Exhibit No.:
Issue: Class Cost of Service, Rate Design, Regulatory Mechanism
Witness: Timothy S. Lyons
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities
Case No. GR-2018-0013
Date Testimony Prepared: April 2018

Before the Public Service Commission of the State of Missouri

Rebuttal Testimony

of

Timothy S. Lyons
ScottMadden, Inc

On Behalf Of

Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities

April 2018

REBUTTAL TESTIMONY
OF
TIMOTHY S. LYONS
LIBERTY UTILITIES
BEFORE THE
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TABLE OF CONTENTS

LIST OF SCHEDULES

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INTRODUCTION

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

A. My name is Timothy S. Lyons. I am a Partner at ScottMadden, Inc. My business address is 1900 West Park Drive, Suite 250, Westborough, Massachusetts 01581.

Q. ARE YOU THE SAME TIMOTHY S. LYONS WHO PREVIOUSLY SPONSORED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am. I provided direct testimony ("Direct Testimony") before the Missouri Public Service Commission (the "Commission") on behalf of Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty" or the "Company").

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of this rebuttal testimony ("Rebuttal Testimony") is to respond to the Staff of the Missouri Public Service Commission's ("Staff") Class Cost of Service Report ("Staff Report") related to: (a) the Company's Class Cost of Service Study ("CCOS") and Rate Design, and (b) the Company's proposed trackers. In addition, this rebuttal testimony will propose a Weather Normalization

Adjustment Rider ("WNAR"), similar to the WNAR recently approved by the Commission in the Spire rate case proceedings but applicable to both Residential and SGS rate classes.

Q. HAVE YOU PREPARED SCHEDULES SUPPORTING YOUR REBUTTAL TESTIMONY?

A. Yes. Schedules TSL-R1 and TSL-R2 support this rebuttal testimony. The Schedules were prepared by me or under my direction and are incorporated herein by reference.

I. SUMMARY OF POSITIONS

Q. PLEASE SUMMARIZE STAFF'S RECOMMENDATIONS REGARDING THE COMPANY'S CCOS AND RATE DESIGN PROPOSALS.

A. Staff proposes the following changes to the Company's CCOS and Rate Design proposals:

1. Staff proposes partial consolidation of rates for the Company's three regions, *i.e.,* Northeast Missouri Area ("NEMO"), Southeast Missouri Area ("SEMO"), and West Missouri Area ("WEMO"). Partial consolidation includes (a) a single volumetric charge for each customer class across the three regions, and (b) customer charges that vary by customer class and region.
2. Staff prepared a CCOS that was used as the basis for setting revenue targets and designing rates. The results of Staff's CCOS are similar across the three

regions. In addition, the results of Staff's CCOS are similar to the Company's results.

3. Staff prepared revised billing determinants and peak day usage based on updated customer and sales. The revised billing determinants were used in Staff's CCOS and rate design proposals.

4. Staff proposed to set revenue targets in the following manner: 1) shift $829,809 in revenue requirements from the Medium General Service ("MGS"), Large General Service ("LGS") and Interruptible classes to the Residential and SGS classes to address class inequities, and 2) allocate Staff's proposed revenue deficiency of $1.29 million to Residential, SGS, MGS, and Interruptible customer classes based on current revenues adjusted for the shift in revenue requirements described in Step 1.

5. Staff proposes that any approved revenue requirement exceeding its proposed revenue requirement be applied on an equal percentage basis to each charge across all customer classes.

6. Staff calculated an alternate rate design that consisted of a single commodity rate in the winter months (November through April) and inclining or inverted rates in the summer months (May through October). The inverted rates are in response to the Commission's guidance in Case Nos. GR-2017-0215 and GR-2017-0216.

7. Staff does not support the Company's proposed trackers for Capital Reliability, Ad Valorem Taxes, Bad Debt, and Vegetation Management/ Right-of-Way expenses.

Q. PLEASE SUMMARIZE AREAS OF AGREEMENT BETWEEN THE COMPANY AND STAFF.

A. The Company generally agrees with many of Staff's CCOS and rate design proposals, including:

1. The key principles considered in setting revenue targets and developing rate design proposals. The Company agrees that rates should be fair, minimizing inter-and intra-class inequities to the extent possible, and rate changes should be tempered by rate continuity and equity concerns.
2. Staff's proposal for partial consolidation of rates. The Company supports Staff's partial consolidation of rates as part of an overall rate design solution that would 'phase-in' the movement to full consolidation over time. The rate design solution would include: (a) partial consolidation of residential rates in this proceeding consistent with Staff's proposal, (b) a phased approach to achieving full consolidation through annual increases in SEMO's residential customer charge and corresponding decreases in NEMO, SEMO and WEMO's volumetric charges in a manner that would be revenue neutral to the authorized revenue requirements in this proceeding; and (c) approval of either the proposed Volume Balancing Account ("VBA") Rider or a Weather Normalization Adjustment Rider ("WNAR"), similar to the WNAR approved by the Commission in the Spire rate case proceeding but applicable to both Residential and SGS rate classes.
3. Staff's approach to setting revenue targets. The Company supports the proposed interclass revenue shifts, as well as the proposed approach that any

approved revenue requirement exceeding Staff's proposed revenue requirement would be applied on an equal percentage basis to each charge across all customer classes.

4. Staff's overall approach to developing the CCOS that determines each customer class's responsibility to the overall cost of service. Staff's CCOS follows the same underlying principles as the Company's CCOS: to allocate costs in a manner that best reflects cost causation. Staff's CCOS results are generally similar to the Company's results. However, there are some important differences discussed below.
5. Staff's development of a Peak and Average ("P&A") allocator to allocate certain distribution costs, including Distribution Mains. Staff's approach to developing the P&A allocator is generally consistent with the Company's P&A allocator, although there are some important differences discussed below.
6. Staff's development of an allocator for meter, meter installation, and house regulator investments, although there are some important differences discussed below.
7. Staff's development of a labor allocator to allocate A&G expenses. Although the approach varies from the Company's CCOS, Staff's methodology is consistent with industry practice, and produces reasonable results.

Q. PLEASE SUMMARIZE DIFFERENCES BETWEEN THE COMPANY AND STAFF'S PROPOSALS.

A. The Company does not support Staff's position on a few CCOS and rate design proposals, including:

1. The Company recommends a slight revision to Staff's customer bill impact analysis. Staff's bill impact analysis does not include in the current customer bill calculation the current Infrastructure System Replacement Surcharge ("ISRS") charge. This results in a slightly higher bill impact since a portion of the proposed base rate increase is presently recovered through the ISRS charge. The Company recommends that the bill impact analysis reflect the ISRS charge to accurately reflect the impact of the proposed base rate increase on customer bills.

