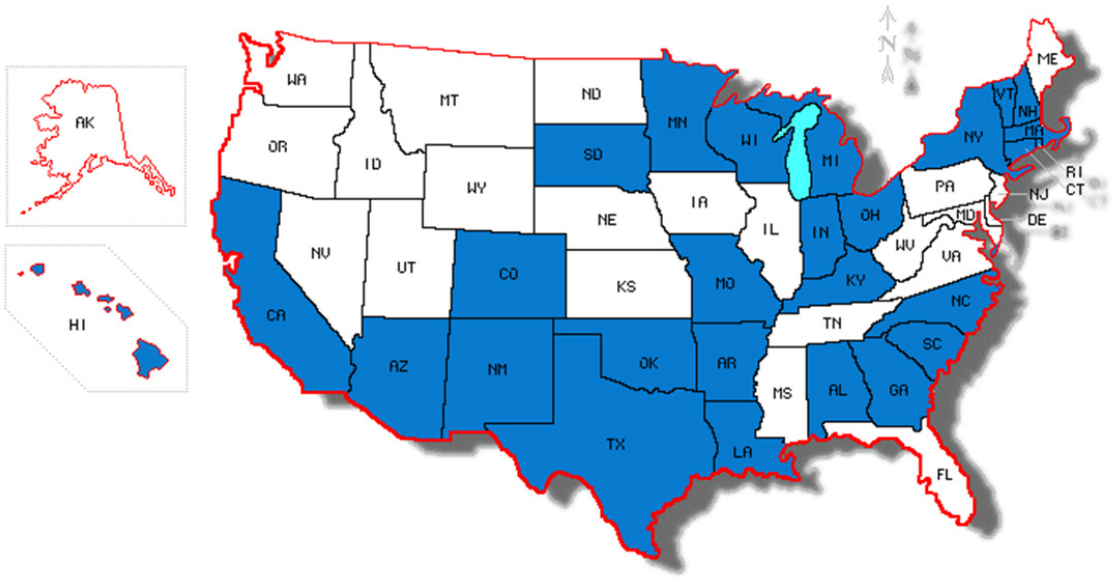
58 Ohio's excessive earnings test also compares the annual earnings of the state's electric utilities to those of "publicly traded companies, including utilities, which face comparable business and financial risk …" See, Ohio Statutes, Chapter 4829.

59 Mississippi Power, "Performance Evaluation Plan."

60 Case No. ER-2012-0175.

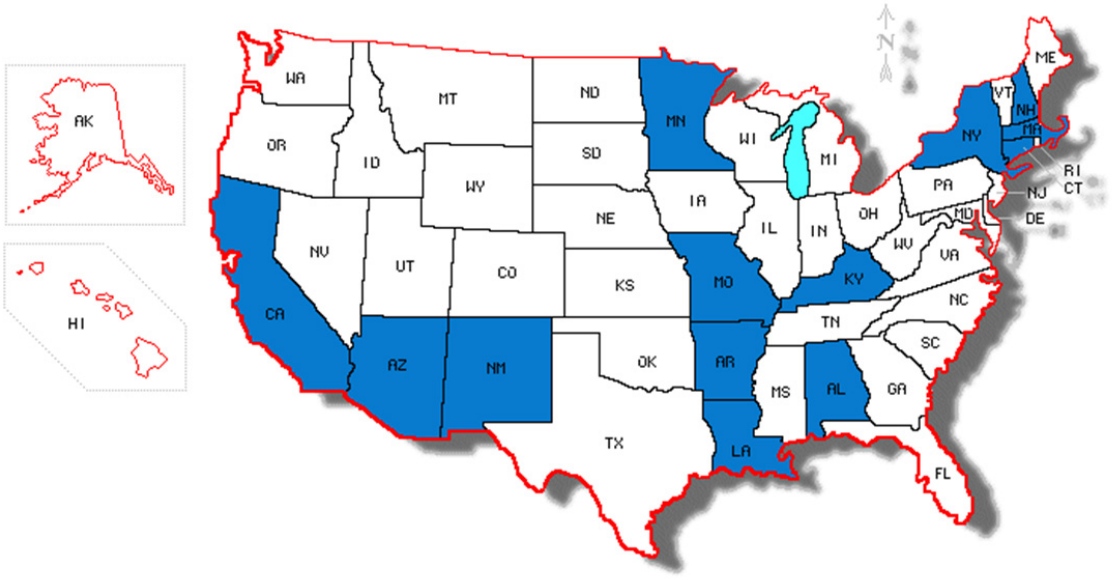
Figure 4.14: States Allowing Performance Based Measures or Earning Sharing for Electric Companies[61]



States Allowing Performance Based Measures or Earning Sharing for Electric Companies
Alabama, Arkansas, Arizona, California, Colorado, Connecticut, District of Columbia, Georgia, Hawaii, Indiana, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Missouri, North Carolina, New Hampshire, New Mexico, New York, Ohio, Oklahoma, Rhode Island, South Carolina, South Dakota, Texas, Vermont, Wisconsin

[61] The Brattle Group © 2013 and *State Electric Efficiency Regulatory Frameworks*, IEE Report July 2013.

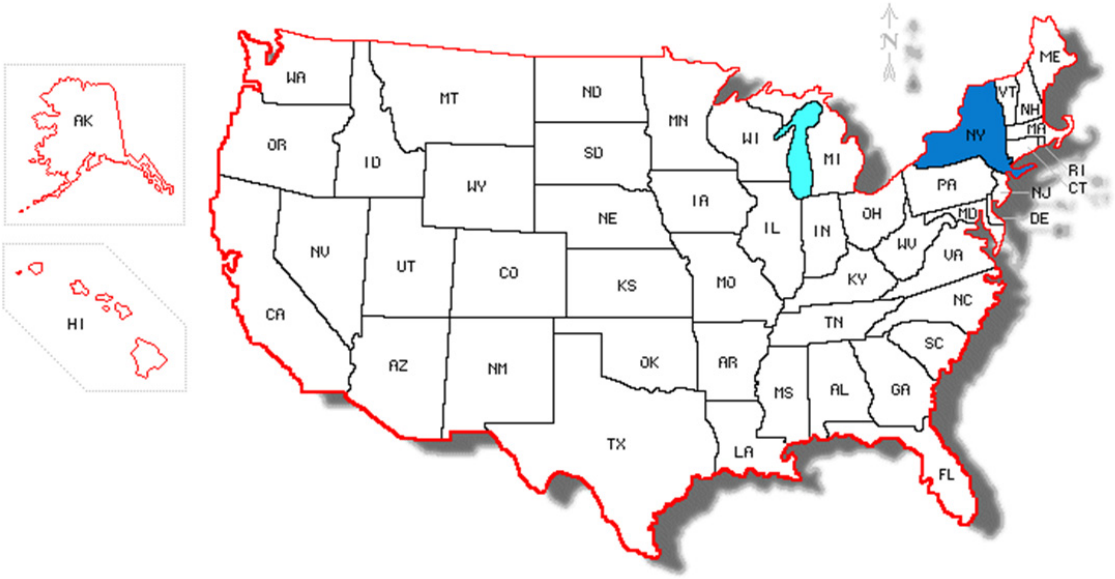
Figure 4.15: States Allowing Performance Based Measures or Earning Sharing for Gas Companies[62]



States Allowing Performance Based Measures or Earning Sharing for Gas Companies
Alabama, Arkansas, Arizona, California, Connecticut, Kentucky, Louisiana, Massachusetts, Minnesota, Missouri, New Hampshire, New Mexico, New York

[62] The Brattle Group © 2013 and *State Electric Efficiency Regulatory Frameworks*, IEE Report July 2013.

Figure 4.16: State Allowing Earning Sharing for Water Companies[63]



State Allowing Earning Sharing for Water Companies
New York

There are no water utilities we know off that have performance based measures in place.

Importantly, many of the states shown in Figure 4.14 and 4.15 have performance measures related to conservation or other specific targets, so that the use of performance-based measures is only partial. Our survey indicates that only New York has implemented earnings sharing for a water utility.

