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Issues:	Volume Balancing Adjustment Rider; District Consolidation; Residential Rate Design
Witness:	Martin R. Hyman
Sponsoring Party:	Missouri Department of Economic Development – Division of Energy
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Case Nos.:	GR-2018-0013

MISSOURI PUBLIC SERVICE COMMISSION

LIBERTY UTILITIES (MIDSTATES NATURAL GAS CORP.)
d/b/a LIBERTY UTILITIES

CASE NO. GR-2018-0013

REBUTTAL TESTIMONY

OF

MARTIN R. HYMAN

ON

BEHALF OF

MISSOURI DEPARTMENT OF ECONOMIC DEVELOPMENT

DIVISION OF ENERGY

Jefferson City, Missouri
April 13, 2018

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company	))))))	**File No. GR-2018-0013**

AFFIDAVIT OF MARTIN HYMAN

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Martin R. Hyman, of lawful age, being duly sworn on his oath, deposes and states:

1. My name is Martin R. Hyman. I work in the City of Jefferson, Missouri, and I am employed by the Missouri Department of Economic Development as a Planner III, Division of Energy.
2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of the Missouri Department of Economic Development – Division of Energy.
3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge.

Martin R. Hyman

Subscribed and sworn to before me this 13th day of April, 2018.

LAURIE ANN ARNOLD
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: April 26, 2020
Commission Number: 16808714

Notary Public

My commission expires: 4/26/20

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Martin R. Hyman. My business address is 301 West High Street, Suite 720, PO Box 1766, Jefferson City, Missouri 65102.

Q. By whom and in what capacity are you employed?

A. I am employed by the Missouri Department of Economic Development – Division of Energy ("DE") as a Planner III.

Q. Have you previously filed testimony before the Missouri Public Service Commission ("Commission") in this case?

A. Yes. I filed Direct Testimony on low-income energy assistance, a Red-Tag Repair Program, and energy efficiency program funding.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your Rebuttal Testimony in this proceeding?

A. The purpose of my testimony is to respond to Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty" or "Company") regarding its proposed Volume Balancing Adjustment ("VBA") Rider, as well as to the Company and Commission Staff ("Staff") regarding district consolidation and residential rate design. DE is not opposed to a decoupling mechanism if the Company meets the energy efficiency spending recommendation in my Direct Testimony, along with the recommendations provided in this testimony; DE takes no position on the exact format of the VBA so long as it is structured to comply with Section 386.266.3, RSMo. and provides bill credits on a per-customer basis.

DE's responses and associated recommendations as to district consolidation and rate design are as follows:

1. The Commission should not order the district consolidations recommended by other parties in this case;
2. Residential customer charge increases, as recommended by other parties in this case, should not be implemented;
3. DE recommends the adoption of moderate inclining block rates for winter billing months for residential customers, subject to the criteria outlined below;
4. Staff's proposed summer residential alternative inclining block rate design is reasonable under certain conditions and subject to some modifications to mitigate potential bill impacts on the 95th percentile of customer bills; and,
5. Staff and the Company should provide their rate designs based on each other's revenue requirement recommendations in order to facilitate bill impact analyses based on comparable revenue requirements.

My recommendations are based on the policy discussions in this testimony and my Direct Testimony, as well as the bill frequency and bill impact analyses present in Section VI.

III. VOLUME BALANCING ADJUSTMENT RIDER

Q. What is the VBA?

A. The VBA – a form of "decoupling"[1] – is a ratemaking tool through which Liberty would be provided with a greater opportunity to meet its revenue requirement by comparing actual and authorized revenues. By more closely aligning the Company's revenue recovery with

[1] See Regulatory Assistance Project, 2016, *Revenue Regulation and Decoupling: A Guide to Theory and Application*, http://www.raponline.org/wp-content/uploads/2016/11/rap-revenue-regulation-decoupling-guide-second-printing-2016-november.pdf, pages 11-13.

its revenue requirement, Liberty will be more able to undertake customer-benefitting energy efficiency programs with less concern as to lost sales.

As its alternative name suggests, the VBA would "decouple" sales volumes of natural gas from the revenues earned by the Company, and would be applicable only to residential and small general service customers. The VBA would be recalculated annually based on a comparison of current and authorized Company revenues per hundred cubic feet ("CCF"),[2] with customers receiving either volumetric bill credits or surcharges to account for under- or over-collection of Liberty's revenue requirement.[3]

Q. Why is it important to support energy efficiency programs for customers?

A. Energy efficiency empowers participating customers to better control their usage, improves bill affordability for participating customers, and can reduce costs for all customers in the long run by avoiding the need for additional investment in plant. Energy efficiency also reduces reliance on imports of natural gas from outside the state of Missouri, improving energy security.