2. The Company has a few concerns regarding the inclining or inverted block rate design alternative proposed by Staff. Specifically, inverted rates are a movement away from simplifying the Company's rate design, which makes customer bills easier to understand, communicate and administer. In addition, inverted rates increase revenue volatility under colder- and warmer-than-normal weather conditions, particularly in the shoulder months of May, June, September, and October. However, such revenue volatility could be addressed through the proposed Rider VBA or WNAR, which is discussed later in this testimony.

Nevertheless, the Company believes that an inverted rate design requires further analysis and, as discussed in the rebuttal testimony of Company witness Jill Schwartz, proposes a closer examination by the Company's

Energy Efficiency Advisory Group for possible implementation in the Company's next rate case.

3. The Company continues to believe that its proposed trackers for Capital Reliability, Ad Valorem Taxes, Bad Debt, and Vegetation Management/ Right-of-Way expenses are necessary and provide significant benefits to the Company and its customers.

II. RATE CONSOLIDATION

Q. PLEASE SUMMARIZE THE COMPANY'S POSITION ON RATE CONSOLIDATION.

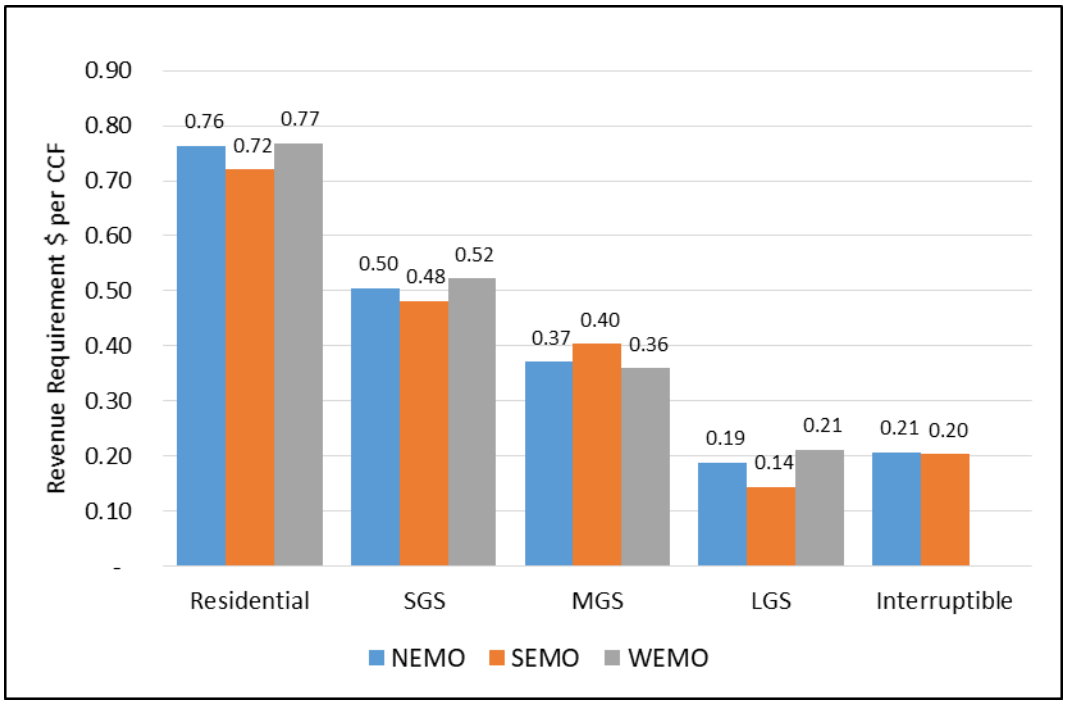
A. While the Company continues to support in principle full consolidation for all rate classes, the Company is sensitive to the impact on residential customers, especially in SEMO. Thus, the Company supports Staff's partial consolidation of rates as part of an overall rate design solution that would 'phase-in' the movement to full consolidation of rates over time. The overall rate design solution would include: (a) partial consolidation of residential rates in this proceeding consistent with Staff's proposal, (b) a three-phased approach to full consolidation consisting of annual increases in SEMO's residential customer charge of $2.00 and corresponding decreases in NEMO, SEMO and WEMO's volumetric charges in a manner that would be revenue neutral to the authorized revenue requirements in this proceeding; and (c) approval of either the proposed Volume Balancing Account ("VBA") Rider or Weather Normalization Adjustment Rider ("WNAR")

similar to the WNAR approved by the Commission in the Spire rate case but applicable to both the Residential and SGS rate classes.

Q. WHY DOES THE COMPANY PROPOSE A PHASED APPROACH TO FULL CONSOLIDATION OF RATES.

A. The Company believes that a phased approach strikes an appropriate balance in mitigating the near-term bill impacts, especially for SEMO's residential customers, while providing a defined transition to rates that better reflect the underlying cost of service. As shown in Figure 1, full consolidation is supported by the Company's CCOS that shows the cost of service is similar across the three regions. The Figure shows that the residential cost of service, for example, varies by less than 7.0 percent across the regions. In addition, the Company believes that a single set of rates across the regions makes customer bills easier to communicate, understand and administer.

Figure 1: Revenue Requirement Comparison across the Regions ($/CCF)



Q. HOW DOES FULL CONSOLIDATION OF RATES COMPARE TO PARTIAL CONSOLIDATION FOR RESIDENTIAL CUSTOMERS?

A. Figure 2 compares full consolidation to partial consolidation. The Figure compares: (a) the current rates; (b) Staff's proposed rates (based on Staff's revenue requirements); (c) Staff's adjusted rates, adjusted to reflect the Company's revenue requirements (which are approximately 25.0% higher than Staff's revenue requirements); and (d) the Company's proposed rates. Schedule TSL-1 includes a comparison of full and partial consolidation of rates for all rate classes.

Figure 2: Full and Partial Consolidation Rate Comparison

Residential Charges	Current	Staff Proposed	* Staff Adjusted	Company Proposed
Customer Charges				
NEMO	$ 20.00	$ 22.00	$ 27.50	$ 22.50
SEMO	$ 13.75	$ 16.00	$ 20.00	$ 22.50
WEMO	$ 20.00	$ 22.00	$ 27.50	$ 22.50
Volumetric Charges				
NEMO	$ 0.27690	$ 0.22828	$ 0.28536	$ 0.29446
SEMO	$ 0.18370	$ 0.22828	$ 0.28536	$ 0.29446
WEMO	$ 0.19206	$ 0.22828	$ 0.28536	$ 0.29446
* Reflects Staff's rate design adjusted to reflect the Company's proposed revenue requirement				

Figure 3 compares residential bill impacts under full and partial consolidation.

