Missouri Office of the Public Counsel

Analysis of Regulatory Regimes
to
Address Periods of Major Investment by Utilities

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October 6, 2008

EXECUTIVE SUMMARY

The goal of regulation for electric utilities to provide safe and adequate service at just and reasonable rate is as critical today as it has ever been. All parties to that process must address several questions: 1) the ability of residential customers to pay; 2) competitive constraints on commercial and industrial customers to deal with rising utility costs; and 3) the ability of an utility to maintain financial integrity during a construction period. The electric industry is entering a period in which of construction of major base load electric generating facilities may be the best resource strategy. It must be noted that major additions of base load capacity is an infrequent event. Regulation must balance the answers to these questions when determining the proper regulatory regime to use when major base load plants are being considered. Critical questions are being raised regarding the need to change Missouri law in order for the electric industry to continue providing safe and adequate service while maintaining the financial integrity of the utility. Specifically, AmerenUE has publically indicated a desire to change 393.135 RSMo. 2000 to allow investments in construction projects to be included in the rate base used to set current rates. The purpose of this study was to analyze regulatory regimes that could be used during a long-term construction period where the financial integrity of the utility may be adversely affected by the sheer magnitude of the needed investment. This study shows that an alternative to repealing state law produces better results for the utility and its customers than allowing recovery of construction work in progress. This alternative would provide the needed cash flows during a long-term construction period that would increases rate base in excess of 75%, would meet AmerenUE's equity earnings requirement, and would save ratepayers more than $5 Billion over the life of the new electric generating facility. While this study uses AmerenUE financial data, the conceptual analysis is applicable to other utilities facing major construction investments. This regulatory method utilizes specialized financial integrity measures as an overlay to traditional regulatory practices during the construction period and traditional regulatory practices once the construction is complete. It does not require the repeal of a statute passed by referendum.

The electric industry provides an invaluable and essential service to the Missouri economy and its citizens. As the 2003 black-out in the Northeast effecting over 50 Million people and the 2000 - 2001 Western Energy Crisis that crippled California highlighted, the failure to provide this basic service can cripple the American way of life. Our economy is becoming more dependent, not less, on electric service. The industry is now entering a period where the challenge of balancing supply and demand for electricity is becoming more difficult. The excess production capacity position of electric providers that has influenced industry practices and trends since the mid 1980s is rapidly fading away. Demand growth has effectively eliminated much of the excess capacity. There are multiple approaches to achieving the needed balance between supply and demand and adequate system reserves. Experience, current planning alternatives, and fundamental engineering clearly indicate that Missouri electric utilities will

have to make large investments to achieve this balance regardless of whether those investments are for demand-side programs, traditional power plant construction, or renewable resources such as wind or bio-mass. Large investments place all stakeholders in the industry (ratepayers, stockholders, and debt providers under financial stress. A critical financial consideration that a utility faces is maintaining access to the capital markets (both equity and debt) during periods of major investments. The ability of a utility to maintain certain financial ratios is used by the investment community to determine not only the cost of monies provided to the utility but also whether to provide the monies via the debt market at all. The determination of the cost of money and therefore the impact of the new investment on revenue requirement is crucial to determining what investments are necessary to balance loads and resources.

The purpose of this analysis was to compare the revenue requirements of different regulatory regimes if they are used to set rates in Missouri during a period of major construction projects or investments in utility service. This study was not intended to look at other important implications such as ratepayer's ability to pay or ability to remain competitive and survive given increases in electric costs. The performance measures in this analysis to compare specific regulatory regimes were: cost for ratepayers; return on stockholder investment, and adequate debt service. The financial ratios, referred to as financial metrics, resulting from each of the regulatory regimes included in the analysis were calculated to determine the resulting levels of cash flow from each of the three regimes. The three regulatory regimes identified as potentially viable options for Missouri during periods of major new investments were: 1) Traditional Rate of Return Regulation (TRRR), 2) Construction Work in Progress Rate of Return Regulation (CWIP), 3) Cash Metric Regulation (CMR). The TRRR model served primarily as a baseline because experience has shown that during these infrequent periods of extremely large construction projects relative to the rate base, utilities require significantly higher levels of cash flow compared to normal operations including routine levels of construction.