Q. Is the decoupling of natural gas sales based on weather and end-use efficiency addressed by the Missouri statutes?

A. Yes. Section 386.266.3, RSMo. states:

[2] The Company's proposed tariff generally refers to CCF, but there is a reference to, "… separate per therm adjustments …" as well on proposed Sheet No. 67.2. See Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, MFR Exhibit No. 1, September 29, 2017, Volume Balancing Adjustment – Rider VBA, Sheet Nos. 67-67.5.

[3] Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, MFR Exhibit No. 1, September 29, 2017, Volume Balancing Adjustment – Rider VBA, Sheet Nos. 67-67.5.

> Subject to the requirements of this section, any gas corporation may make an application to the commission to approve rate schedules authorizing periodic rate adjustments outside of general rate proceedings to reflect the nongas revenue effects of increases or decreases in residential and commercial customer usage due to variations in either weather, conservation, or both.

Q. Does the Company have other mechanisms in place or available to stabilize its revenues?

A. Yes. The first of these mechanisms is the Purchased Gas Adjustment ("PGA") clause and the accompanying Actual Cost Adjustment ("ACA") mechanism. The PGA creates a "pass-through" for the commodity costs of natural gas purchased by the Company, while the ACA accounts for any over- or under-collections resulting from the PGA.[4] Since Liberty purchases the natural gas that is ultimately supplied to customers, changes in usage pose a risk to the Company's ability to recover natural gas commodity costs. The PGA and ACA create neutrality in the collection of natural gas commodity costs, over which natural gas distribution utilities have limited control.

Additionally, the Company has the ability to use the Infrastructure System Replacement Surcharge ("ISRS"), which involves a bill rider that directly recovers from customers the costs of eligible distribution system replacements. The ISRS also contains a true-up mechanism to account for over- or under-recovery of revenues.[5] The ISRS allows recovery

[4] See Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Staff Report – Cost of Service, March 2, 2018, page 52, lines 6-9. The PGA is mentioned in portions of 4 CSR 240-13 and at 4 CSR 240-40.018(1)(B), but does not appear explicitly in statute.

[5] See Sections 393.1009, RSMo. through 393.1015, RSMo.

of certain distribution system replacement costs in a more accelerated manner than is allowed by the timing of traditional rate cases.

Q. Why is the VBA a potential alternative to other rate design mechanisms?

A. The VBA is designed to provide the Company with sufficient recovery of costs and revenues to make it indifferent to changes in customer usage, allowing Liberty to continue to promote energy efficiency programs without being as concerned about lost sales.[6] The VBA would also allow the Company to implement rate designs that better encourage energy efficiency through lower fixed charges.

Q. Are you concerned that the proposed VBA could adjust rates based on factors other than weather and/or conservation?

A. Yes. The Company's proposal would adjust rates based on a comparison of all distribution commodity revenues volumetrically, without any recognition of differences due to weather, conservation, and/or energy efficiency. In Spire Missouri, Inc.'s most recent rate case, the Commission rejected a decoupling mechanism proposed by Spire Missouri, Inc. partly because of similar concerns and instead ordered a weather-based adjustment mechanism for residential customers only.[7]

[6] See Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Direct Testimony of Robert B. Hevert (ScottMadden, Inc.) On Behalf Of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities, September 29, 2017, page 17, lines 7-10.

[7] Missouri Public Service Commission Case Nos. GR-2017-0215 and GR-2017-0216, *In the Matter of Laclede Gas Company's Request to Increase Its Revenues for Gas Service* and *In the Matter of Laclede Gas Company d/b/a Missouri Gas Energy's Request to Increase Its Revenues for Gas Service*, Report and Order, February 21, 2018, pages 83-85.

Q. Do "conservation" and "energy efficiency" mean the same thing?

A. While "conservation" and "energy efficiency" are conceptually distinct terms, the Commission should note that the two are often used interchangeably. From a technical perspective, "conservation" involves only a reduction in usage, while "energy efficiency" involves a reduction in usage that achieves the same end use – e.g., the difference between lowering the thermostat settings in winter in order to use the furnace less often versus replacing an inefficient furnace and continuing to operate it in the same manner while still saving energy. Regardless of what technical experts may mean when they use these terms, their colloquial usage is not always so clear. Even from a practical perspective, the results (if not the goals) of energy efficiency and conservation are similar – a reduction in usage. The word "conservation" is not defined in Section 386.266, RSMo., so – given the common practice of using the terms interchangeably – "conservation" should not be read to strictly exclude "energy efficiency" in this context.

Q. Do you have any other concerns with the structure of the proposed VBA?

A. Yes. The VBA would result in surcharges or credits to customers on a volumetric basis. This would mean that residential and small general service customers would receive a greater efficiency price signal if less natural gas is used than expected, but the efficiency price signal would be weakened if more natural gas is used than expected – i.e., higher use would lower volumetric charges, which will encourage customers to use even more natural gas. To mitigate this concern, DE recommends that any ordered VBA provide bill credits on a per-customer basis, but impose surcharges on a volumetric basis.