Figure 3: Bill Impact Analysis under Full and Partial Consolidation

Bill Impact Analysis: Residential Service		Partial Consolidation at Company Revenue Requirement					Full Consolidation at Company Revenue Requirement				
		Low 20	Low 35	Med 50	Med 65	High 150	Low 20	Low 35	Med 50	Med 65	High 150
NEMO	Existing	$ 27.03	$ 31.18	$ 35.34	$ 39.49	$ 63.03	$ 27.03	$ 31.18	$ 35.34	$ 39.49	$ 63.03
SEMO	Existing	17.47	20.23	22.99	25.74	41.36	17.47	20.23	22.99	25.74	41.36
WEMO	Existing	24.63	27.51	30.39	33.27	49.60	24.63	27.51	30.39	33.27	49.60
NEMO	Proposed	$ 33.21	$ 37.49	$ 41.77	$ 46.05	$ 70.30	$ 28.39	$ 32.81	$ 37.22	$ 41.64	$ 66.67
SEMO	Proposed	25.71	29.99	34.27	38.55	62.80	28.39	32.81	37.22	41.64	66.67
WEMO	Proposed	33.21	37.49	41.77	46.05	70.30	28.39	32.81	37.22	41.64	66.67
NEMO	Diff.	$ 6.18	$ 6.31	$ 6.43	$ 6.56	$ 7.28	$ 1.36	$ 1.62	$ 1.89	$ 2.15	$ 3.64
SEMO	Diff.	8.23	9.76	11.28	12.81	21.45	10.92	12.58	14.24	15.90	25.31
WEMO	Diff.	8.58	9.98	11.38	12.77	20.71	3.76	5.29	6.83	8.37	17.07
NEMO	% Diff.	22.9%	20.2%	18.2%	16.6%	11.5%	5.0%	5.2%	5.3%	5.4%	5.8%
SEMO	% Diff.	47.1%	48.2%	49.1%	49.8%	51.9%	62.5%	62.2%	61.9%	61.8%	61.2%
WEMO	% Diff.	34.8%	36.3%	37.4%	38.4%	41.7%	15.3%	19.2%	22.5%	25.1%	34.4%

The Figure shows that monthly residential bill increases under full consolidation as compared to partial consolidation are higher in SEMO and lower in NEMO and WEMO. For example, monthly residential bill increases are higher in SEMO under full consolidation as compared to partial consolidation by $2.69 per month for low use customers using 20 CCF per month, and $3.86 per month for high use customers using 150 CCF per month. Schedule TSL-R1 includes bill impacts under full and partial consolidation for all rate classes.

Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL TO ACHIEVE FULL RATE CONSOLIDATION WHILE MINIMIZING THE BILL IMPACT ON RESIDENTIAL CUSTOMERS, ESPECIALLY IN THE SEMO REGION?

A. The Company proposes to increase SEMO's monthly residential customer charge by $2.00 each year and correspondingly decrease NEMO, SEMO and WEMO's volumetric charges in a manner that would be revenue neutral to the revenue requirement approved by the Commission in this proceeding. This approach would likely minimize adverse bill impacts while achieving full consolidation of rates by the Company's next rate case.

Q. PLEASE SUMMARIZE STAFF'S PROPOSAL FOR PARTIAL CONSOLIDATION OF RATES.

A. Staff proposes partial consolidation of rates across the Company's three regions based on its CCOS that shows similarities in the cost of service. In addition, Staff states that partial consolidation helps to mitigate customer bill impacts associated with full consolidation of rates, especially for SEMO customers.[1]

Staff's proposed rates under partial consolidation are shown in Figure 4. The Figure shows a single volumetric charge for each customer class across the regions, and a residential customer charge of $22.00 for NEMO and WEMO customers, and $16.00 for SEMO customers.

[1] Staff Cost of Service Report at pages 4-5

Figure 4: Staff's Proposed Residential Rates under Partial Consolidation

Customer Class	Region	Customer Charge	Distribution Charge
Residential Service	NEMO	$ 22.00	
	SEMO	16.00	$ 0.22828
	WEMO	22.00	
SGS	NEMO	$ 30.00	
	SEMO	25.00	$ 0.09715
	WEMO	28.00	
MGS	NEMO	$ 130.00	
	SEMO	125.00	$ 0.21085
	WEMO	120.00	
LGS	NEMO	$ 700.00	
	SEMO	750.00	$ 0.14251
	WEMO	750.00	
Interruptible	NEMO	$ 650.00	
	SEMO	650.00	$ 0.15481
	WEMO	650.00	

Figure 5 shows the residential bill impacts associated with partial consolidation.

Figure 5: Residential Bill Impacts under Partial Consolidation (without & with ISRS Charge)

Bill Impact Analysis: Residential Service		Staff Revenue Requirement & Staff Rate Design					Staff Revenue Requirement & Staff Rate Design (with ISRS)				
		Low 20	Low 35	Med 50	Med 65	High 150	Low 20	Low 35	Med 50	Med 65	High 150
NEMO	Existing	$ 25.54	$ 29.69	$ 33.85	$ 38.00	$ 61.54	$ 27.03	$ 31.18	$ 35.34	$ 39.49	$ 63.03
SEMO	Existing	17.42	20.18	22.94	25.69	41.31	17.47	20.23	22.99	25.74	41.36
WEMO	Existing	23.84	26.72	29.60	32.48	48.81	24.63	27.51	30.39	33.27	49.60
NEMO	Proposed	$ 26.57	$ 29.99	$ 33.41	$ 36.84	$ 56.24	$ 26.57	$ 29.99	$ 33.41	$ 36.84	$ 56.24
SEMO	Proposed	20.57	23.99	27.41	30.84	50.24	20.57	23.99	27.41	30.84	50.24
WEMO	Proposed	26.57	29.99	33.41	36.84	56.24	26.57	29.99	33.41	36.84	56.24
NEMO	Diff.	$ 1.03	$ 0.30	$ (0.43)	$ (1.16)	$ (5.29)	$ (0.46)	$ (1.19)	$ (1.92)	$ (2.65)	$ (6.78)
SEMO	Diff.	3.14	3.81	4.48	5.15	8.94	3.09	3.76	4.43	5.10	8.89
WEMO	Diff.	2.72	3.27	3.81	4.35	7.43	1.93	2.48	3.02	3.56	6.64
NEMO	% Diff.	4.0%	1.0%	-1.3%	-3.1%	-8.6%	-1.7%	-3.8%	-5.4%	-6.7%	-10.8%
SEMO	% Diff.	18.0%	18.9%	19.5%	20.0%	21.6%	17.7%	18.6%	19.3%	19.8%	21.5%
WEMO	% Diff.	11.4%	12.2%	12.9%	13.4%	15.2%	7.9%	9.0%	9.9%	10.7%	13.4%

Q. DOES THE COMPANY HAVE ANY CONCERNS WITH STAFF'S BILL IMPACT ANALYSIS?

A. Yes. The Company recommends a slight revision to Staff's customer bill impact analysis. Staff's bill impact analysis does not include in the current customer bill calculation the current Infrastructure System Replacement Surcharge ("ISRS")

charge. As shown in Figure 5, this results in a slightly higher bill impact since a portion of the proposed base rate increase is presently recovered through the ISRS charge. The Company recommends that the bill impact analysis reflect the ISRS charge to accurately reflect the impact of the proposed base rate increase on customer bills.

