To: Missouri Public Service Commission Staff

From: Missouri Department of Natural Resources Division of Energy

Date: July 22, 2011

Subject: MDNR responses to questions raised in the EW-2011-0372 Rate Design Workshop.

At the June 29, 2011 public workshop session, the Missouri Public Service Commission Staff posed several questions regarding interpretation of the rate design modification passage in section 393.1075.5 of the Missouri Energy Efficiency Investment Act (MEEIA, 2009). Below are the responses of the Missouri Department of Natural Resources, Division of Energy (MDNR) to the questions raised in the workshop agenda.

A. What is meant by "rate design modification"?

"Ratemaking" addresses the construction of a utility's revenue requirement, and "rate design" addresses the allocation of a revenue requirement across a utility's customer classes. This distinction is made by Faruqui and Earle (2006):

> The process of setting tariffs consists of two major steps. The first step is called *ratemaking* and involves a determination of revenue requirements. The second step is called *rate design* and involves the allocation of revenue requirements into functions (generation, transmission, and distribution), class of service (residential, commercial, government, agricultural, and industrial), voltage level (primary, secondary, and tertiary), category (demand, energy, and customer) and time-of-use (seasonal, time-of-day). (38, emphasis added)[1]

Therefore "rate design modification" refers to changes in rates to provide an incentive for reduced electricity use by customers, especially customers in the residential and small general service classes. There is a substantial literature describing rate designs (i.e., methods of allocation) to incent energy efficiency (see Faruqui and George, 2006; Parmesano, 2007; and Pollock and Shumilkina, 2010). Many of these authors endorse rate designs that vary rates so that prices are closer to the marginal cost of electricity. Because the marginal price of electricity varies with demand, these authors maintain that the electricity rates customers pay should vary as well. These rates, time of use rates, peak-critical pricing rates, real-time-pricing rates, etc., presume a level of automatic metering infrastructure (AMI) that is not widely available to Missouri ratepayers. Short of time-varying rates, the authors present a common set of options for rate designs, including

- Customer class specific rate structures,
- Inclining block rates, and
- Seasonally adjusted rates.

Each of these authors suggests that rates should vary by customer class, with simpler rate structures assigned to residential and small general service classes, and more complex rates assigned to classes of larger commercial and industrial users. The logic behind this overall structure stems from the technological ability of more specialized customer classes to actively manage their electricity use.

Authors unanimously endorse use of an inclining block or tier structure. The simple idea is that customers that use more electricity should pay more for it. Pollock and Shumilkina, (2010: 6) argue that the block structure should have some exceptions for home-bound customers and customers who rely on

[1] See also, Re Missouri Gas Energy, GR-2009-0355 Mo.P.S.C.3d __ (2010); Report and Order dated February 10, 2010: 9.

medical devices, i.e., customers whose high electricity use is not entirely voluntary. However, the consensus is that rates should increase for high electricity users. The issue is how to define the blocks (e.g., how many blocks are necessary, how large should the first block be, how much to increase the subsequent blocks, etc.) and whether to incent changes in specific end-uses, e.g., whether to have a specific rate for air conditioning use.

Seasonal rates are also endorsed, by authors such asParmesano (2007) and Pollock and Shumilkina (2010), as a method to vary with marginal electricity cost. Adjusting rates to account for a summer or winter peak use is consistent with this position.

Missouri electric utility tariffs include declining block rates with a seasonal adjustment for residential customers and small general service classes. MDNR supports investigations into rate design modifications that provide an incentive for reduced energy usage, especially in the residential and small general service classes. This includes pursuing policies that phase out declining block rate structures. However, changes in the current block structure should be accompanied with robust energy efficiency programs and educational programs that would protect customers from rate shocks.

B. What is decoupling?

The goal of decoupling is make the recovery of the utility revenue requirement independent of the volume of electricity sales, thus resolving the throughput incentive. The throughput incentive encourages utilities to sell more energy units to recover their fixed costs. Decoupling is a ratemaking mechanism that removes the throughput incentive by allowing adjustment to rates to recover the utility's annual revenue requirement (called a "revenue target") regardless of the number of energy units actually sold. The implementation of decoupling removes one disincentive to utility DSM programs by supporting revenuw recovery.

Definitions and discussions of decoupling are presented by the Regulatory Assistance Project (RAP) (2011) and Rich Sedano (2010). The RAP volume is a thorough examination of decoupling strategies and the impact of decoupling structures of utility revenues, return on equity, and customer rates. The discussion below highlights only the most general points of a decoupling mechanism.