Q. What is DE's position on the use of a decoupling mechanism?

A. DE is not opposed to the use of a decoupling mechanism provided that: 1) Liberty increases energy efficiency spending per the recommendation in my Direct Testimony,[8] and 2) the Commission accepts the recommendations provided in this testimony. Customer education would also be needed to address the reasons for implementing the VBA. DE takes no position on the exact form of the VBA so long as it is structured to comply with Section 386.266.3, RSMo. and provides bill credits on a per-customer basis.

IV. DISTRICT CONSOLIDATION

Q. What are the Company's current rate districts?

A. Liberty has three rate districts: Northeast Missouri ("NEMO"), Southeast Missouri ("SEMO"), and Western Missouri ("WEMO").

Q. Please describe what is meant by "district consolidation."

A. "District consolidation" refers to the practice of combining the costs and revenues of previously separate districts in order to derive a common set of rates. Consolidation can encompass all service areas of a company or only a certain set of service areas.

Q. Generally, when is district consolidation appropriate?

A. District consolidation is justifiable to the extent that service territories have similar underlying costs and customer usage characteristics.

[8] Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Direct Testimony of Martin R. Hyman on Behalf of Missouri Department of Economic Development – Division of Energy, March 2, 2018, page 12, lines 1-14.

Q. Generally, when might district consolidation be problematic?

A. District consolidation can be problematic if there are substantive differences in the cost to serve each different service territory and/or differences in customer usage characteristics. Such differences could result in rate shock in the event that the differing service territories are consolidated, though the magnitude of the rate shock would depend on factors such as differences in current rates, billing units, revenues, and the extent of the proposed consolidation. Consolidation of rates between service territories with significantly different underlying costs could also weaken the differences in price signals between service territories; one could argue that changing the price signals received by customers in this situation could result in inefficient consumption choices. However, all rates involve some level of blending both costs and billing units across customers with different costs of service and consumption characteristics.

The potential for rate shock due to district consolidation is amplified if there is an overall increase in revenue requirement, although the degree of rate shock would again depend on factors such as current rates, billing units, revenues, and the extent of the proposed consolidation; the implementation of customer charge or volumetric rate design changes in addition to consolidation or revenue requirement increases could exacerbate rate shock.

Q. Are the costs to serve customers in Liberty's three rate districts similar?

A. No. Based on Staff's accounting schedules[9] and the number of customers shown in the Company's minimum filing requirements,[10] I compared the net plant in service per customer across all three districts and for Liberty as a whole. Table 1 below shows the difference in total net plant in service per customer across the three districts and for the Company as a whole. Table 2 shows that this difference is primarily driven by differences in distribution plant, which is the largest net plant category.

Table 1. Total net plant in service per customer.

	Company-Wide	NEMO	SEMO	WEMO
Total Plant in Service	$159,620,667	$69,298,375	$77,605,225	$12,717,067
Accumulated Depreciation	$49,070,555	$22,319,753	$22,066,053	$4,684,749
Net Plant in Service	$110,550,112	$46,978,622	$55,539,172	$8,032,318
Total Customers	53,393	18,194	31,355	3,844
Net Plant in Service per Customer	$2,070	$2,582	$1,771	$2,090

[9] Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Corrected Direct Filing – Staff Accounting Schedules, March 7, 2018, Liberty Utilities (Midstates Natural Gas) Corp. – Total Company, Accounting Schedules 3 and 6; Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Direct Filing – Staff Accounting Schedules, March 2, 2018, Liberty Utilities (Midstates Natural Gas) Corp. – Northeast Missouri (NEMO) District, Accounting Schedules 3 and 6, Liberty Utilities (Midstates Natural Gas) Corp. – Southeast Missouri (SEMO) District, Accounting Schedules 3 and 6, and Liberty Utilities (Midstates Natural Gas) Corp. – Western Missouri (WEMO) District, Accounting Schedules 3 and 6.

[10] Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, MFR Exhibit No. 2, September 29, 2017, Schedule 3.

Table 2. Net distribution plant in service per customer.

	Company-Wide	NEMO	SEMO	WEMO
Total Distribution Plant in Service	$118,253,119	$56,345,013	$52,665,287	$9,242,819
Accumulated Depreciation	$24,592,060	$12,419,648	$9,848,443	$2,323,969
Net Distribution Plant in Service	$93,661,059	$43,925,365	$42,816,844	$6,918,850
Total Customers	53,393	18,194	31,355	3,844
Net Distribution Plant in Service per Customer	$1,754	$2,414	$1,366	$1,800

Q. Are there differences in residential customer usage patterns between the districts?

A. Yes. Please see the discussion of bill frequency analyses in Section VI. Such differences mean that consolidated rates would have different impacts for customers in different service territories, even if the costs of service were assumed to be similar.