Earnings sharing (with a dead band) is a common form of earnings sharing for electric utilities.

d. Future Test Year and Other Timely Recovery Mechanisms

While the future test year is not as comprehensive a rate making mechanism as the mechanisms discussed above, we cover it here. It is one of the longest running mechanisms for early recovery of costs and capital expenditures. The future test year became popular when the U.S. inflation was relatively high, but today the growth in rate base and increasing costs associated with

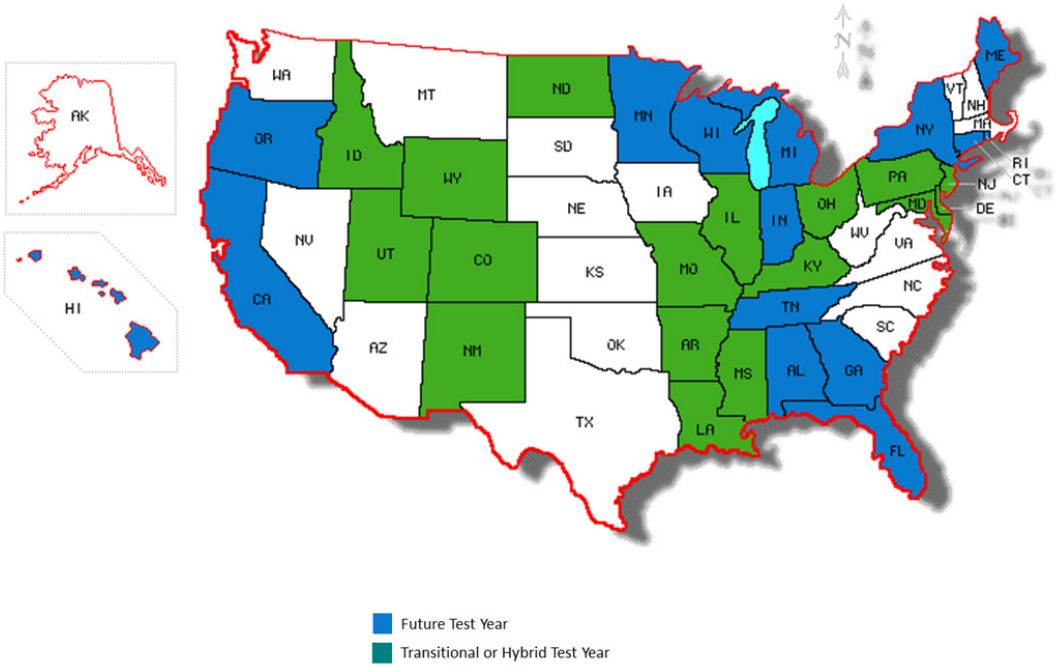
[63] The Brattle Group © 2013 and *State Electric Efficiency Regulatory Frameworks*, IEE Report July 2013.

conservation, consumer service, etc. are more important factors than inflation. A future test help utilities recover costs and capital expenditures in a timely fashion as expected infrastructure investments and / or costs are recovered through revenue. This is especially important for utilities that have large infrastructure investments, are expanding their services (and hence costs), and / or during times of inflation. A future test year has become more common in recent years and empirical studies have found that electric utilities that operate under a future test year regime generally have better credit ratings and are better able to earn their allowed ROE than those that use a historic test year.[64] (Note, at least IL and MI have generic rules that allow all utilities to file future test year.)

The following Figure 4.17 shows the states that use a future or partially forward test year for electric and natural gas. Figure 4.18 shows states with future test year for water utilities.

[64] Mark A. Lowry, David Hovde, Lullit Getachew, and Matt Makos "Forward Test Years for US Electric Utilities," Edison Electric Institute, August 2010, Chapter 3.

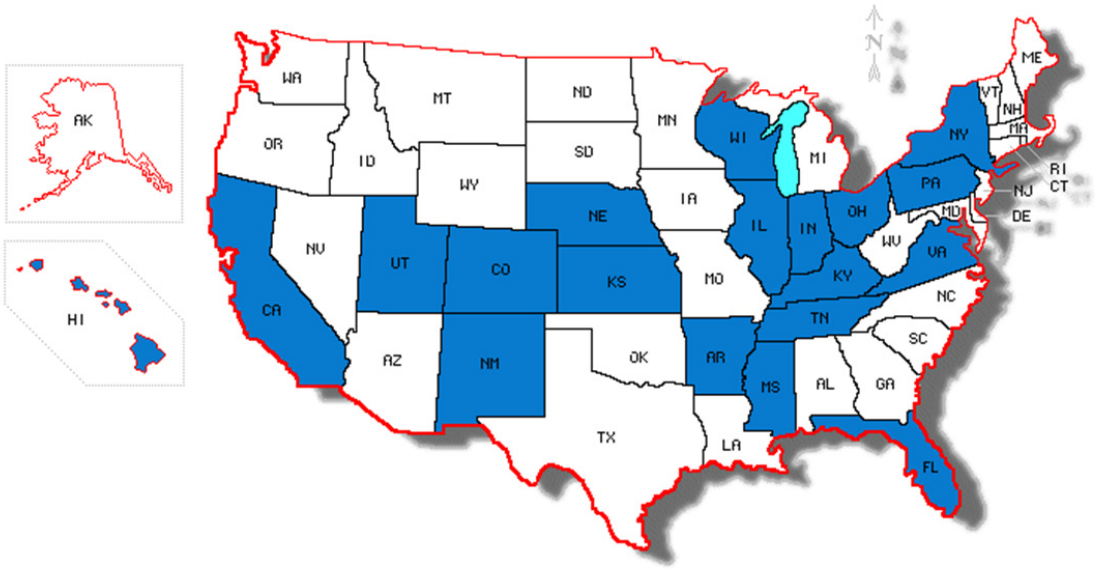
Figure 4.17[65]: States with Future Test Years for Electric and Gas Companies



States Allowing Future Test Year for Electric and Gas Companies	States Allowing Hybrid or Transitional Future Test Year for Electric and Gas Companies
Alabama, California, Connecticut, Florida, Georgia, Hawaii, Indiana, Maine, Michigan, Minnesota, New York, Oregon, Rhode Island, Tennessee, Wisconsin	Arkansas, Colorado, Delaware, District of Columbia, Idaho, Illinois, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, New Mexico, North Dakota, Ohio, Pennsylvania, Utah, Wyoming

65 The Brattle Group © 2013 and EEI, *Alternative Regulation for Evolving Utility Challenges: An Updated Survey*, Prepared by: Pacific Economics Group Research LLC, January 2013. This source addressed electric and gas companies together and did not differentiate by industry.

Figure 4.18[66]: States with Future Test Years for Water Companies



States Allowing Future Test Year for Water Companies
Arkansas, California, Colorado, Florida, Hawaii, Illinois, Indiana, Kansas, Kentucky, Mississippi, Nebraska, New Mexico, New York, Ohio, Pennsylvania, Tennessee, Utah, Virginia, Wisconsin

As can be seen from Figure 4.17 and 4.18 above, there are a considerable number of states that rely on a future test year. In addition, many states use a hybrid or transitional test year for electric and natural gas utilities, respectively. Thus, a large group of states are including some forward looking measures in rates.

D. Alternative Ratemaking of Capital Expenditures

This is a diverse group of policies that address the issues by focusing on more specific costs, and frequently on capital expenditures and their recovery over time. The methods are:

- Capex Riders and Distribution System Improvement Charges (DSIC)
- Other Riders and Trackers.
- Construction Work in Progress (CWIP)

[66] The Brattle Group © 2013 and EEI, *Alternative Regulation for Evolving Utility Challenges: An Updated Survey*, Prepared by: Pacific Economics Group Research LLC, January 2013.

They are discussed in order. However, we note that we provide just a few examples of Other Riders and Trackers that address regulatory lag issues. We have discussed above why the host of riders, trackers, and balancing accounts for operating expenses were not surveyed, because of their very large numbers and because the focus of this report is on future capital requirements of the water industry. In general, our count of states with a Capex rider, DSIC mechanism, or a CWIP policy does not include states with Other Riders and Trackers, which are highly numerous, diverse, and state or utility specific.

a. Capex Riders or DSIC

As noted above, the electric, natural gas, and water industry are very capital intensive and all three require significant maintenance of the distribution system. Therefore, timely recovery of such investments is important to maintain a solid financial performance and attract capital.