RAP distinguishes between three general types of decoupling (2011, 11-13). "Full decoupling" allows rate adjustments to recover a revenue target regardless of the source of the deviation from that target. "Partial decoupling" bases the rate adjustment on other areas of utility performance, such as meeting a DSM performance target. Partial decoupling mechanisms can resemble performance incentives, since the size of an annual rate adjustment is dependent on performance in another area, such as the participation or savings rate of a utility's DSM portfolio. "Limited decoupling" allows recovery of particular types of losses. For example, under a limited decoupling mechanism deviations from the revenue target due to DSM programs could be recovered. Limited decoupling is similar in effect to lost-revenue adjustment mechanisms.

The annual variation in energy sales requires that rates adjust to meet the revenue target. Theoretically, the adjustment can be either a customer credit (for situations where a utility collects more than its revenue target, i.e., in the case of DSM programs that do not reduce sales) or an additional charge (for situations when a utility collects less than its revenue target, i.e., in the case of DSM programs that reduce sales). Sedano notes that these adjustments, or "true-ups", do not change a utility's overall revenue requirement, and recommends that the true-ups be approved outside of a rate case (17).

Decoupling mechanisms provide a method for resolving utility losses (aka "lost revenues") due to DSM programs by recovering the revenue requirement established in a rate case independent of sales. Annual rates are increased or decreased by comparing actual sales to the established revenue requirement on an annual or periodic basis. Lowry and Makos (2010) outline three ways of addressing lost revenues. Their discussion highlights lost-revenue adjustment mechanisms (LRAM), straight fixed variable (SFV) rates and decoupling mechanism with a true-up. They are generally in favor of the decoupling mechanism with a true-up method described by Sedano.

C. Is decoupling a rate design modification?

Sedano (2010) argues that decoupling is not a rate design. Decoupling does not impact the rate structure of a customer class; rather decoupling impacts the amount of revenue to be recovered from that class. The Regulatory Assistance Project (2011) defines decoupling as:

> …an adjustable price mechanism that breaks the link between the amount of energy sold and the actual (allowed) revenue collected by the utility. (1)

Based on these definitions decoupling is not a rate design, nor is a change in the revenue targets authorized under a decoupling scheme a "rate design modification." Using the definitions from the response to Question A, decoupling is ratemaking. Decoupling mechanisms set annual revenue targets based on the utility's revenue requirement. Once set, these revenue targets are then allocated through the rate design structure. Regardless of whether decoupling is classified as rate making or rate design, MDNR recommends that decoupling mechanisms be investigated as a possible solution to the problems of resolving the throughput incentive.

D. Is decoupling lawful in Missouri?

The general decoupling mechanism described by Sedano, 2010 features annual rate adjustments outside of a rate case. In Sedano's ratemaking structure, there is an established schedule for full rate cases, for example every three years, with annual adjustment of rates between rate cases. These annual adjustments act as revenue true-ups that adjust rates so that annual revenue targets are met. Section 4 CSR 240-20.093(4) of the MEEIA rules provide for recovery of program costs outside of a rate case.

E. What is meant by "cost recovery"?

"Cost recovery" is not explicitly defined in the MEEIA rules. "Lost Revenues" are defined in 4 CSR 240-20.093(1)(Y) and 4 CSR 240-20.094(1)(U). The "cost recovery component" of a DSIM is defined in 4 CSR 240-20.093(1)(I):

> (I) Cost recovery component of a DSIM means the methodology approved by the commission in a utility's filing for demand-side program approval to allow the utility to receive recovery of costs of approved demand-side programs with interest;

However, the details of the "cost recovery component" are not defined in either the MEEIA law or its rules.

The common definition of "cost recovery" is limited to program costs (i.e., DSM measure costs and program administration costs), while performance incentives and lost revenues are defined elsewhere in the MEEIA rules. Without an explicit definition of "cost recovery" limiting costs to "program costs", a utility could define the costs to be recovered as part of their DSIM application.

F. What is meant by "study the effects"? What are we to study the effects on? Rates, utility earnings, customer savings etc.?