Q. What might be a primary driver in the differences in usage and costs between districts?

A. One primary driver of the usage and cost differences between districts is probably the number of heating degree days. For example, as noted in my Direct Testimony, there are well over 1,000 more annual heating degree days listed for Kirksville than for New Madrid.[11] A higher number of heating degree days results in higher demand for space heating, all else being equal; this higher demand translates into higher usage and higher costs to serve that usage.

Q. What is DE's position regarding district consolidation in this case?

A. DE does not support district consolidation in this case given the differences in per customer costs and residential customer usage characteristics by district. DE is also concerned about the potential results of combining district consolidation with a revenue requirement closer

[11] GR-2018-0013, Hyman Direct, page 5, footnote 10.

to the Company's proposed increase, which would result in the bill impacts discussed in Section VI. Additionally, as discussed further in Section V, DE is concerned by Staff's proposed partial district consolidation, which – along with other rate design choices made by Staff – would result in a higher customer charge and lower volumetric charge in the NEMO district as compared to current rates; this would erode incentives for the efficient use of energy. Lastly, if an inclining block rate is ordered in this case in addition to a revenue requirement increase and consolidation, then higher usage customers could face compounded bill impacts from the combined effects of these rate design choices.

V. RESIDENTIAL RATE DESIGN

A. GENERAL CONSIDERATIONS

Q. What are some of the principles involved in evaluating alternative rate designs?

A. There are many factors to consider when evaluating rate design proposals. Some of the chief considerations involve inducing efficiency, maintaining gradualism, ensuring affordability, and relating rates charged to the costs incurred by their causers ("cost-causation"). Rate designs should also be easy to understand for customers.

Q. What are the typical components of the Company's residential natural gas bills?

A. Currently, Liberty's Missouri residential customers are charged through four components. The first is a "customer charge," a fixed monthly amount that represents the costs incurred for connecting an individual customer to the utility's system irrespective of usage. Additionally, customers are billed for the ISRS on a non-volumetric basis. This charge covers the costs of eligible distribution system replacements and is authorized by Sections 393.1009, RSMo. through 393.1015, RSMo. The third component is the volumetric distribution commodity charge in base rates. Finally, the PGA/ACA mechanisms recover

the commodity costs of gas purchased by the Company for distribution to its customers. PGA/ACA costs are also recovered on a volumetric basis. Other classes may have different billing components based on factors such as demand.

Q. How do general rate design considerations affect the determination of customer charges?

A. Customer charges traditionally represent the costs for a utility to serve an additional customer regardless of usage. Since it is a fixed charge, the customer charge cannot be avoided by customers absent disconnection from a utility's system. Consequently, customer charges do not encourage efficient usage and have disproportionate impacts on low-use customers and low-income customers as a group.

Q. Are there different ways to design volumetric rates?

A. Yes. Volumetric rates can generally be classified as declining, flat, or inclining. Declining block rates involve lower volumetric rates at certain higher levels of usage, whereas inclining block rates produce higher volumetric rates at certain higher levels of usage. Flat volumetric rates involve the same charge per unit of natural gas consumed, regardless of the amount of consumption. Inclining block rates are a potential strategy for encouraging efficiency and conservation, since the "price signal" that customers receive increases at higher levels of usage. Conversely, declining block rates could encourage inefficient consumption by lowering the price signal at higher levels of usage. Flat volumetric rates, such as those currently employed by the Company for residential customers, fall in-between these two options.

Q. Are there cost-based justifications for inclining block rates?

A. Yes. The long-run view of utility costs is that they are all variable – lower demand results in lower plant investment. The recovery of historic costs, while important for utilities, should not "lock in" future utility spending decisions by encouraging higher use (and a subsequent need for greater investment in plant). Not only can inclining or flat block rates be used to recover short-run "fixed" costs, but they can also reflect that higher use leads to higher bills because of the need for greater plant investment; this efficiency-inducing signal will reduce future rate increases by lowering the need for investment in plant and will provide benefits to all customers.

Q. How do different volumetric rate designs affect low-use, low-income, and space heating customers?

A. The effects of volumetric rate designs on low-use and low-income customers depends on the specifics of the rates. Generally, however, low-use and low-income customers would fare the worst under declining block rate designs, since, on average, they would be paying more per unit of energy in volumetric charges than high-use customers after a certain amount of usage (and, consequently, paying disproportionately more for short-run "fixed" costs than high-use customers). By contrast, space heating customers (who generally use more natural gas than customers that use other energy sources for space heating) benefit more from declining or flat block rates. Based on these considerations, an appropriately designed inclining block rate would set the first, lowest charge block such that it charged for the most basic amounts of usage (e.g., some space heating, water heating, cooking). Alternatively, a flat block rate eliminates this required consideration of appropriate usage

blocks and establishes a balance between space heating needs and efficiency-inducing price signals.