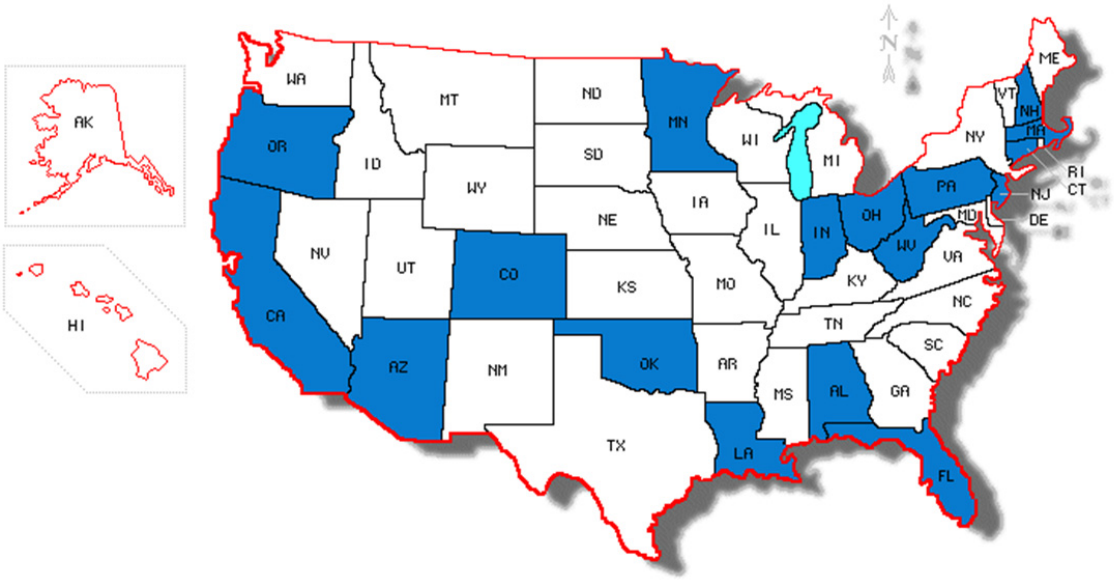
Capital expenditure or "capex" riders are for the recovery of specific investment expenditures. Their calculation is more complex and accomplished through formulas that encompass the amortization, the allowed profit and the income taxes due, in parallel to the treatment of capital recovery in a GRC. A common name for this ratemaking policy in the water industry is the Distribution System Improvement Charge or DSIC. Looking forward, capex riders can be important because a large amount of capital investment is needed by these three types of regulated utilities and the regulatory lag in the GRC policies. The electric, natural gas and water industries have a variety of needs, such as:

- Digital technologies for distribution system reliability, which for electrics include the ability to include distributed generation and micro grids
- Smart meters and advanced meter infrastructure roll-out
- Transmission expansion for renewable development, pipeline build-out for natural gas, and main, dams, etc. for water
- Environmental improvements at power plants and water, safety improvements for natural gas.

Without capex riders, a utility with an historic test year sees growing investment as meaning a compression in the schedule of general rate cases, while significant investments accumulate as the GRC is conducted. With very little natural growth in billing determinants experienced in the past five years and some question about whether it will return, revenue insufficiency is much more likely to affect the utility financial stability.

Capex riders allow utilities to make investments deemed necessary by the Commission when the capex rider is set up. Allowable investments are those in a formal plan periodically approved by The Commission. Caps on the percentage increase of base rates from the capex rider in a period limit the investment undertaken. Figure 4.21 below shows the states that allow water companies to use DSIC ratemaking.

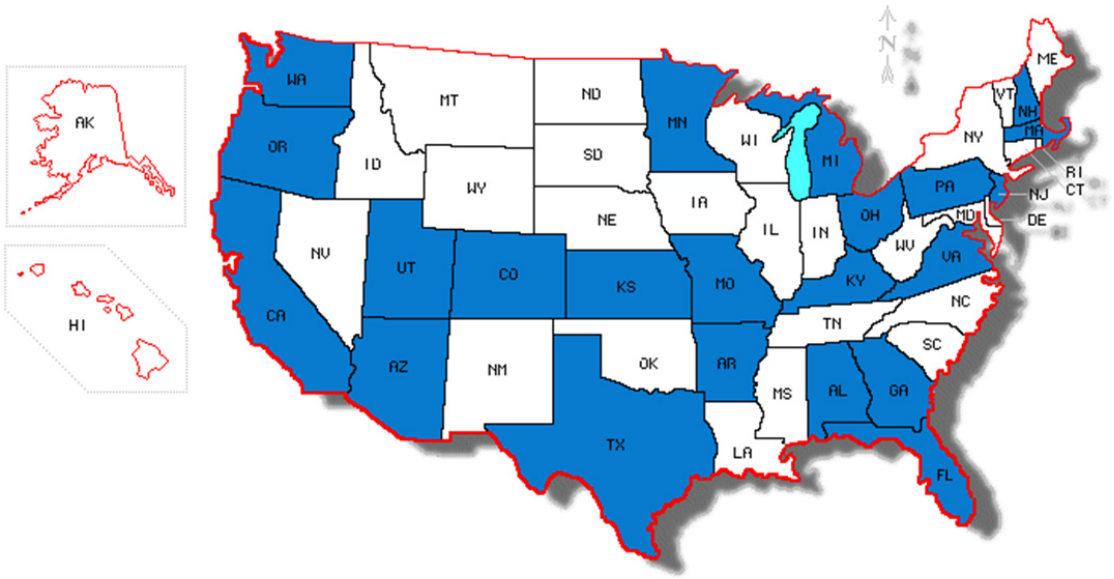
Figure 4.19: States Allowing Capital Expenditure (Capex) Riders for Electric Companies[67]



States Allowing Capital Expenditure (Capex) Riders for Electric Companies
Alabama, Arizona, California, Colorado, Connecticut, Florida, Indiana, Louisiana, Massachusetts, Minnesota, New Hampshire, New Jersey, Ohio, Oklahoma, Oregon, Pennsylvania, West Virginia

[67] Data sources: The Brattle Group © 2013 and NAWC

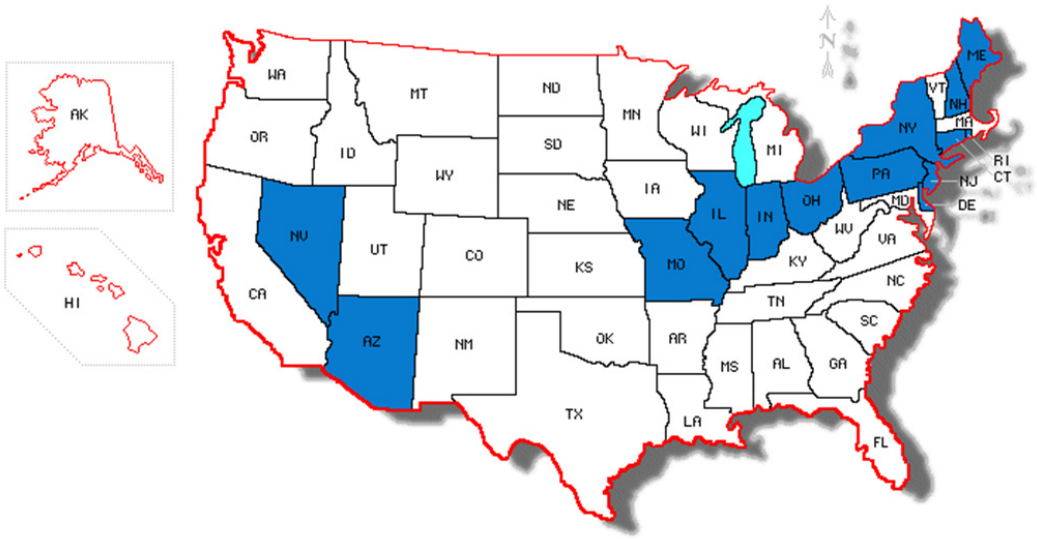
Figure 4.20: States Allowing Capital Expenditure (Capex) Riders for Gas Companies[68]



States Allowing Capital Expenditure (Capex) Riders for Gas Companies
Alabama, Arkansas, Arizona, California, Colorado, Florida, Georgia, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, Ohio, Oregon, Pennsylvania, Texas, Utah, Washington, Virginia

[68] Data sources: The Brattle Group © 2013 and NAWC

Figure 4.21: States Allowing Distribution System Improvement Charges (DSIC) for Water Companies[69]



States Allowing DSIC for Water Companies
Arizona, Connecticut, Delaware, Illinois, Indiana, Maine, Missouri, Nevada, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island

b. Other Riders and Trackers

In addition to the mechanisms discussed above there are a host of so-called riders, trackers and balancing accounts that allow the actual expenditures for certain specific costs to be recorded and compared to the level collected in the rates from separate charge factors. Differences both positive and negative are returned to the ratepayers or to the utility within a year or at the next rate case. Riders, trackers and balancing accounts are technical terms but this report will discuss them collectively.[70]

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[69] Data sources: The Brattle Group © 2013 and NAWC.