Q. WHAT IS THE COMPANY'S UNDERSTANDING OF STAFF'S PROPOSED RATE DESIGN IF THE APPROVED REVENUE REQUIREMENTS EXCEED STAFF'S PROPOSED REVENUE REQUIREMENTS?

A. The Company's understanding of Staff's proposal is that any approved revenue requirement exceeding Staff's proposed revenue requirement would be applied on an equal percentage basis to each charge across all customer classes. Thus, if the Commission were to approve the Company's initially proposed revenue requirements of $32.7 million – which exceeds Staff's proposed revenue requirements by $6.5 million or 25.0 percent, as shown in Figure 6 – then the additional revenue requirement would be applied on an equal percentage basis to each charge across all customer classes.

Figure 6: Revenue Requirement Comparison

% Additional Revenue to Staff	
Staff Revenue Requirement	26,197,238
Company Revenue Requirement	32,746,555
Additional Rev. Requirement	6,549,317
% Revenue Additional to Staff	25.00%

Figure 7 shows the impact of the Company's proposed revenue requirement on Staff's rate design proposal.

Figure 7: Staff's Proposed Rates adjusted to reflect the Company's Revenue Requirement

Customer Class	Region	Customer Charge	Distribution Charge
Residential Service	NEMO	$ 27.50	
	SEMO	20.00	$ 0.28535
	WEMO	27.50	
SGS	NEMO	$ 37.50	
	SEMO	31.25	$ 0.12144
	WEMO	35.00	
MGS	NEMO	$ 162.50	
	SEMO	156.25	$ 0.26356
	WEMO	150.00	
LGS	NEMO	$ 875.00	
	SEMO	937.50	$ 0.17814
	WEMO	937.50	
Interruptible	NEMO	$ 812.50	
	SEMO	812.50	$ 0.19351
	WEMO	812.50	

Q. PLEASE SUMMARIZE THE COMPANY'S POSTION ON STAFF'S RATE DESIGN PROPOSAL?

A. The Company supports Staff's partial consolidation of rates as part of an overall rate design solution that would 'phase-in' the movement to full consolidation of rates over time. The rate design solution would include: (a) partial consolidation of residential rates in this proceeding consistent with Staff's proposal, (b) a phased approach to achieving full consolidation of rates through annual increases in SEMO's residential customer charge and corresponding decreases in NEMO, SEMO and WEMO's volumetric charges in a manner that would be revenue neutral to the authorized revenue requirements in this proceeding; and (c)

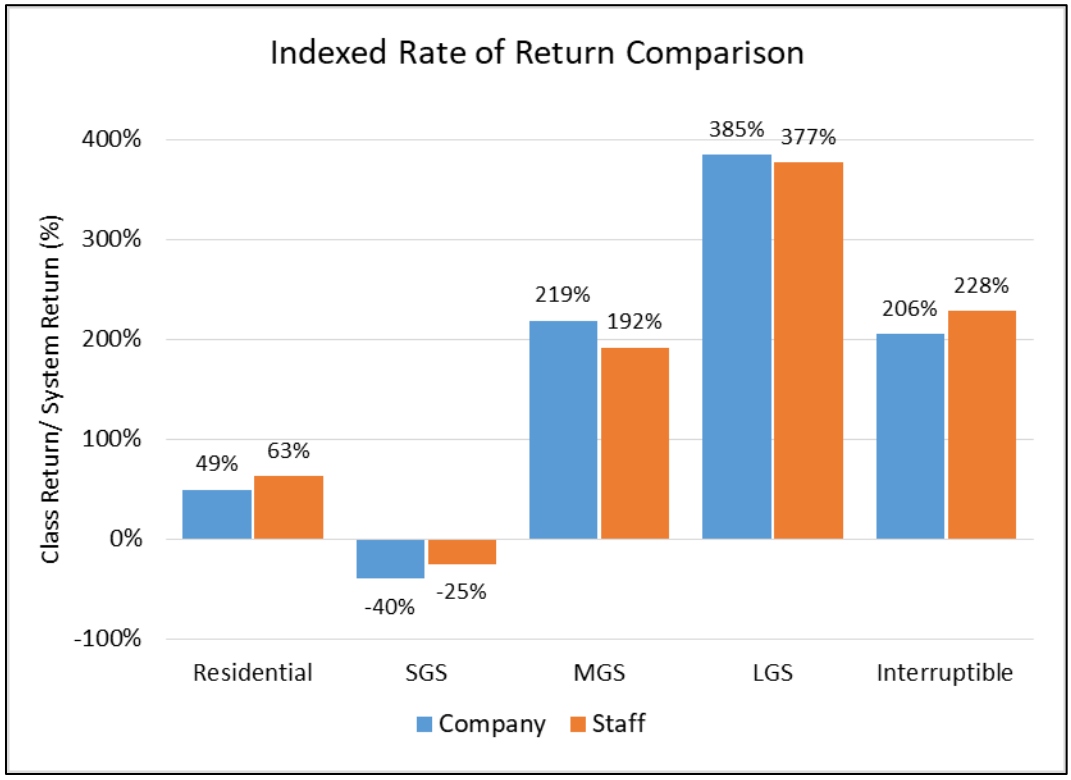
approval of either the proposed Volume Balancing Account Rider or a Weather Normalization Adjustment Rider, similar to that approved by the Commission in the Spire rate case proceeding but applicable to both Residential and SGS rate classes.