The phrase "study the effects" could be interpreted to call for review of the changes discussed in this workshop, i.e., decoupling and rate designs to encourage energy efficiency, through both Missouri-based evaluation and review of existing studies in other states. Using evaluation results requires program designs that allow assessment of participants' energy usage patterns in light of changes in customer bills and levels of DSM spending. Review of existing studies, such as those cited in the response to Question A, facilitates assessment of program impacts before Missouri-specific results are available. Other states have experience with decoupling and rate designs that support energy efficiency; their experiences can help guide Missouri's development of effective energy policies.

G. Other issues related to statutory language

MDNR does not have a response to this question at this time, but reserves the right to return to this question.

H. What is the relationship of a rate design modification to the MEEIA rules?

MDNR does not see a clear relationship between a rate design modification and the MEEIA rules. According to the definitions of ratemaking and rate designs cited in the response to Question A above, the MEEIA rules address issues of ratemaking, i.e., the establishment of a revenue requirement and revenue targets to be recovered in rates.

I. How does this process start: Does the statutory language mean that we first need a specific proposal to study?

The DSM Plan/DSIM structure envisioned by the MEEIA rules anticipates a particular set of programs and a particular recovery mechanism for each utility. Program costs can be recovered semi-annually, but lost revenues and performance incentives are determined retrospectively, after program savings have been verified through program evaluation (see 4 CSR 240-20.094(3)(A)). This implies that the process of "studying the effects of a cost recovery mechanism" begins with a utility's DSIM filing.

In the event that one or more of DSIM applications propose decoupling mechanisms, MDNR recommends that applications address the following issues in addition to the required analyses in the MEEIA rules:

- Specifying the type of decoupling mechanism proposed. The application should state whether a full, partial or limited decoupling mechanism is being considered.
- Specifying the rate classes the decoupling mechanism applies to.
- Specify a schedule of full rate cases and annual revenue adjustment reviews and true-up periods.
- Describe the methodology for establishing revenue targets.
- Describe the methodology for assessing the deviations from revenue targets.
- Describe the methodology for determining the size of any revenue adjustments.
- Provide an example showing the decoupling adjustment on customer bills.
- Demonstrate how the proposed decoupling mechanism will impact utility financials, i.e., return on equity and/or impacts on utility debt rating.

The inclusion of this detail could expedite consideration of decoupling proposals.

J. Other issues related to how to fulfill legislative directive

MDNR does not have a response to this question at this time, but reserves the right to return to this question.

References

Energy Information Administration, 2010. State Energy Data System. United States Department of Energy. http://www.eia.gov/state/state-energy-profiles.cfm?sid=MO

Faruqui, A. and Earle, R., 2006. "Rate Case Mania: Lessons for a new generation." Public Utilities Fortnightly, February, 2006: 36-41.

Faruqui, A. and George, S., 2006. "Pushing the Envelope on Rate Design." The Electricity Journal, 19:2, March 2006: 33-42.

Lowry, M. and Makos, M., 2010. Review of Distribution Revenue Decoupling Mechanisms. Pacific Economics Group Research. Retrieved May 31, 2011 from http://pacificeconomicsgroup.com/mnl/Revenue%20Decoupling%20Report.pdf

Missouri Energy Efficiency Investment Act, 2009. Section 393.1124, RSMo,

Missouri Public Service Commission, 2011. 4 CSR 240-3.163 "Electric Utility Demand-Side Programs Investment Mechanisms Filing and Submission Requirements"

Missouri Public Service Commission, 2011. 4 CSR 240-3.164 "Electric Utility Demand-Side Programs Filing and Submission Requirements"

Parmesano, H., 2007 "Rate Design is the No. 1 Energy Efficiency Tool" The Electricity Journal, 20:6, July 2007: 18-25.

Pollock, A. and Shumilkina, E., 2010. How to Induce Customers to Consumer Energy Efficiently: Rate Design Options and Methods. National Regulatory Research Institute. January, 2010. Retrieved May 31, 2011 from www.nrri.org/pubs/electricity/NRRI_inducing_energy_efficiency_jan10-03.pdf.

Regulatory Assistance Project, 2011. *Revenue Regulation and Decoupling*: A guide to theory and application. Retrieved June 30, 2011 from http://www.raponline.org/docs/RAP_RevenueRegulationandDecoupling_2011_04.pdf

Sedano, R., 2010 "Decoupling Supporting Energy Efficiency for Alaska Consumers and Utilities" Regulatory Action Project. Retrieved May 31, 2011 from http://www.raponline.org/docs/rap_sedano_decouplingsupportingeeforak_akrca_2011_04_19.pdf