[70] While terminology varies across states, riders and balancing accounts are typically part of the tariffs posted by the utility and the tariff for each one governs how the costs differences are recovered by the

Continued on next page

Fuel clauses are used in almost all states that still have traditional, vertically-integrated electric utilities. In the modern electric and gas industries, there large, highly competitive regional power and natural gas markets that generally set prices transparently.

In the water industry, the cost of water is a natural equivalent to the fuel adjustment clause and is used in several states; especially where water procurement is more costly such as in the Southwestern part of the U.S. Further, as pumping water is a key operational activity in California and the associated power costs are larger, the California-based water utilities have a power cost adjustment clause. Similarly, as arsenic is a naturally occurring chemical in, for example, Arizona and needs to be removed to make drinking water safe, some Arizona water utilities have an arsenic removal cost recovery mechanism.

As discussed above, a general rate case takes months to prepare and then from six to twelve months to reach a decision on new base rates. With an historic test year, the only costs that fit are costs that rise slowly and are amenable to control without jeopardizing the provision of reliable service. Even with a future test year, the future of the power and the gas markets can hold major surprises. A common sense principle in regulation is that the utility should be primarily at risk for costs and performance factors it can control, and regulatory review should be focused on those costs.

Therefore, there are three typical motivations for riders:[71]

- The underlying cost is often large and quite volatile. Inevitable prediction errors could result in significant cash and earnings shortfalls for the utility if those costs are not recovered in a timely manner or unduly high cash burdens for customers when such costs happen to be lower than projected.
- Changes in the underlying cost is largely beyond the utility's control, since it reflects, for example, prices in the wholesale fuel and power markets that individual utilities must participate in. Furthermore, utilities earn no margin or return component on these expenses.
- Cost is allowed recovery outside a GRC of "pre-approved" cost items that change in predictable ways, such as the costs incurred in implementing an approved environmental compliance plan. These costs are not necessarily large.

Continued from previous page

appropriate entity. Trackers can be different when they are Commission-approved accounting entries that record past costs as uncollected balances, which are not written off. The amounts can be proposed for inclusion in base rate in the next general rate case.

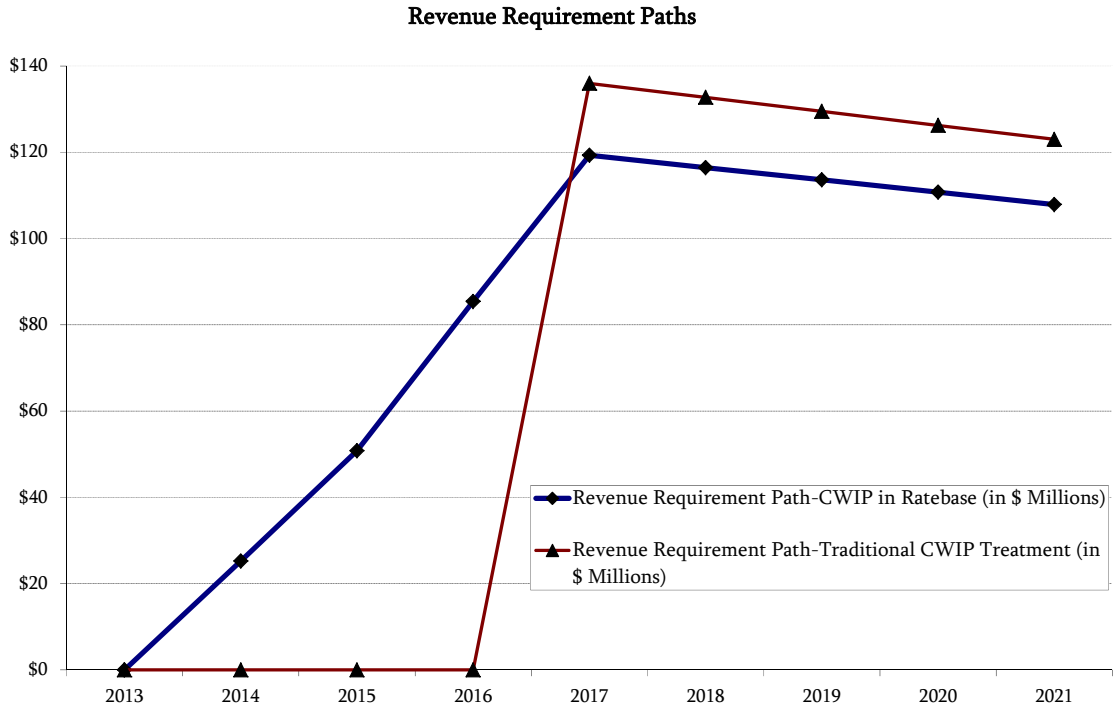
71 Frank Graves, Philip Hanser, Greg Basheda, *Electric Utility Automatic Adjustment Clauses: Benefits and Design Considerations*, Prepared for: Edison Electric Institute, Prepared by The Brattle Group, November 2006.

c. Construction Work in Progress (CWIP)

As noted above the delay in recovery of costs and capital expenditures can cause significant pressure on the utility's financial metrics; including its credit metrics and rating. If the key issue causing a delay in recovery is infrastructure investments, the inclusion of Construction Work in Progress (CWIP) in the rate base, which allows for a return on these funds while construction is ongoing, can complement a future test year.

The traditional approach under cost of service regulation is to determine Allowance for Funds During Construction (AFUDC) as the accrual of the financing costs of construction in a deferral account. The account is normally capped when the plant goes into service, so there can be a substantial delay in both the return on the funds invested and the return of these funds. This is especially true if there is a delay before a general rate order allows it in rate base. The CWIP in rate base allows utilities to recover costs incurred from financing construction on a current basis. Regulatory approval is usually required for utilities to earn a return on the CWIP in rate base although it usually does not allow the utility to recover any portion of the asset. This is usually accomplished through periodic filings. CWIP requires earlier payments by the customers but lowers total customers' payments. Therefore, CWIP provides a more gradual rate increase and less rate shock. This is illustrated in Figure 4.22 below:

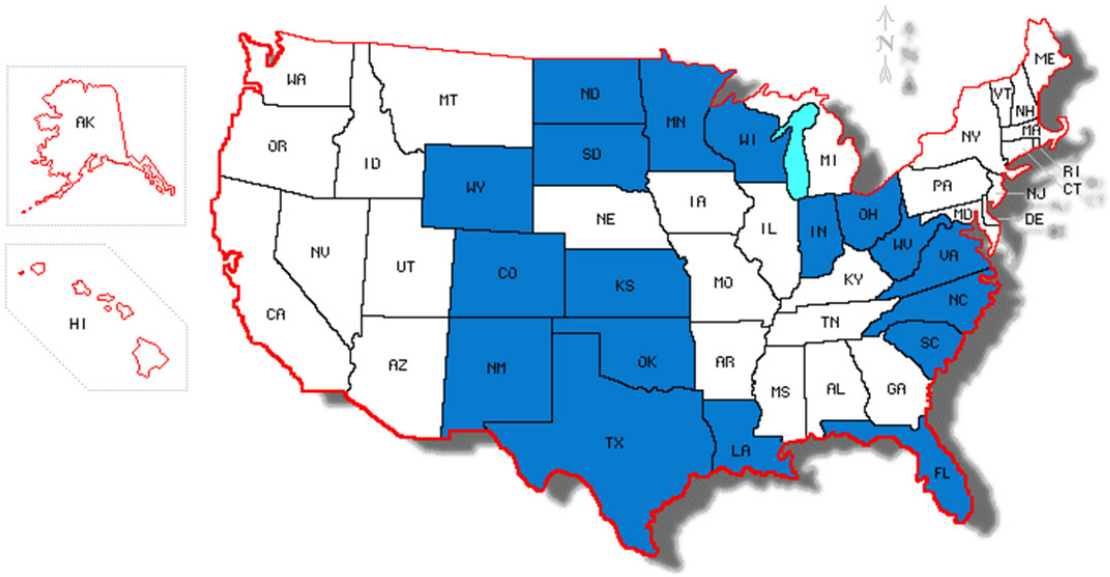
Figure 4.22: Illustration of How CWIP Lessens the Rate Shock of Large Capital Investments