Regardless of the regulatory regime used, large investments to keep supply and demand in balance will result in higher rates. The analysis was based on the assumption that Traditional Rate of Return Regulation would be utilized following the construction period.

The purpose of this analysis is not to advocate for any specific approach for balancing supply and demand. The underlying analysis utilizes an investment with a long construction period. These types of projects place the greatest strain on the financial resources of the utility, its stockholders, and the debt investors. Thus, the analysis is premised on looking at what could be termed the worst case scenario.

The underlying parameters of the analysis included the following:

1. An investment of $6 Billion, which is AmerenUE's estimate of the cost of a new nuclear generating electrical facility. Such an investment would approximately double existing rate base.
2. Financial data to serve as a base line for investment, revenue and expenses was from AmerenUE's current rate case filing, Case No. ER-2008-0318.
3. A construction cycle from six to eight years. (this can be varied in the model)
4. Annual rate relief to reflect current revenue requirements.

5. Investment life cycle of sixty years. (this can be varied in the model)
6. The relationship of investment (other than the major project) to customers does not change due to normal operations which would include small construction projects and customer growth.

The goals of a regulatory regime related to 1) providing a fair and adequate return on real stockholder investment in property providing electrical service to customers and 2) providing for debt service were met in the analysis by incorporating a reasonable return on equity into the revenue requirement calculations for each regulatory regime. Similarly, the adequacy of the model's resulting cash flows indicated whether or not the model produced adequate resources to service the outstanding debt. The model analyzed the incremental revenue requirements of the new investment over its life cycle under each of the regulatory regimes analyzed.

Cash Metrics Regulation had the lowest cost over the life cycle of a $6 Billion investment resulting in ratepayers paying incremental revenue of $19,586,994,324 over sixty-nine years or 3.26 times the value of the initial investment. CWIP required ratepayers to pay $25,224,090,007 of revenues over the same time period which results in revenues equaling 4.20 times the same initial $6 Billion investment. Finally, TRRR would require ratepayers' payments of $34,319,972,002 over the same time frame. TRRR also produced the largest multiplier of the initial investment, 5.72 times. A long-life asset will serve multiple generations of ratepayers. The differences between the lower cost CMR revenue stream and the revenue streams produced by the other two regulatory regimes is the level of earnings that a utility would receive under each regulatory regime. Therefore, if rates were set based on either the CWIP or TRRR regulatory regimes, the result would be a transfer of wealth from the ratepayers to the utility equal to the incremental difference. The following table sets out the incremental revenue requirements and savings for each of the three regulatory regimes studied.

REGULATORY REGIME ANALYSIS	Life –Cycle Incremental Revenue Requirement due to $6 B. Investment	Incremental Revenue Requirement as a multiple of the $6 B. investment	Additional Incremental Revenue Requirement as compared to Cash Metrics Regulation
Cash Metrics Regulation	$ 19,586,994,324	3.26	$ -0-
Construction Work in Progress Rate of Return Regulation	$ 25,224,090,007	4.20	$ 5,637,095,683
Traditional Rate of Return Regulation	$ 34,319,972,002	5.72	$ 14,732,977,678

The CMR model was the only regulatory regime analyzed which provided cash flows adequate to meet the minimum criteria published by Standard & Poors to be classified as an Intermediate or Modest financial risk company (criteria as published in Standard & Poor's Ratings Direct, November 30, 2007). Both the CWIP and TRRR models resulted in financial metrics for these two metrics that would be classified as either Aggressive or Highly Leveraged which are the highest financial risk classifications.