Q. You have mentioned low-use and low-income customers together several times. Is there evidence that low-income customers tend to use less natural gas?

A. Yes. Regional data from the federal government show that, on average, low-income households in the Midwest generally use less natural gas than non-low-income households. The same data show that customers receiving assistance through the Low Income Home Energy Assistance Program ("LIHEAP") use more natural gas than the general low-income population,[12] which is a logical outcome of receiving a bill credit. [13]

Q. What did you mean when you referenced "gradualism" at the start of this section?

A. "Gradualism" refers to the concept that rates should not change suddenly, minimizing customer confusion and bill impacts. This is closely related to the avoidance of "rate shock."

Q. Why is customer understanding of rate designs important?

A. When customers understand their rate designs, they can more readily link changes in their usage to their overall bills and to the incurrence of underlying costs. Customer comprehension of rate design is thus important for ensuring that customers receive price

[12] U.S. Department of Health and Human Services, Administration for Children and Families, Office of Community Services, Division of Energy Assistance, 2016, *LIHEAP Home Energy Notebook For Fiscal Year 2014*, Appendix A, Table A-2, page 95, https://www.acf.hhs.gov/sites/default/files/ocs/hen_final_508_compliant_fy14.pdf.
[13] See also Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Direct Testimony of Sharlet E. Kroll on Behalf of Missouri Department of Economic Development – Division of Energy, March 2, 2018, pages 18-21, lines 4-13, 1-21, 1-9, and 1-7.

signals as to their consumption choices. Simpler rate designs are easier to understand, and education can help with customer comprehension as well.

Q. Please summarize your discussion of rate design.

A. Rates should be set in a manner that induces efficiency, maintains gradualism, ensures affordability, and reflects cost-causation. This is best accomplished through low customer charges that only recover costs to serve individual customers irrespective of usage, as well as through flat volumetric rate designs or inclining volumetric rate designs that account for basic customer usage. Additionally, rate designs should be understandable to customers.

Q. Based on these considerations, should residential customer charges be increased in this case?

A. No. Increases to residential customer charges would weaken the efficiency inducing price signal sent by rates and adversely affect lower use and lower income customers.

B. LIBERTY'S RATE DESIGN PROPOSAL

Q. What are the Company's current residential rates?

A. The Company's current residential rates are shown below in Table 3.[14] The current rates include a fixed monthly ISRS charge, which will be "reset" to zero after this case.

[14] Missouri Public Service Commission Tariff No. YG-2016-0316, Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities, *Missouri Public Service Commission Gas Tariff of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities*, Infrastructure System Replacement Surcharge ("ISRS"), June 10, 2016, Sheet No. 19, and Missouri Public Service Commission Tariff No. YG-2015-0216, Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities, *Missouri Public Service Commission Gas Tariff of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities*, Residential Firm Service, January 4, 2015, Sheet No. 22.

Table 3. Liberty's current residential rates.

	NEMO	SEMO	WEMO
Customer Charge	$20.00	$13.75	$20.00
ISRS	$1.49	$0.05	$0.79
Volumetric Rate (per CCF)	$0.27690	$0.18370	$0.19206

Q. What residential rates are proposed by the Company?

A. Liberty's proposed residential rates are shown below in Table 4.[15]

Table 4. Liberty's proposed residential rates.

	NEMO	SEMO	WEMO
Customer Charge	$22.50		
Volumetric Rate (per CCF)	$0.29446		

Q. Please comment on Liberty's proposal.

A. DE has two concerns with Liberty's proposal. First, the Company's recommendation for total district consolidation should not be approved, for the reasons previously discussed. Second, the customer charge for SEMO customers would rise significantly under the Company's proposal, which would have adverse bill impacts on low-income and low-use customers while sending a price signal that would insufficiently induce efficient consumption.

C. COMMISSION STAFF'S RATE DESIGN PROPOSALS

Q. What residential rates are proposed by Staff?

A. Staff's proposed residential rates are shown below in Table 5.[16]

[15] GR-2018-0013, MFR Exhibit No. 1, Residential Firm Service, Sheet No. 22.
[16] Missouri Public Service Commission Case No. GR-2018-0013, *In the Matter of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities' Tariff Revisions Designed to Implement a General Rate Increase for Natural Gas Service in the Missouri Service Areas of the Company*, Staff Report – Class Cost of Service, March 16, 2018, page 5, lines 15-16.

Table 5. Staff's proposed residential rates.