Credit rating agencies are very interested in and will react to the manner in which different states and utilities increase cash flows to keep their financial metrics sound. CWIP does that because it provides for more timely cash flow to the utility than does AFUDC. Figures 4.23, 4.24, and 4.25 show the states that support one or more of the forms of CWIP in rate base for electric, gas delivery and private water companies. CWIP in rate base is especially supportive of a utility's financial performance if it has a large, ongoing construction program and recognized as such by credit rating agencies.[72]

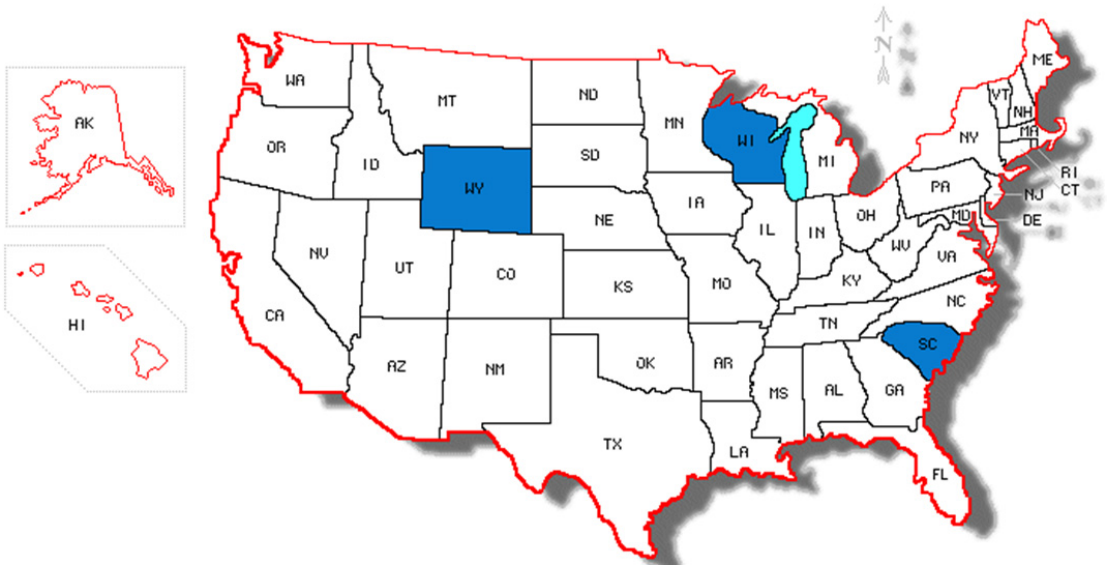
[72] For an example, see Fitch Ratings, "Fitch Rates Duke Energy Indiana First Mortgage Bonds 'A'," July 9, 2013.

Figure 4.23: States Allowing CWIP for Electric Companies



States Allowing CWIP for Electric Companies
Colorado, Florida, Indiana, Kansas, Louisiana, Minnesota, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Texas, Virginia, West Virginia, Wisconsin, Wyoming

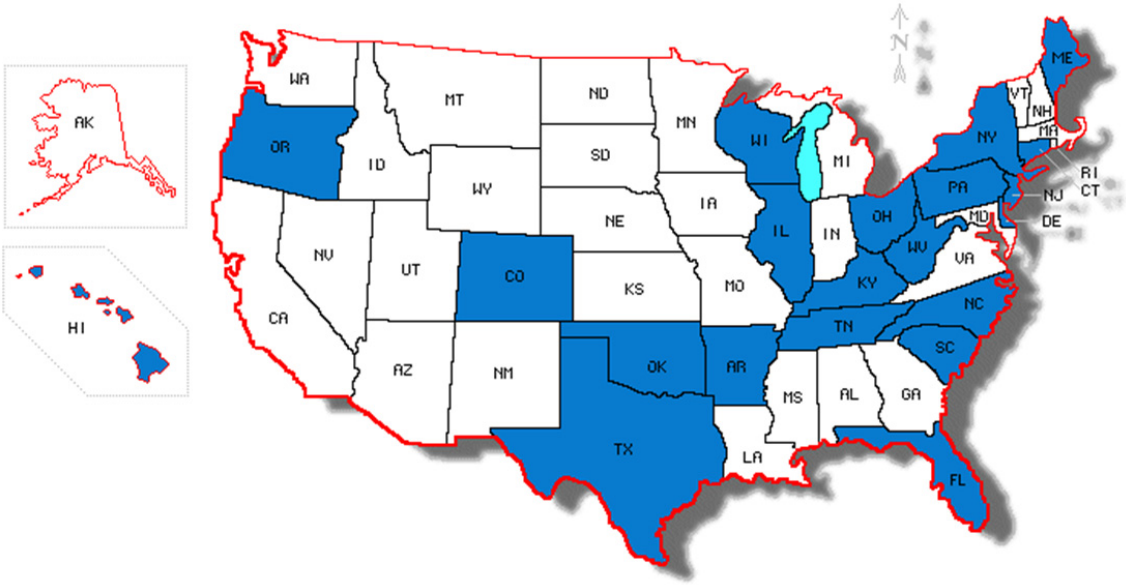
Figure 4.24: States Allowing CWIP for Natural Gas Delivery Companies[73]



States Allowing CWIP for Natural Gas Companies
South Carolina, Wisconsin, Wyoming

[73] We do not know why there appear to be such a difference in potential for CWIP in rate base across industries as the growth in asset in recent times has been very similar, but relative to revenue, natural gas distribution companies have less fixed assets than water or electric utilities, so that replacement capex would be lower relative to revenue. Source: *Value Line Investment Survey*.

Figure 4.25: States Allowing CWIP for Private Water Companies[74]



States Allowing CWIP for Electric Water Companies
Arkansas, Colorado, Connecticut, Delaware, Florida, Hawaii, Illinois, Kentucky, Maine, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, West Virginia, Wisconsin

74 Data sources: The Brattle Group © 2013 and NAWC.

V. Conclusion

Over the next quarter century, the U.S. water industry faces a set of critical infrastructure investment needs that is expected to total between $335 billion to $1 trillion. This is to replace aging infrastructure and make investment needed to maintain water quality. In addition, the EPA estimates that after years of drought, up to 70% of the states face some form of water shortage and this will increase costs of water and perhaps require separate investments.

This report provides a comprehensive review of policies that state regulators across the U.S. have developed to meet these challenges by improving traditional cost of service ratemaking (COSR) in the water, electric, and natural gas distribution industries. The traditional COSR has been in place for at least half a century. The future viability of the water industry needs effective and efficient regulatory policy that puts private capital to work meeting a substantial share of the future infrastructure needs. The cost of the large future infrastructure investments will be viewed by financial markets in terms of their risk. First, this will depend of water utilities' knowledge and ability to choose the right investments in technology. Second, the risk also depends on whether the public policies allow recovery of prudent cost of investment once they are incurred. Third, the ability to attract capital depends on the available rate of return relative to investments of similar risk.

Growth rates in sales of water, electricity, and natural gas for residential and commercial customers have fallen and in some places have been eliminated. The lack of growth is good for the societal goals of water conservation / efficiency and global climate change, but it makes earning the allowed rate of return on investment more difficult by removing a source of funds for future investments. It is therefore imperative that alternative ratemaking mechanisms be developed that meet the challenges of the water industry going forward.

This report focuses on three kinds of alternative policies that meet challenges of improving traditional cost of service ratemaking. Currently, the electric and natural gas industry has some form of conservation adjustment, decoupling or revenue stabilization in 24 and 30 states, respectively. The use of such mechanisms is much less widespread in the water industry, where the survey identified only 5 states as having some form of conservation, decoupling, revenue stabilization policy.

Similarly, it appears that currently some form of comprehensive alternative regulation is more widely used for electric or gas utilities than for water utilities, when considering mechanism such as formula rates, earnings sharing, performance based rate making or multi-year rates.

The report also looked to the ability to recover capital expenditures in a timely fashion through Capex riders or DSICs. This appears to be an area, where legislators and regulators currently are

improving utilities' ability to recover capital expenditures timely with several states recently passed legislation aiming at early recovery for certain infrastructure investments.[75] While the methods vary greatly across jurisdictions, the recently passed legislation includes all three utility industries.