The CMR regime offers several ratepayer benefits in comparison to a CWIP regime. These benefits include:

1. Consistent with 393.135 RSMo. 2000, passed by initiative referendum, no return on equity is paid on investment in utility property until the property is used and useful in providing electrical service.
2. Incentives remain in place to perform construction in a timely and cost efficient manner in order to place the property in-service at a minimum of risk to the stockholder.
3. A transfer of wealth from ratepayers to stockholders during the construction period does not occur because ratepayers are given credit for the additional monies paid above the TRRR regime revenue requirement.
4. Ratepayers are given immediate recognition of the "return of" investment they provide, thus minimizing intergenerational inequity concerns.
5. Risk associated with capital recovery of long-lived assets is reduced because ratepayers provide a faster "return of" the capital invested in the utility.
6. CMR does not require ratepayers to pay a "return on" investment that is not currently used and useful in providing current service and potentially might never provide service to ratepayers.

The measurement of the incremental revenue requirements was performed on a nominal dollar basis. Some might argue that the revenue streams provided by the ratepayers should be viewed on a present value basis. This assertion would ignore a basic fact of life, that is, the composition of the body of ratepayers is constantly changing. Therefore the inherent assumption of present value analysis of what an individual or entity would pay today in exchange for a benefit of a future revenue stream is questionable in this context since the individuals and other customers such as industrial and small business customers that make up the "body of ratepayers" is constantly changing. A disconnect thus exists between the theory of present value analysis requiring a static entity and the reality that ratepayers who ultimately will pay for the investment are constantly in a state of change, as many future ratepayers are not even alive today or an industrial customer who will open a new facility in the service territory may not even be in existence today. Therefore, the nominal dollar is an effective measure of cost efficiency of the various regulatory regimes analyzed.

During the construction period, both the CWIP and TRRR models failed to provide adequate cash flows to meet the financial metrics utilized as a measure of financial integrity. The only way to provide additional cash flows to a utility (other than the use of depreciation as used in the CMR regulatory regime) is to set rates based on a higher return on equity than normally would be found reasonable. The model calculated the needed equity returns necessary to meet the financial returns. AmerenUE requested a 10.9% return on equity in its pending rate case, Case

No. ER-2008-0319. In contrast, the model showed required equity returns of 15.75% to 19.39% for the CWIP regulatory regime and 16.20% to 47.90% for TRRR. The overall incremental revenue requirement under these assumptions also increased when equity return had to be increased to maintain adequate cash flow metrics. The following table sets out the results.

REGULATORY REGIME ANALYSIS	Life –Cycle Incremental Revenue Requirement due to $6 B. Investment	Incremental Revenue Requirement as a multiple of the $6 B. investment	Additional Incremental Revenue Requirement as compared to Cash Metrics Regulation
Cash Metrics Regulation	$ 19,586,994,324	3.26	$ -0-
Construction Work in Progress Rate of Return Regulation with Financial Integrity Maintained	$ 29,495,845,440	4.91	$ 9,908,851,116
Traditional Rate of Return Regulation with Financial Integrity Maintained	$ 41,669,735,890	6.94	$ 22,082,744,566

When the model incorporates a review and makes any necessary adjustment of equity return in order to maintain the utility's financial integrity under a CWIP and TRRR regime, not only is CMR lower than the other two regimes on a nominal dollar basis, the net present value of the incremental revenue streams under CMR is lower than the other two regimes.

During the last major construction cycle, a third method of enhancing cash flow was available to regulators to supplement TRRR regulation. Without going into excruciating detail regarding the treatment of income tax depreciation, it is sufficient to indicate that the Commission could set rates with a certain treatment of tax depreciation that provided additional cash flow. It is important to note that the ratepayer was given credit for providing these cash flows via a rate base reduction, similar in result to how CMR treats the additional cash flows. The Tax Reform Act of 1986 eliminated this discretion for regulatory commissions, thus leaving depreciation and earnings as the only methods available to provide significant cash flow increases.