	NEMO	SEMO	WEMO
Customer Charge	$22.00	$16.00	$22.00
Volumetric Rate (per CCF)	$0.22828		

Q. What are your comments about Staff's proposed residential rates?

A. As previously stated, DE does not support Staff's proposed partial district consolidation. Along with the reasons provided above, DE notes that Staff's recommended rate design for NEMO, recommended revenue requirement, and proposed consolidation of volumetric rates result in a customer charge that is higher for NEMO customers than current rates, as well as a volumetric charge that is lower for NEMO customers than current rates. This would have adverse bill impacts on low-income and low-use customers while sending a price signal that would insufficiently induce efficient consumption.

Q. Does Staff propose any alternative residential rates?

A. Yes. As shown below in Table 6, Staff presents an alternative rate design utilizing the same customer charges and which maintains the same volumetric charges in the winter (defined as May through October) as its "main" proposal; the alternative proposal also includes a recommended two-block inclining block rate in the summer (defined as May through October), with a cut-off between the blocks at 30 CCF of use.[17] Staff indicates that it chose 30 CCF as the cut-off to make an allowance for customers who use natural gas for water heating and because of the need for, "… sufficient billing units to develop an appropriate incline."[18]

[17] *Ibid*, page 22, lines 8-13.
[18] *Ibid*, page 27, lines 7-9.

Table 6. Staff's alternative proposed residential rates.

	NEMO	SEMO	WEMO
Customer Charge	$22.00	$16.00	$22.00
Volumetric Rates (per CCF)			
Winter		$0.22828	
Summer			
First 30 CCF		$0.22143	
Above 30 CCF		$0.29176	

Q. Do you have any comments about Staff's proposed alternative residential rates?

A. Depending on the revenue requirement, district consolidation, and customer charges ordered in this case, DE supports a similar inclining block proposal as that put forth by Staff for summer, but also recommends implementing a moderate inclining block rate during the winter (see below). DE's support for implementation of inclining block rates is contingent on an analysis of bill impacts. We encourage the Commission to direct parties to submit bill impact comparisons based on scenarios involving inclining block rates (including inclining winter block rates) and other considerations of interest to the Commission.

DE does not support Staff's main recommended rate design as it applies to NEMO customers; DE's concern with Staff's main proposal extends to Staff's alternative proposal during the winter for NEMO customers in that the disincentive to pursue energy efficiency would persist because of the customer charge increase and volumetric rate decrease.

Additionally, DE is concerned with Staff's inclusion of May in the set of summer billing months. Based on the residential bill frequency analyses provided below, May is a "shoulder month" – i.e., customer usage characteristics fall between the winter (when customers tend to use more natural gas because of space heating) and the summer (when

natural gas usage is relatively low). Outside of the SEMO district, this could result in some customers at or below the 95th percentile of bills[19] receiving more than a five percent bill increase on a revenue-neutral basis when comparing Staff's main proposed rate design and its inclining block rate alternative (see Section VI). DE has previously used a five percent cut-off at the 95th percentile of use as an approximation for how to design inclining block rates in a manner that avoids rate shock.[20] To address this concern, DE recommends that, if the Commission adopts an inclining block rate design similar to Staff's proposal, the Commission either classify May as a "winter" month or order a modification of the inclining block rate to mitigate the observed impact on certain higher usage non-SEMO customers. Depending on the structure of the winter inclining block rate, the above concern regarding bill impacts in May could be resolved.

Q. Why should an inclining block rate also be implemented for the winter months?

A. The greatest potential for natural gas efficiency savings is in the winter months, when natural gas is used for space heating. It is therefore important to implement some sort of inclining block rate during the winter to encourage greater natural gas savings, although such an inclining block rate should be crafted to avoid rate shock, consistent with the discussion above regarding bill impacts on higher usage customers. However, as with the implementation of a summer inclining block rate, implementation of an inclining block

[19] In other words, customers whose usage is at or below the usage level encompassing 95 percent of the number of customer bills.

[20] See Missouri Public Service Commission Case No. WR-2017-0285, *In the Matter of Missouri-American Water Company's Request for Authority to Implement General Rate Increase for Water and Sewer Service Provided in Missouri Service Areas*, Direct Testimony of Martin R. Hyman on Behalf of Missouri Department of Economic Development – Division of Energy, December 13, 2017, page 12, lines 3-7.

rate in the winter needs to be balanced against the other potential outcomes of this case, such as revenue requirement increases and district consolidation.

Q. If the Commission would prefer to implement an inclining block rate during the winter in this case, what would you recommend for general rate design criteria?

A. First, I would recommend using district-specific rate designs. This is important because of the previously noted differences in usage by district. A uniform block rate design across districts (either in terms of block size or rate levels) could lead to significantly adverse bill impacts for some districts, but not others. A district-specific rate design also follows cost-causation more closely.