Appendix C at the very end of this report summarizes the use of alternative regulatory mechanisms as well as other ratemaking methods for the water industry by state.

[75] See, for example, Indiana Legislature SB 560.

Appendix A
Tabulation of the Alternative Regulatory and Rate Approaches in the Three Infrastructure Industries
DRAFT

Figure A.1 Alternative Regulatory Ratemaking for Electric Companies

Electric Companies		
Broad ARR Categories in Gray with Specific ARRs Listed Below		
Category	**Count of States Allowing for ARR's**	**List of States Allowing for ARR's**
CWIP or Capex Riders		
Total States with CWIP or Capex Riders	**28**	**AL, AZ, CA, CO, CT, FL, GA, IN, KS, LA, MA, MN, NC, ND, NH, NJ, NM, OH, OK, OR, PA, SC, SD, TX, VA, WI, WV, WY**
Environmental Capital Expenditures	6	AZ, FL, IN, LA, OH, WV
Other Capital Expenditures (Includes Transmission Capital Costs Recovery)	13	AL, CA, CO, CT, LA, MA, MN, NH, NJ, OH, OK, OR, PA
CWIP	19	CO, GA, IN, KS, LA, MI, MN, NM, NC, ND, OH, OK, SC, SD, TX, VA, WI, WV, WY
Decoupling and Revenue Adjustment Mechanisms		
Total States with Decoupling and Revenue Adjustment Mechanisms	**27**	**AR, AZ, CA, CT, DC, HI, ID, IL, IN, KS, KY, LA, MA, MD, MS, MT, NC, NH, NV, NY, OH, OK, OR, RI, SC, WI, WY**
True Up Decoupling	12	CA, CT, DC, HI, ID, MD, MA, NY, OH, OR, RI, WI
Fixed Variable Rate Design	3	CT, IL, MS
Lost Revenue Adjustment Mechanism (LRAM) for EE and DSM	17	AR, AZ, IN, KS, KY, LA, MA, MT, NV, NH, NY, NC, OH, OK, OR, SC, WY
Comprehensive Alternative Regulation and Ratemaking		
Total States with Comprehensive Alternative Regulation and Ratemaking	**34**	**AR, AZ, AL, CA, CO, CT, DC, FL, GA, HI, IA, IL, IN, KY, LA, MA, ME, MI, MN, MO, MS, NC, NH, NM, NY, OH, OK, RI, SC, SD, TX, VA, VT, WI**
Formula Rates	4	AL, IL, LA, MS
Multi-Year Rate	11	AZ, CA, CO, FL, GA, IA, LA, ME, NH, OH, VA
Performance-Based Rate Making (PBR) or Earnings Sharing	28	AL, AR, AZ, CA, CO, CT, DC, GA, HI, IN, KY, LA, MA, MI, MN, MO, NC, NH, NM, NY, OH, OK, RI, SC, SD, TX, VT, WI

Figure A.2: Alternative Regulatory Ratemaking for Gas Companies

Gas Companies		
Broad ARR Categories in Gray with Specific ARRs Listed Below		
Category	**Count of States Allowing for ARR's**	**List of States Allowing for ARR's**
CWIP or Capex Riders		
Total States with CWIP or Capex Riders	**25**	**AL, AR, AZ, CA, CO, FL, GA, KS, KY, MA, MI, MN, MO, NH, NJ, OH, OR, PA, SC, TX, UT, VA, WA, WI, WY**
Other Capital Expenditures (Includes Transmission Capital Costs Recovery)	22	AL, AR, AZ, CA, CO, FL, GA, KS, KY, MA, MI, MN, MO, NH, NJ, OH, OR, PA, TX, UT, WA, VA
CWIP	3	SC, WI, WY
Decoupling and Revenue Adjustment Mechanisms		
Total States with Decoupling and Revenue Adjustment Mechanisms	**30**	**AR, AZ, CA, CT, FL, GA, IL, IN, KY, MA, MD, MI, MN, MO, MT, NC, ND, NJ, NV, NY, OH, OK, OR, RI, TN, UT, VA, WA, WI, WY**
True Up Decoupling	22	AR, AZ,CA,GA, IL, IN, MA, MD, MI, MN, NC, NJ, NV, NY, OR, RI, TN, UT, WA, WI, WY, VA
Fixed Variable Rate Design	9	CT, FL, GA, KY, IL, MO, ND, OH, OK
Lost Revenue Adjustment Mechanism (LRAM) for EE and DSM	9	AR, AZ, CT, KY, MA, MT, NY, OR, WY
Comprehensive Alternative Regulation and Ratemaking		
Total States with Comprehensive Alternative Regulation and Ratemaking	**18**	**AL, AR, AZ, CA, CT, KY, GA, LA, MA, MO, MN, MS, NH, NM, NY, OK , SC, TX, VT**
Formula Rates	7	AL, GA, LA, MS, OK , SC, TX
Multi-Year Rate	1	VT
Performance-Based Rate Making (PBR) or Earnings Sharing	13	AL, AR, AZ, CA, CT, KY, LA, MA, MN, MO, NH, NM, NY

Figure A.3 Alternative Regulatory Ratemaking for Private Water Companies

Water Companies		
Broad ARR Categories in Gray with Specific ARRs Listed Below		
Category	**Count of States Allowing for ARR's**	**List of States Allowing for ARR's**
CWIP, DSIC, and Capex Riders		
Total States with CWIP or Capex Riders	**31**	**AR, AZ, CO, CT, DE, FL, HI, IL, IN, KY,MA, ME, MO, MT, NH, NJ, NM, NV, NY, NC, OH, OK, OR, PA, RI, SC, TN, TX, WA, WI, WV**
Construction Work in Progress (CWIP)	21	AR, CO, CT, DE, FL, HI, IL, KY, ME, NJ, NY, NC, OH, OK, OR, PA, SC, TN, TX, WV, WI
Capex Trackers and Distribution System Improvement Charges (DSIC)	14	AZ, CT, DE, IL, IN, ME, MO, NV, NH, NJ, NY, OH, PA, RI
Conservation Adjustments, Decoupling, and Revenue Stabilization		
Total States with Conservation or Revenue Stabilization	**5**	**AZ, CA,CT,NV, NY**
General Decoupling with Periodic True-up	5	AZ, CA, CT, NV, NY
Lost Revenue Adjustment Mechanism	0	
Comprehensive Alternative Regulation and Ratemaking		
Total States with Comprehensive Alternative Regulatory Mechanisms	**4**	**CA, CT, MA, NY**
Formula rates	2	MA, NY,
Multi-year rate mechanisms	3	CA, CT, NY
Earnings sharing and performance based rate making	1	NY

Note: Total Categories shown in gray include ARRs that fall within the broad category but do not fit the descriptions for the specific ARRs highlighted below.

Appendix B
Dockets and Orders Establishing ARRS by Industry and State

This appendix lists the source documents Brattle has acquired that document the ARRs for water utilities. It does not claim to be complete at this time. Brattle welcomes all information that would supplement or correct what is contained herein. The sources include:

- State statutes allowing a type of ARR for a broad set of water utilities
- Individual ARRs that are established in specific rate case or other regulatory proceedings for specific utilities.

This appendix does provide a good sample of ARRs established across the U.S. Additional information will be included in the final version of the report. The subsections under the three ARR categories are generally but not exactly the same as the body of the report.

1. CWIP, DSIC, and CapEx Riders:

1.1 CWIP

Arkansas:

- Russellville Water Company- CWIP (Docket No. U-3081, Order No. 7 Jan. 15, 1981).

Colorado:

- Public Service Company of Colorado- CWIP (Decision No. C06-0852).

Connecticut:

- State Statute- Recovery of Construction Work in Progress (CWIP) for facilities necessary to comply with the federal safe drinking water act (SDWA) and to permit affected water companies to implement a rate surcharge based on such CWIP, under specified terms and conditions (Regulations of CT State Agencies, Section 16-1-59B).

Delaware:

- UW Delaware- CWIP (from interview).

Florida:

- Alafaya Utilities- CWIP (52 Pa. Code 69.371)

Iowa:

- Iowa-American Water Company- CWIP (Docket No. RPU 07-03)

Illinois:

- State Statute- CWIP (220 ILCS 5/9-214(e) and (f)).
- Illinois American Water Company – CWIP (Survey).