III. CLASS COST OF SERVICE STUDIES

Q. PLEASE COMPARE THE RESULTS OF THE COMPANY AND STAFF'S CCOS.

A. The results of the Company and Staff's CCOS are shown in Figure 8. The Figure compares the CCOS results on the basis of Indexed Rates of Return (or "Indexed ROR") – calculated as the class ROR as a percentage of the overall or system ROR – since each CCOS is based on a different system ROR. The Figure shows that the MGS, LGS, and Interruptible classes earn RORs higher than the system ROR (*i.e.,* Indexed ROR > 100.0%), while the Residential and SGS classes earn RORs less than the system ROR (*i.e.,* Indexed ROR < 100.0%). For example, Figure 8 shows that in Staff's CCOS the residential class earns a higher ROR as a percent of the system ROR (63.0 percent) than the Company's CCOS (49.0 percent). Staff's CCOS shows higher indexed returns for the Residential, SGS, and Interruptible classes, and lower indexed returns for the MGS and LGS classes.

Figure 8: CCOS Comparison



Q. WHAT IS THE PRIMARY DIFFERENCE BETWEEN THE CCOS RESULTS?

A. The primary difference between the Company and Staff's CCOS is related to the allocation of distribution plant, which represents approximately 85.0 percent of total plant investment. The distribution plant allocator is also used to allocate general plant investment and O&M expenses.

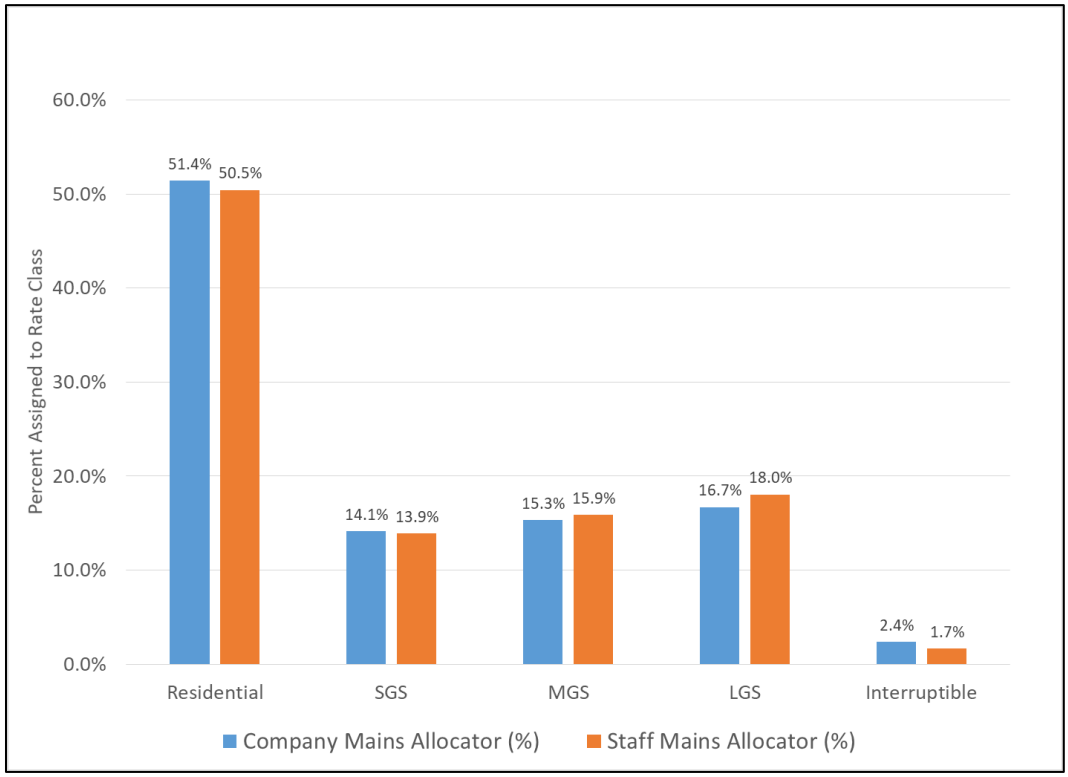
Other differences include:

1. Staff developed a P&A allocator based on revised billing determinants.
2. Staff developed a composite allocator to allocate meter, meter installation and house regulator investments rather than use the Company's approach of allocating those investments using individual allocators.
3. Staff developed a labor allocator to allocate A&G expenses.

Q. WHAT IS THE PRIMARY DIFFERENCE BETWEEN THE COMPANY AND STAFF'S ALLOCATION OF DISTRIBUTION MAINS?

A. Figure 9 shows the difference between the Company and Staff's allocation of distribution mains. The Figure compares the allocation of distribution mains to each rate class. The Figure shows that Staff's CCOS allocates a lower percentage of distribution mains to the Residential and SGS classes as compared to the Company's CCOS, and a higher percentage of distribution mains to the LGS class. Specifically, Staff's CCOS allocates 50.5 percent of distribution mains to the Residential class as compared to the Company's CCOS which allocates 51.4 percent of distribution mains to the Residential class.

Figure 9: Comparison of Mains Allocator (All Districts)



Q. WHAT IS THE PRIMARY DIFFERENCE IN THE ALLOCATION OF DISTRIBUTION MAINS?

A. While both studies utilize a P&A allocator to allocate distribution mains, Staff's P&A is based on revised billing determinants.

Q. WHAT IS THE BASIS FOR THE REVISED BILING DETERMINANTS?

A. Staff proposes to revise the billing determinants to reflect an update in the Company's customers and sales through December 31, 2017. The impact of the revised billing determinants is shown in Figure 10. In aggregate, the revised billing determinants reflect a slight decrease in the number of customers and sales volumes, although some classes, such as the LGS class, experience a significant increase in sales volumes.

Figure 10: Comparison of Company and Staff Billing Determinants

	Staff				Company				Difference			
	NEMO	SEMO	WEMO	Total	NEMO	SEMO	WEMO	Total	NEMO	SEMO	WEMO	Total
Customers												
Residential	188,071	329,212	39,351	556,634	188,750	329,625	39,329	557,704	(679)	(413)	22	(1,070)
SGS	25,373	39,829	6,338	71,540	25,359	39,891	6,331	71,581	14	(62)	7	(41)
MGS	4,000	6,376	432	10,808	3,989	6,338	416	10,743	11	38	16	65
LGS	183	315	37	535	214	372	44	630	(31)	(57)	(7)	(95)
Interruptible	24	36		60	24	41		65	-	(5)	-	(5)
Total	217,651	375,768	46,158	639,577	218,336	376,267	46,120	640,723	(685)	(499)	38	(1,146)
Sales												
Residential	11,094,883	15,314,548	2,136,002	28,545,433	11,243,129	16,044,302	2,270,699	29,558,131	(148,247)	(729,754)	(134,697)	(1,012,698)
SGS	3,236,075	3,903,903	697,349	7,837,327	3,270,045	4,025,648	726,456	8,022,149	(33,970)	(121,745)	(29,107)	(184,822)
MGS	4,384,844	5,324,953	513,161	10,222,958	4,440,882	5,206,401	494,665	10,141,947	(56,038)	118,553	18,496	81,011
LGS	4,646,290	11,920,724	1,197,047	17,764,061	4,328,322	10,955,357	1,221,973	16,505,651	317,968	965,367	(24,925)	1,258,410
Interruptible	913,480	551,089		1,464,569	1,054,605	552,074		1,606,679	(141,125)	(985)	-	(142,110)
Total	24,275,571	37,015,218	4,543,560	65,834,349	24,336,983	36,783,781	4,713,793	65,834,557	(61,412)	231,436	(170,233)	(208)