REGULATORY REGIMES DESCRIPTIONS

A. Traditional Rate of Return Regulation

Traditional Rate of Return Regulation (TRRR) sets rates designed to provide the stockholders with an opportunity to earn a reasonable return on their equity invested in facilities, property and other assets that are currently used and useful in the provision of utility service to current customers. In addition, the rates are designed to provide adequate revenues to pay all expenses including interest expense on debt that supports facilities, property and other assets that are

currently used for the provision of utility service to current customers. The total costs (expected to be incurred) over a twelve month period (commonly referred to as the test period) are reviewed and compared to revenues (that would be received) based on the level of customers and customer usage that will occur over that same twelve month period.

Revenue Requirement is the regulatory term of art to identify the level of costs used to develop rates. The Revenue Requirement can be expressed in the following formula:

> Revenue Requirement = Overall Return on Rate Base + Expenses.

The term "Overall Return on Rate Base" as used in the above formula is equal to the rate base times the overall rate of return. The overall rate of return would include not only a reasonable rate of return on equity but also the cost of debt. Other return costs might include preferred stock or special investment instruments but these items are usually not significant in the capital structure of a public utility. The term Rate Base refers to the original cost of all investments prudently required to supply electrical service (that are supported by the equity investors or debt providers) less the associated Accumulated Depreciation Reserve (which is the total of the "return of" capital invested). The term "Expenses" includes applicable taxes along with all other prudent operating and maintenance expenses plus depreciation expense. Another way of stating the formula is as follows

> Revenue Requirement = Operating Expenses + Depreciation Expense + Taxes + Interest Expense + Return on Equity

The right side of either equation is commonly referred to as the overall cost of service. Rates are set so that revenues are equal to the overall cost-of-service. Revenue Requirement (thus revenues) is not a component of the overall cost-of-service but rather a result thereof. The following example will show of how the Return on Equity is calculated in total dollars (not as a percentage):

> Return on Equity = Revenue – (Operating Expenses + Depreciation + Taxes + Interest Expense)

This equation is the same as the revenue requirement formula used to set rates; simply restructured to solve for the Return on Equity (in dollars or commonly referred to as Earnings) realized from the regulated operations of the Company. TRRR does not ignore the earnings and other financial implications of investments of a construction project during the period of construction. Allowance for Funds Used During Construction (AFUDC) is a mechanism that recognizes the financing costs, both debt and equity, associated with the investment in the construction project and capitalizes those costs (adds to the cost of the construction project). When the construction project is subsequently placed in-service, the rate base value reflects both the actual cost of construction plus the capitalized AFUDC. The utility is allowed to earn a return on the entire capitalized cost (construction expenditures plus AFUDC) plus a return of (depreciation) the capitalized cost over the service life of the asset.

A critical point that should be recognized in analyzing any regulatory regime is that it is the comparison or relationship between costs, customer levels, and sales levels (such as kWh) that is critical in order to appropriately set rates. Rates are not developed with the intent of collecting a certain absolute level of revenue in order to cover a specific level of costs. The development of the specific rates recognizes that certain costs fluctuate with changes in customer usage or number of customers. The risk factor inherent in the authorized rate of return also recognizes that actual earnings levels may fluctuate. Rates are set to reflect the relationship between customer levels and sales versus the cost necessary to provide service to those same customer levels and sales. It is recognized that customer levels or sales will fluctuate and therefore revenues will fluctuate. If and only if the "relationship" between revenues and the revenue requirement no longer produces a reasonable return on equity, is it appropriate or necessary to change rates.

B. Construction Work in Progress Rate of Return Regulation

Construction Work in Progress Rate of Return Regulation (CWIP) is similar in format to TRRR except that all investment cost related to property that is being built or developed for use in the provision of future utility service is included in the rate base for the purpose of setting rates along with the original net cost of properties already in-service.

This regime creates a larger rate base during the construction period, thus increasing revenues to provide both an equity return and interest expense as it relates to the projects being constructed that would not be included in rate base under TRRR. As previously discussed, TRRR regulation does not ignore the financial costs that are incurred during the construction period. Conversely, under CWIP, AFUDC is generally not capitalized to the value of the construction project. Under certain circumstances using a CWIP regulatory regime, it might be appropriate to compute AFUDC on interim additions to the construction project that have not been reflected in rate base. The model utilized AFUDC on interim construction additions for the CWIP regime analysis.