Kentucky:

- Kentucky-American Water Company- CWIP (Case 2004-00103 and Case 2004-00103 and 807 KAR 5:001, Section 10(7)(c);)
- Kentucky American Water – CWIP (Survey-).

Maine:

- Banger Hydro-Electric Company- CWIP (46 PUR 4th 503).

New York:

- UW New York- CWIP (Survey).
- American Water New York- CWIP (Survey-).

North Carolina:

- State Statute – CWIP (General Statute 62-133b).

New Jersey:

- UW New Jersey- CWIP (Survey).

Ohio:

- State Statute- CWIP (Ohio Rev. Code § 4909.15(A)(1).)

Oklahoma:

- Corral Creek Water District- CWIP (OAC 165:70-5-4(d)(i)(II)).

Oregon:

- State Statute – CWIP (OAR 860-037-0570)

Pennsylvania:

- State Statute – CWIP, (52 Pa. Code § 69.371).

South Carolina:

- Wild Dunes- CWIP, (Order No. 90-650)

Tennessee:

- Tennessee-American Water Company- CWIP (Docket No. 08-00039 (Jan. 13, 2009))

Texas:

- State Statute: CWIP (TWC § 13.185b).

West Virginia:

- West Virginia-American Water Company- CWIP (W. Va. C.S.R. § 150-2-19.4.d Statement B - Schedule 4 detail of CWIP and adjustments).

Wisconsin:

- Superior Water Light & Power Company- CWIP (Docket No. 5820-UR-111).

1.2 Distribution System Improvement Charge (DSIC)

AWW states with a DSIC (or its equivalent) Illinois, Indiana, Missouri, New Jersey, New York i.e. System Improvement Charge), Pennsylvania. Based on new legislation in Tennessee they too are now allowed to file for a DSIC. AWW no longer has a DSIC in California (don't think any Calif. water utility does). Although, California does allow Step Increases which can encompass DSIC type investment. New legislation also provides a mechanism for Infrastructure replacement in Maine. We are not familiar with the DSIC mechanisms listed for Rhode Island or Washington. Should heading say Companies or Utilities?

Arizona:

- Arizona Water Company- DSIC (Decision 73938 (April 8 and 11, 2013).

Connecticut:

- Connecticut Water Company- Water Infrastructure and Conservation Adjustment (WICA) (Section 16-262v and w of CGS).

Delaware:

- UW Delaware- DSIC (from interview).

Illinois:

- State Statute- Qualifying Infrastructure Plant Surcharge or "QIPS" (Administrative Code Title 83 Chapter 1 Section 656).
- Illinois American Water- DSIC (Survey-).

Indiana:

- State Statute- DSIC (Indiana Administrative Code 170 IAC 6-1.1-1).
- Indiana American Water – DSIC (Survey –).

Maine:

- State Statute- Infrastructure Surcharge and Capital Reserve Accounts for Water Utilities (Legislation enacted during the 2012 session (PL 2011, Chapter 602).

Missouri:

- State Statute- DSIC (NAWC).
- Missouri American Water Company- Infrastructure System Replacement Surcharge or ISRS (Survey-).

New Hampshire:

- Aquarion Water Company of New Hampshire - Water Infrastructure and Conservation Adjustment Charge Pilot Program (Order No. 25,019).

New Jersey:

- UW New Jersey- DSIC (Survey).
- New Jersey American Water – DSIC (Survey –).

New York:

- UW New York- DSIC (Survey).
- New York American Water – DSIC (Survey).

Ohio:

- State Statute: DSIC (Ohio Rev. Code § 4909.15(A)(1).)

Pennsylvania:

- State Statute- Allows water and wastewater utilities, natural gas distribution companies, city natural gas distribution operations, and electric distribution companies to petition the Commission for approval to implement a DSIC (Act 11 of 2012 and Docket No. M-2012-2293611).

Rhode Island:

- UW Rhode Island- DSIC (Survey).

1.3 Other Capex Riders

Massachusetts:

- Aquarion Water Company of Massachusetts - Water Infrastructure Cost Adjustment. Allows the recovery of infrastructure costs outside rate case (Survey).

New Mexico:

- EPCOR New Mexico Water, formerly New Mexico-American Water- Deep Well Surcharge allows the company to add a surcharge to rates for recovery of costs associated with deep well construction (Final Order in Case No. 11-00032-UT (New Mexico-American Water Company, Deep Well Surcharge Bi-Annual Report, dated February 29, 2012).

New York:

- AWW New York – System Improvement Charge, Case 11-W-0200, allows recovery of specific projects in rate year 2 and 3 including treatment facilities, source of supply, storage facilities and Business Transformation program.
- UW New York- Storm Recovery (Survey).

Washington:

- Marvin Road Water Company- Pass-through, (RCW 80.28.070); Water Company Funding Mechanism- permanent repairs of failed water distribution lines and emergency temporary repairs and emergency field service (WAC 480-110-455 2 a iii).

1.4 Selected Other Operating Cost Riders

California:

- Suburban Water Systems - Guidelines for the Acquisition and Mergers of Water Companies, (Rulemaking 97-10-048, Decision 99-10-064. Includes 7-Year tracker for certain specified options. See Appendix D, paragraph 3.03); Water Conservation Expenses Memorandum Account (WCEMA), Water Conservation Expense- One way Balancing Account (WCBA), Tort Litigation Memorandum Account (TLMA), PCE Litigation Memorandum Account (PCELMA), TCP Litigation Memorandum Account (TCPLMA), Stockton Litigation Memorandum Account (SLMA), Caltrans Litigation Memorandum Account (CLMA), Pension Cost Balancing Account and Balancing Account: MCBA.

Connecticut:

- Connecticut Water Company- Interim Rate Adjustments for increases than 0.5% of company's operating revenues for (1) purchased water; (2) gas or electricity if the supplier's rates have been adjusted; (3) federal, state or local taxes or revenue assessments; (4) government fees; (5) fees for mandated water quality monitoring; and (6) inflation related expenses subject to inflation adjustment (Sec 16-32c of CGS).

Delaware:

- UW Delaware- O&M (survey).

Illinois:

- Illinois American Water- Purchased Water Rider and a Purchased Sewage Treatment Rider (Survey).

Montana:

- Mountain Water - Purchased Power Tracking Adjustment (Docket D2002.5.60, Order No. 6423b)

Massachusetts:

- Aquarion Water Company of Massachusetts – O&M (D.P.U. 11-43, p. 196)

New Jersey:

- UW New Jersey- Pension and Employment Costs, O&M Expenses (Survey).
- New Jersey American Water - Purchased Water Rider and a Purchased Sewage Treatment Rider (Survey).

New Mexico:

- EPCOR New Mexico Water, formerly New Mexico-American Water- Purchased Power Adjustment (EPCOR Rule 6.8.8.7 Purchased water and power cost adjustment clause report for quarter ended 9/30/2012); Purchased Water Adjustment (Final Order Case No. 11-00196-UT 2/24/2012).

New York:

- UW New York- O&M Expenses, Storm Recovery, Government Mandated Tax Recovery.

Oklahoma:

- Corral Creek Water District - Pass Through for Purchased Water Costs (Cause No. 200800256, Order No. 567759).

Oregon:

- State Statute – Pass-through for Purchased Water Costs (ORS 757-210b)

Tennessee:

- State Legislation- Operational Expenditure Riders (Survey).

Virginia:

- Virginia American Water: Purchased Water Rider (Survey-).

2. Conservation Adjustments, Decoupling, and Revenue Stabilization

2.1 Conservation Adjustments and General Decoupling with Periodic True-up

Arizona

- Arizona Water Company- Monterey Water Revenue Adjustment Mechanism (Investigation 07-01-022, Decision 08-08-030 - Appendix A, Settlement, discussion beginning on page 5.)

California:

- Suburban Water Systems- Water Revenue Adjustment Mechanism (WRAM) and Modified Cost Balancing Account (MCBA) (Decision 08-02-036)

New York:

- AWW New York - Revenue, Production Costs and Property Tax Reconciliation (RPCRC) Mechanisms which reconciles metered revenue, fuel, power, chemicals and property taxes per Case 11-W-0200 for Long Island American.
- UW New York- Decoupling.

Nevada:

- United Water New Rochelle Inc.- Decoupling (Bill 436).