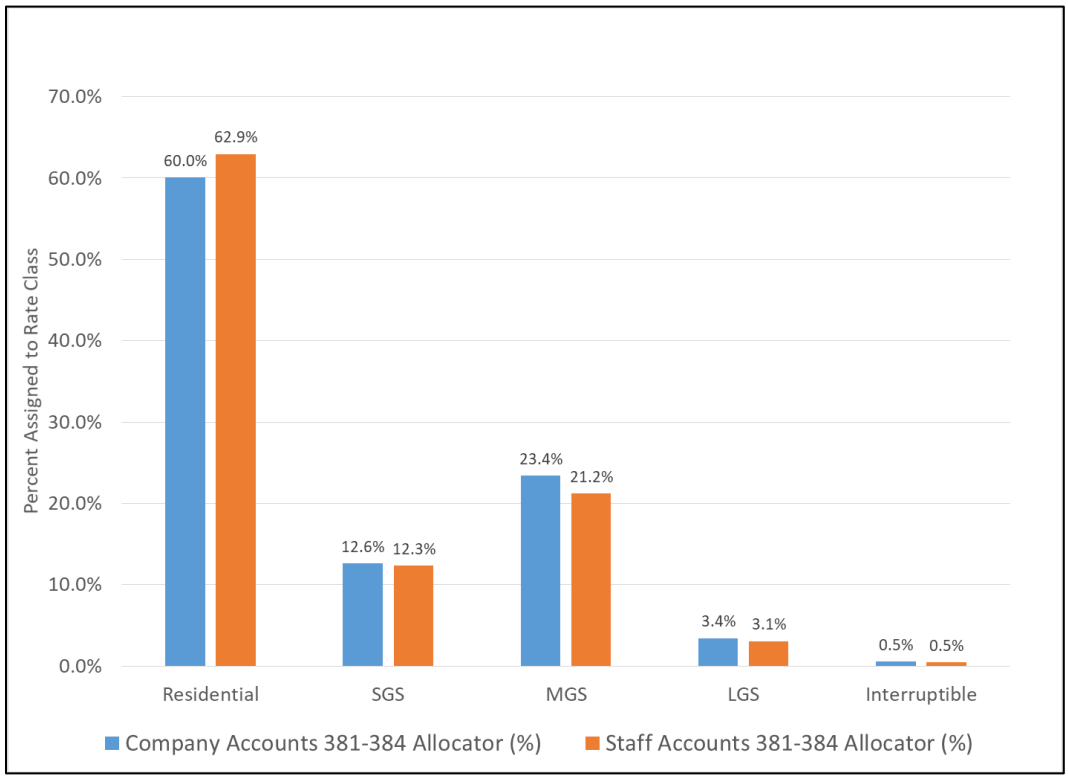
Q. WHAT IS THE COMPANY'S POSITION REGARDING STAFF'S REVISED BILLING DETERMINANTS, AND ALLOCATION OF MAINS?

A. The Company is in the process of evaluating Staff's proposed changes in the billing determinants and will fully address this issue as part of surrebuttal testimony.

Q. WHAT IS THE PRIMARY DIFFERENCE IN THE ALLOCATION OF METER, METER INSTALLATION, AND HOUSE REGULATOR INVESTMENTS?

A. Figure 11 summarizes the difference between the Company and Staff's allocation of meter, meter installation, and house regulator investments. The Figure compares the allocation of the investments across the rate classes. The Figure shows that Staff's CCOS allocates 62.9 percent of the investments to the Residential class as compared to the Company's CCOS that allocates 60.0 percent of the investments to the Residential class.

Figure 11: Comparison of Meters, Meter Installations, and Regulators Allocator



Q. WHAT IS THE REASON FOR THE DIFFERENCE?

A. Staff relied on a 'composite' allocator to allocate the investments; whereas, the Company used individual allocators for each of the investments. Specifically, the Company developed a meter allocator to allocate the meter investments based on a special study of meter investments associated with each rate class. Similarly, the Company developed meter installation and house regulator allocators to allocate, respectively, meter installation and house regulator investments associated with each class based on a special study of the meter installation and house regulator investments associated with each rate class. In comparison, Staff used the individual allocators to develop a composite allocator for allocating

meter, meter installation, and regulator investments. For example, Staff allocated meter investments based on the composite allocation of meters, meter installations, and regulators. Similarly, meter installation and regulator costs were allocated based on the composite allocator.

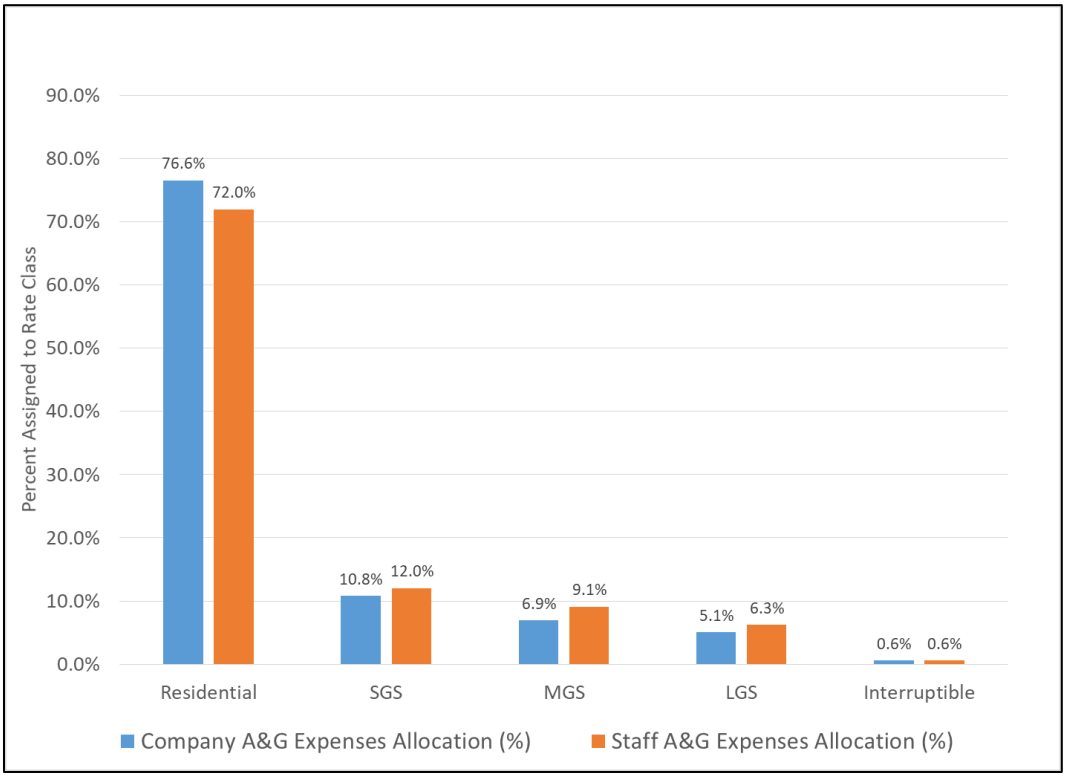
Q. WHAT IS THE COMPANY'S POSITION REGARDING STAFF'S ALLOCATION OF METERS, METER INSTALLATIONS, AND REGULATORS?