Second, I would recommend using a three-block structure. A three-block structure allows for more nuanced rate designs that address bill impacts on customers with varying space heating needs. The first, lowest block could be set at the median level of usage during the month with the highest typical usage (i.e., January) in order to limit bill impacts on half of customers. The second block could be limited to the 90^{th} percentile of customer usage in January with a slight increase in rates from the first block (e.g., 10 percent higher), which would mitigate bill impacts on customers with higher-than-average space heating requirements. The final block would cover any additional usage, with a rate differential from the second block based on limiting impacts to customers at the 95^{th} percentile of usage to no more than five percent on a revenue-neutral basis. For the three rate districts, this would result in the approximate block cut-offs shown in Table 7 below; these numbers are based on the bill frequency analysis presented in Schedule MRH-Reb-1.

Finally, I would suggest that the consideration of any winter inclining block rate proposals be based on Commission orders for parties to present the bill impacts resulting from the

combined effects of revenue requirement increases, district consolidation, and inclining block rates. DE can work with parties to develop such analyses if needed.

Table 7. Approximate block cut-offs for a winter inclining block rate.

	NEMO	SEMO	WEMO
Block 1	First 150 CCF	First 110 CCF	First 140 CCF
Block 2	Next 120 CCF	Next 100 CCF	Next 110 CCF
Block 3	Above 270 CCF	Above 210 CCF	Above 250 CCF

VI. RESIDENTIAL BILL FREQUENCY AND IMPACT ANALYSES

A. BILL FREQUENCY ANALYSES

Q. What is the purpose of a bill frequency analysis?

A. The purpose of a bill frequency analysis is to determine the distribution of customer usage levels. A bill frequency analysis also enables the comparison of bill impacts based upon the distribution of customer usage levels, which provides more information for decision-making purposes than only looking at changes in average bills.

Q. What is the basis of your bill frequency analyses?

A. My bill frequency analyses are based on confidential information provided in response to Data Request DED-DE No. 201. The response included Excel files with customer specific, non-weather normalized usage information by rate class, month, and service territory.[21]

Q. How did you conduct your bill frequency analyses?

A. I filtered the data that I received to only include residential customers with 12 bills during the historic test year (July of 2016 through June of 2017).[22] I then calculated the monthly cumulative distributions of usage and bills by usage tranche, based on successive tranches

[21] The responsive files contain the same data found in Company witness Mr. Timothy S. Lyons's direct-filed frequency analysis workpapers.
[22] GR-2018-0013, Staff Report – Cost of Service, page 3, line 21.

encompassing 10 CCF of usage; the tranches range from usage ending at 10 CCF to usage of over 300 CCF, a level that encompasses over 90 percent of the bills in each district. I excluded bills with negative usage amounts.

Q. What were the results of your analyses?

A. The cumulative bill frequencies for NEMO, SEMO, and WEMO are provided in Schedule MRH-Reb-1.

Q. What do you observe from these results?

A. The ranges of observed usages are widest during the winter in all three districts, consistent with the use of natural gas for space heating. Peak usage occurs around January. Usage patterns differ by district, with a more pronounced peak in January in the NEMO district. Usage patterns also suggest that May could be considered a shoulder month.

B. BILL IMPACT ANALYSES

Q. What is the purpose of a bill impact analysis?

A. The purpose of a bill impact analysis is to determine the changes to customer bills as the result of changes in rates. While such an analysis is often based on the "average" customer's use, it should also take into account customers who use greater or lesser amounts of a given commodity to determine equity and efficiency impacts.

Q. What are the bases of your bill impact analyses?

A. My bill impact analyses are based on the data used for my bill frequency analyses and the rates described above.

Q. How did you conduct your bill impact analyses?

A. I calculated the average residential usage within each tranche of the bill frequency analyses, separated by district and month for the historic test year. I then used these averages to

calculate bills based on current and proposed rates, then calculated bill impacts by comparing the bills under Liberty's and Staff's proposals to bills under current rates. I also calculated the bill impacts of Staff's alternative proposal as compared to its "main" proposal in order to determine the revenue neutral impacts of Staff's inclining block rate proposal.

Q. What are the results of your bill impact analyses?

A. The results for NEMO, SEMO, and WEMO are provided in Schedule MRH-Reb-1.

Q. What do you observe about the impacts of the Company's proposal?

A. The impacts of the Company's proposal would vary by district, both because of differences in usage patterns and Liberty's proposal to fully consolidate rates. In the SEMO district, residential bill impacts at approximately the median level of bill counts for January (within the tranche encompassing 100 to 110 CCF) would be as high as 61.44 percent; this is due to a combination of the Company's proposed revenue requirement and its recommended full consolidation. Residential bill impacts in the SEMO district would also decline with higher levels of usage, indicating a price signal that would not appropriately encourage energy efficiency.