2.2 Other Conservation and Revenue Stabilization Mechanisms

Arizona:

- EPCOR Arizona Water- Declining Usage Adjustment (Survey).

California:

- Golden State Water- Water Revenue Adjustment Mechanism (WRAM) and Modified Cost Balancing Account (MCBA) (Source: DECISION ON THE 2011 Generic RATE CASE FOR GOLDEN STATE WATER COMPANY, Application 11-07-017, May 13, 2013.)
- Suburban Water Systems- Monterey Water Revenue Adjustment Mechanism (Source: Investigation 07-01-022, Decision 08-08-030 - Appendix A, Settlement, discussion beginning on page 5.)
- California American Water Company- Water Revenue Adjustment Mechanism (WRAM) and Modified Cost Balancing Account (MCBA) (Decision 08-02-036).

Connecticut:

- State Statute - Revenue Adjustment Mechanism (PA 13-78).

3. Comprehensive Alternative Regulation and Ratemaking

3.1 Formula Rates

Massachusetts:

- Aquarian Water Company of Massachusetts- Optional formula for determining allowed rates of return on equity for water companies. ROE = 30-year T-bond + 3% if equity % between 25 and 75% and min ROE = 11.5%, max ROE = 14.5%, (200 CMR 31.00 (or D.P.U. 11-43, p. 217-219).

New York:

- UW New York- Formula Rate (from interview)

3.2 Multi-Year Rate Mechanisms

California:

- Golden State- Three year rate case cycle, with forward test year and two adjustments. Water has an earnings test, unlike electric and gas.

Connecticut:

- Connecticut Water Company- PURA shall approve rates that promote conservation, such rates shall consider (1) demand projections that recognize the effects of conservation, (2) implementation of metering and measures to provide timely price signals to consumers, (3) multiyear rate plans, (4) measures to reduce system water losses, and (5) alternative rate designs that promote conservation (Substitute Senate Bill No. 807).

New York:

- UW New York- Formula Rate (from interview).

3.3 Earning Sharing

New York:

- AWW New York – Earning Sharing with Dead band (Case 11-W-0200).
- UW New York- Earnings Sharing with Dead band (Survey).

3.4 Other Regulatory Mechanisms

Arizona:

- Arizona Water Company- "Low Income Ratepayer Assistance Program" and "Privatization and Excess Capacity" (Investigation 07-01-022, Decision 08-08-030, Appendix B, Low Income Ratepayer Assistance Program Issues and Rulemaking 97-10-049, Decision 00-07-018)

Delaware:

- UW Delaware- Defined Time Frames (Survey).

Idaho:

- UW Idaho- Defined Time Frames (Survey).

Massachusetts:

- Aquarion Water Company of Massachusetts - Optional formula for determining allowed rates of return on equity for water companies. ROE = 30-year T-bond + 3% if equity % between 25 and 75% and min ROE = 11.5%, max ROE = 14.5% (200 CMR 31.00 (or D.P.U. 11-43, p. 217-219).

New Jersey

- UW New Jersey – Defined time frames (Survey).

New York

- UW New York- Earnings Sharing with Dead band, Multi-Year Rate Deal and Investment Preapproved (Survey).

Pennsylvania:

- State Statute – Rate Consolidation and defined time frames (Survey).

Rhode Island:

- UW Rhode Island - Defined time frames, (Survey).

3.5 Future Test Year

Arkansas:

- State Statute: Utility may use a historical test year or a future test year consisting of 6 months historic and 6 months projected data. (Ark. Code Ann. § 23-4-406, 2008)

California:

- Valencia Water: Future Test Year (Re: Valencia Water Co., 2007 WL 2126602 (Cal. P.U.C. June 21, 2007))

Colorado:

- State Statute: Utility may use a historical test year or future test year (Colo. Rev. Stat. § 40-3-111(1) (2008)).

Florida:

- State Statute: Utility may use a historical test year or a future test year. (Fla. Admin. Code 25-30.430 (2008); Fla. Admin. Code 25-30.443(2)(c) (2008); Fla. Admin. Code 25-30.445 (2008)).

Hawaii:

- State Statute: Future test year. (Haw. Code R. 6-61).

Illinois:

- State Statute: Historic or Future Test Year (Ill. Admin. Code tit. 83 § 287.20).

Indiana:

- State Statute: Future or Hybrid Test Year (SB 560).

Kansas:

- State Statute: Historic or Future Test Year (Kan. Admin Regs. § 82-1-231).

Kentucky:

- State Statute: Historic or Future Test Year (2008 Ky. Rev. Stat. § 278.192).

Mississippi:

- State Statute: Historic or Future Test Year (Miss. Code Ann. § 77-3-37).

Nebraska:

- State Statute: Historic or Future Test Year (291 Neb. Admin. Code ch. 6 § 002).

New Mexico:

- State Statute: Historic or Future Test Year (291 Neb. Admin. Code ch. 6 § 002).

New York:

- State Statute: Historic or Future Test Year (2008 WL 4829205).

Ohio:

- State Statute: Future Test Year (Ohio Rev. Code Ann. § 4909.15C).

Pennsylvania:

- Aqua Pennsylvania - Future Test Year, (Survey).

Tennessee:

- State Statute: Historic or Future Test Year (2007 WL 4812199).

Utah:

- State Statute: Historic or Future Test Year (Utah Code Ann. § 54-4-4).

Virginia:

- State Statute: Historic or Future Test Year (20 Va. Admin Code § 5-200-30(A) (2008)).

Wisconsin:

- Clintonville Water and Electric Utilities: Historic or Future Test Year (2008 WL 1787695).

NOTE: Reader is encouraged to identify all issues on water company alternative regulatory and ratemaking policies for this list of states and water utilities.

Send this and any additional information on relevant cases to:

- Matt McCaffree, Director of State Regulatory Relations, NAWC, (202) 466-3331
- Joe Wharton (415) 515-8259, or (415) 217-1015, joe.wharton@brattle.com
- Bente Villadsen, (617) 234 5608, bente.villadsen@brattle.com

Appendix C
Summary of Water Company ARR Categories by State

Name	DSIC (Distribution system improvement charge)	CWIP in rate base	Revenue True Up Decoupling	Formula Rates or Partly Formula Rates	MultiYear Rate Mechanism: Generally Investment Preapproved	Earnings Sharing with Deadband
Alabama						
Alaska						
Arizona	●		●			
Arkansas		●				
California			●		●	
Colorado		●				
Connecticut	●	●	●		●	
Delaware	●	●				
Florida		●				
Georgia						
Hawaii		●				
Idaho						
Illinois	●	●				
Indiana	●					
Iowa						
Kansas						
Kentucky		●				
Louisiana						
Maine	●	●				
Maryland						
Massachusetts				●		
Michigan						
Minnesota						
Mississippi						
Missouri	●					
Montana						
Nebraska						
Nevada	●		●			
New Hampshire	●					
New Jersey	●	●				
New Mexico						
New York	●	●	●	●	●	●
North Carolina		●				
North Dakota						

Name	DSIC (Distribution system improvement charge)	CWIP in rate base	Revenue True Up Decoupling	Formula Rates or Partly Formula Rates	MultiYear Rate Mechanism: Generally Investment Preapproved	Earnings Sharing with Deadband
Ohio	●	●				
Oklahoma		●				
Oregon		●				
Pennsylvania	●	●				
Rhode Island	●					
South Carolina		●				
South Dakota						
Tennessee		●				
Texas		●				
Utah						
Vermont						
Virginia						
Washington						
West Virginia		●				
Wisconsin		●				
Wyoming						
Ontario						
District of Columbia						

CAMBRIDGE
NEW YORK
SAN FRANCISCO
WASHINGTON
LONDON
MADRID
ROME

THE Brattle GROUP

O&M Expense Savings

Schedule JMW-3

2010 Total O&M expenses	$120.231		
Inflated O&M expenses (see below)	130.772		$130.772
Expenses per filed Case No. WR-2015-0301	122.712	Per 1/31/2016 True-up	122.076
Net expense reduction	$8.060		$8.696
Acquisition expense included in Case No WR-2015-0301	4.572	Per 1/31/2016 True-up	4.898
Savings in expense after removing acquisitions	$12.632		$13.594

	CPI	
2010		$120.23
2011	3.2%	124.078
2012	2.1%	126.684
2013	1.5%	128.584
2014	1.6%	130.641
2015	0.1%	130.772