A. The Company believes that its approach of using the individual allocators increases the level of precision in the allocation of these investments as the individual allocators better reflect the cost causation of each individual investment.

Q. WHAT IS THE PRIMARY DIFFERENCE BETWEEN THE COMPANY AND STAFF'S ALLOCATION OF A&G EXPENSES?

A. Figures 12 summarizes the difference between the Company and Staff's allocation of A&G expenses. The Figure compares the percentage of A&G expenses allocated to each rate class across the three regions. Figure 12 shows that Staff's CCOS allocates 72.0 percent of A&G expenses to the Residential class as compared to the Company's CCOS that allocated 76.6 percent of A&G expenses to the Residential class.

Figure 12: Comparison of A&G Expenses Allocator



Q. WHAT IS THE REASON FOR THE DIFFERENCE?

A. Staff relied on a labor allocator to allocate A&G expenses, *e.g.*, employee salaries, pension and benefits. In comparison, the Company allocated A&G expenses based on a composite allocator derived from the allocation of all expenses other than A&G, *i.e.*, production, transmission, storage, distribution, customer service, and customer accounts expenses.

Q. WHAT IS THE COMPANY'S POSITION REGARDING STAFF'S ALLOCATION OF A&G EXPENSES?

A. The Company continues to support the A&G allocator used in its CCOS; however, Staff's approach is similarly consistent with industry practice and produce reasonable results.[2]

Q. PLEASE SUMMARIZE THE COMPANY'S POSITION ON THE DIFFERENCES IN THE CCOS STUDIES?

A. The Company continues to support the allocators used in its CCOS since they are consistent with past studies, are recognized by NARUC and other authorities of utility rate design, reflect the Company's planning of facilities investments, and reflect the underlying cost of service. However, the Company does not oppose Staff's revised allocators related to the P&A and A&G allocators.

IV. REVENUE DECOUPLING/ WEATHER NORMALIZATION

Q. HAS THE COMPANY PROPOSED A REVENUE DECOUPLING MECHANISM IN THIS RATE PROCEEDING?

A. Yes. The Company proposed a Volume Balancing Account ("VBA") Rider in its direct filing that is designed to decouple the Company's revenues from the Company's sales volume. Rider VBA reduces the challenge faced by many gas utilities of over- or under- recovery of fixed costs resulting from fluctuations in customer usage. The implementation of Rider VBA was discussed in my direct

[2] NARUC Electric Utility Cost Allocation Manual (January 1992) at page 105 presents both methods to allocate A&G expenses, i.e., 1) based on sum of other O&M expenses, and 2) based on operating labor ratios.

testimony,[3] while Company witness Hevert discussed the overall benefits of such decoupling mechanism.[4]

Q. IF THE COMMISSION DOES NOT APPROVE RIDER VBA, IS THERE AN ALTERNATIVE MECHANISM THAT THE COMPANY WOULD LIKE THE COMMISSION TO CONSIDER?

A. Yes. As part of any overall rate design solution discussed earlier, the Company proposes to implement either the proposed VBA Rider or a WNAR, similar to that approved by the Commission in the Spire rate case proceeding but applicable to both Residential and SGS rate classes.[5]

Q. WHY HAS THE COMPANY INCLUDED THE SGS CLASS IN THE WNAR?

A. The Company included the SGS class in the WNAR because there is a strong statistical relationship between SGS sales and Heating Degree Days. Specifically, ScottMadden performed a regression analysis of HDD on Residential and SGS sales to quantify the relationship between HDD and Residential and SGS sales.

Q. WHAT DID THE REGRESSION ANALYSIS SHOW?

A. A regression analysis produces an R-Square, which measures the extent to which changes in a dependent variable (in this case Residential and SGS sales) can be

[3] See *Lyons Direct* at pages 30-34
[4] See *Hevert Direct* at pages 16-22
[5] See *Report and Order* at pages 83-85; issued February 21, 2018, in File Nos. GR-2017-0215 and GR-2017-0216

explained by changes in an independent variable (in this case HDD). The R-Square results are shown in Figure 13.

Figure 13: R-Square Results

R-Square	Residential	SGS
NEMO	98.45%	96.58%
SEMO	98.27%	95.89%
WEMO	98.69%	96.53%

The Figure shows that over 98.0 percent of the variation in Residential sales can be explained by variations in HDD across the regions, and approximately 96.0 percent of the variation in SGS sales can be explained by variations in HDD. In other words, there is strong correlation between HDD and sales for both the Residential and SGS classes and thus both classes should be included in the WNAR.

Q. PLEASE DESCRIBE THE WEATHER NORMALIZATION ADJUSTMENT RIDER.

A. The proposed WNAR is provided in Schedule TSL-R2. The WNAR is applicable to the Company's Residential and SGS customer classes across the three regions. The WNAR is a form of decoupling that helps stabilize the recovery of the revenue requirements approved by the Commission. The WNAR enables the Company to adjust rates – downwards or upwards – based on the impact of colder- and warmer-than-normal temperatures. For example, the Company would adjust rates downward to reflect higher revenues due to colder-than-normal temperatures.