Q. Please discuss the impacts of the Staff's "main" proposal.

A. Staff's main proposal would provide an efficiency-inducing price signal for residential customers in the SEMO and WEMO districts, but would lead to declining bill impacts with higher levels of usage by residential customers in the NEMO district. This is the result of Staff's proposal to raise the residential customer charge in that district while lowering the residential volumetric charge in order to consolidate volumetric charge between the Company's service territories. DE repeats its concern with lowering the volumetric charge

in the NEMO district, which will not only discourage energy efficiency but also have a disproportionate impact on lower use and lower income customers. Of the counties included in the NEMO service territory (Adair, Clark, Knox, Lewis, Macon, Marion, Pike, Ralls, Schuyler, and Scotland),[23] seven had estimated poverty rates higher than the estimated statewide rate of 15.3 percent, reaching as high as 26.0 percent in Adair County.[24]

Q. What are your observations regarding Staff's alternative proposal?

A. Staff's alternative proposal would generally result in lower residential rates for customers at or below 30 CCF of usage during the summer months, relative to its main proposal. However, Staff's alternative proposal would also create an inflection in residential bill impacts wherein – compared to its main proposal – customer bills would decrease with increasing usage up to 30 CCF during the summer months, then increase with additional usage above 30 CCF during the summer months. This may be due to Staff's proposed customer charge increases. DE also notes that some residential customers near the 95th percentile of bills (based on the cumulative residential bill count by tranche) outside of the SEMO district could experience more than a five percent bill increase under Staff's alternative proposal as compared to Staff's main proposal. This might result in rate shock for these higher usage customers.

[23] Missouri Public Service Commission Case No. GR-2006-0387, Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities, *Missouri Public Service Commission Gas Tariff of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities*, Municipalities Served – Master List and Index, April 1, 2007, Sheet Nos.3-5.
[24] U.S. Census Bureau, *2012-2016 American Community Survey 5-Year Estimates*, "Table S1701 – Poverty Status in the Past 12 Months," https://factfinder.census.gov/bkmk/table/1.0/en/ACS/16_5YR/S1701/0400000US29|0400000US29.05000|0500000US29001|0500000US29045|0500000US29103|0500000US29111|0500000US29121|0500000US29127|0500000US29163|0500000US29173|0500000US29197|0500000US29199.

Q. Can the bill impacts of Liberty's and Staff's proposals be directly compared?

A. No. The proposals are based on different revenue requirements,[25] so a direct comparison is not possible. DE recommends that the Company and Staff provide versions of their rate designs at each other's revenue requirement recommendations to facilitate the comparison of bill impacts. DE recognizes that the Company or Staff might select different rate designs based on alternative revenue requirement recommendations;[26] however, it is important to be able to compare bill impacts on a revenue neutral basis, so any adjustments to rate designs should be presented in conjunction with the previous proposals (as altered to reflect different revenue requirements). With respect to the analysis of alternative inclining block rate scenarios, DE is willing to work with parties to analyze scenarios that may be ordered by the Commission.

VII. CONCLUSIONS

Q. Please summarize your conclusions and the positions of DE.

A. DE is not opposed to a decoupling mechanism if the Company meets the energy efficiency spending recommendations in my Direct Testimony, along with the recommendations provided in this testimony; DE takes no position on the exact format of the VBA so long as it is structured to comply with Section 386.266.3, RSMo. and provides bill credits on a per-customer basis.

Based on policy principles such as cost causation, supporting energy efficiency, mitigating rate shock, encouraging gradualism, and providing relief for lower use and lower income customers – as well as my bill impact and frequency analyses – I make the following

[25] GR-2018-0013, Staff Report – Cost of Service, page 1, lines 9-13, and GR-2018-0013, Staff Report – Class Cost of Service, pages 1-2, lines 6-18 and 1-2.
[26] See, for instance, GR-2018-0013, Staff Report – Class Cost of Service, page 5, lines 11-14.

recommendations in response to Staff and the Company regarding district consolidation and residential rate design:

1. The Commission should not order the district consolidations recommended by other parties in this case;
2. Residential customer charge increases, as proposed by other parties in this case, should not be ordered;
3. Moderate winter inclining block rates should be implemented for residential customers, subject to the criteria outlined above;
4. Staff's proposed residential alternative inclining block rate design for summer usage is reasonable under certain conditions and subject to some modifications to mitigate potential bill impacts on the 95th percentile of customer bills; and,
5. Staff and the Company should provide their rate designs based on each other's revenue requirement recommendations in order to facilitate comparative bill impact analyses.

Q. Does this conclude your Rebuttal Testimony in this case?

A. Yes.