Pursuant to Section 393.135 RSMo 2000, a CWIP regulatory regime as discussed herein is unlawful for the setting of an electric utility's retail rates in Missouri.

C. Cash Metrics Regulation

Cash Metrics Regulation (CMR) is the term used to describe the regulatory plans used for Kansas City Power & Light, Case No. EO-2005-0329 and Empire District Electric Company, Case No. EO-2005-0263. CMR determines the revenue requirement in a two-step process. The first step is to develop a TRRR revenue requirement consistent with the process described above for TRRR. The second step is to calculate the cash flows that will result from the TRRR revenue requirement and compare the resulting financial ratios (metrics) to base-line metrics. If cash flows from TRRR are not adequate to meet the metrics, the revenue requirement is increased to reflect the needed additional cash and any associated income tax impact. An illustrative equation looks similar to that of TRRR but contains one additional element:

> Revenue Requirement = Operating Expenses+ Depreciation Expense + Taxes + Interest Expense + Return on Equity + Additional Amortizations (if necessary)

The financial metric benchmarks used for comparison purposes should be set by the regulatory commission so as to achieve certain financial goals (ex. expected debt costs, security ratings, and ready access to capital markets).

A critical point that must be recognized is that the additional cost to ratepayers, if and only if necessary to meet cash flow requirements during the construction period under a CMR regime, is recorded as depreciation expense on the financial statements of the utility and thus increase Accumulated Depreciation Reserve. Accumulated Depreciation Reserve is the accumulation of the "return of" capital (i.e. investment) to the utility by ratepayers and is used as an offset (reduction) to rate base in the ratemaking process. Capital recovery is a major risk in any investment decision. A basic purpose of this Commission's setting depreciation rates is to provide the utility a reasonable opportunity to recover its capital investment. CMR results in an acceleration of the capital recovery, thus mitigating the risk of capital recovery.

CONCLUSION

Cash Metrics Regulation (TRRR with an overlay of financial integrity measures during a period of construction) provides a viable alternative regulatory regime. CMR: 1) provides ratepayers with value for any revenues provided to the utility in excess of those under TRRR, 2) provides stockholders with a reasonable return on their actual investment in the utility, 3) maintains the financial integrity of the utility, and 4) does not require the repeal of statutes passed by the vote of Missourians. This study does not look at company specific projections or future budgets or other factors that could have some influence and change the expected savings under CMR. However, it would be my expectation that the relative relationships between the various regimes would not change with respect to financial integrity because cash flow results from only two factors: 1) return on equity and 2) depreciation expense. Therefore, unless a dramatic change occurs in the investment per customer under normal operations, the relationship between the cash flows generated under the different regimes will not materially change.

Major construction projects will have significant influences on all ratepayers and the utilities providing service to them. This study addresses only two of the factors, a utility's financial integrity and the resulting impact on revenue requirements, which the Missouri Public Service Commission should consider when addressing the rate implications of such projects. Absent the need to address the financial integrity concerns of a major construction project as described herein, this study provides no support for any assertion that TRRR is not the best regime for a utility with normal levels of construction. A witness for Missouri's largest telephone company stated in sworn testimony in Case No. TC-89-14 that, "The purpose of regulation is to set the price charged by a monopoly provider of service equal to its costs of production, the same ideal result as occurs in a perfectly competitive market". He went on to state that efficiencies are passed on to ratepayers and that "This outcome of the regulatory process is no different than markets provide under perfect competition." TRRR ensures ratepayers receive just and reasonable rates and is consistent with legal review which found "The Commission's principal

interest is to serve and protect ratepayers…." (State ex rel. Capital City Water Co. v. Missouri Pub. Servs. Comm'n, 850 S.W.2d 903, 911 (Mo. Ct. App. 1993)).