Q. PLEASE DESCRIBE THE COMPANY'S PROPOSED APPROACH FOR CALCULATING THE WEATHER NORMALIZATION ADJUSTMENT?

A. The formula for the weather normalization adjustment is shown in Figure 14

Figure 14: Weather Normalization Adjustment Formula

$$WNA_i = \sum_{j=1}^{18} \left(NDD_{ij} - ADD_{ij}\right) . C_{ij}\right) . \beta$$

Where:

i	=	The applicable billing cycle month
WNA_i	=	Weather Normalization Adjustment
j	=	The billing cycle
NDD_{ij}	=	The total normal HDDs based on daily normal weather as determined in the most recent rate case
ADD_{ij}	=	The total actual heating degree days, base 65°
C_i	=	The total number of customer charges charged in billing month i
β	=	The coefficient representing use per customer per heating degree day

The Figure shows that the weather normalization adjustment is based on two components: (1) the difference between Actual and Normal Heating Degree Days ("HDD"); and (2) the use per customer per HDD, which is represented by a Beta (β) Coefficient. The β coefficient is based on a regression analysis of actual HDD per day on actual use per customer per day. In other words, the β coefficient represents change in use per customer per day resulting from a change in actual HDDs. Figure 15 below shows the derivation of the proposed β coefficient for the Residential class in NEMO region using 2017 data.

Figure 15: β coefficient Calculation for NEMO Residential Customer Class

NEMO Residential Customers	Use Therms	Number of Customers	Use per Day	Actual Customer * HDD per Day	Use per Customer per Day	Actual HDD per Day
		(a)	(b)	(c)	(d) = (b) / (a)	(e) = (c) / (a)
Jul	141,246	15,206	4,618	4,187	0.3037	0.2753
Aug	128,931	15,165	4,356	1,034	0.2872	0.0682
Sep	148,611	15,173	4,640	10,048	0.3058	0.6622
Oct	177,022	15,227	5,981	41,725	0.3928	2.7402
Nov	880,972	15,651	29,446	290,875	1.8814	18.5851
Dec	1,368,749	15,969	47,267	417,288	2.9599	26.1312
Jan	2,539,333	16,138	76,250	627,091	4.7249	38.8580
Feb	1,821,270	16,130	65,045	507,754	4.0326	31.4789
Mar	1,279,522	16,118	43,562	377,024	2.7027	23.3915
Apr	965,741	15,974	30,842	275,466	1.9308	17.2447
May	464,548	15,807	15,375	146,078	0.9727	9.2413
Jun	200,460	15,444	6,507	35,143	0.4213	2.2755
12ME Dec'17	10,116,406	188,002				
					β Coefficient	0.1143

Q. HOW WOULD THE WNAR BE APPLIED TO THE HEATING SEASON?

A. Figure 16 shows an illustration of a 2017 weather normalization adjustment for the NEMO Residential class. The weather normalization adjustment was based on the difference between Actual and Normal HDDs, multiplied by the β coefficient, the number of customers and the revenues per CCF. Colder-than-normal weather (*i.e.*, higher than normal HDDs) would produce a downward adjustment to rates, while warmer-than-normal weather (*i.e.*, lower than normal HDDs) would produce an upward adjustment to rates.

Figure 16: 2017 Weather Normalization Adjustment for NEMO Residential Customer Class

NEMO Residential Customers	Number of Customers	Number of Actual HDD	Number of Normal HDD	Normal HDD - Actual HDD	β Coefficient	Sales Adjustment (CCF)
	(a)	(b)	(c)	(d) = (c) - (b)	(e)	(f) = (a) x (d) x (e)
Jul	15,206	8	15	6	0.1143	11,282
Aug	15,165	2	7	5	0.1143	8,705
Sep	15,173	21	49	28	0.1143	48,108
Oct	15,227	83	156	73	0.1143	127,005
Nov	15,651	558	574	16	0.1143	27,854
Dec	15,969	764	736	(28)	0.1143	(51,561)
Jan	16,138	1,289	1,278	(11)	0.1143	(20,044)
Feb	16,130	879	1,052	173	0.1143	319,564
Mar	16,118	690	866	176	0.1143	324,378
Apr	15,974	536	617	82	0.1143	149,116
May	15,807	278	303	25	0.1143	45,619
Jun	15,444	69	61	(8)	0.1143	(13,730)
12ME Dec'17	188,002	5,177	5,714	537		976,296
NEMO Residential Service: Commodity Rate $/CCF					(g)	0.2769
Revenue Adjustment					(h) = (g) x Sum of (f)	**$270,336**

Q. HAS THE COMPANY PREPARED A TARIFF FOR THE WEATHER NORMALIZATION ADJUSTMENT RIDER?

A. Yes. Company's has prepared a tariff for proposed WNAR which is provided in Schedule TSL-R2. The tariff provides more details on the WNA calculation, and Company's proposed terms for the WNAR.

V. COST TRACKERS

Q. PLEASE SUMMARIZE STAFF'S POSITION REGARDING THE COMPANY'S PROPOSED CAPITAL RELIABILITY TRACKER.

A. Staff does not support the Capital Reliability Tracker ("CR Tracker"), stating that they will address the issue in rebuttal testimony. [6]

[6] Staff Cost of Service Report at page 15

Q. WHAT IS THE COMPANY'S POSITION REGARDING ITS PROPOSED CR TRACKER.

A. The Company continues to believe that a CR Tracker is necessary and provides significant benefits to the Company and its customers, consistent with the current Infrastructure System and Replacement Surcharge ("ISRS"). The Company believes that the Infrastructure System and Replacement Surcharge (ISRS) is working well and is an effective way to recover infrastructure spending that is not currently included in base rates. However, ISRS eligibility is restrictive. Specifically, ISRS eligibility is restricted to the following infrastructure spending:

> *Mains, valves, service lines, regulatory stations, vaults, and other pipeline system components to comply with state or federal safety requirements as replacements for existing facilities that have worn out or are in deteriorated condition;*
>
> *Main relining projects, service line insertion projects, joint encapsulation projects, and other similar projects extending the useful life or enhancing the integrity of pipeline system components undertaken to comply with state or federal safety requirements;*
>
> *Facilities relocations required due to construction or improvement of a highway, road, street, public way, or other public work.*

The Company believes that this limitation excludes infrastructure spending on production, transmission and distribution plant facilities that also provide safe and reliable service to customers but has not been mandated by state or federal safety requirements. For example, the Company believes that Polyvinyl Chloride (PVC) pipe should be replaced on a similar basis as cast-iron/ bare-steel main to provide safe and reliable service to customers. However, Polyvinyl Chloride (PVC) pipe is not ISRS eligible since it has not been mandated by state or federal safety

requirements. As a solution, the Company proposed the CR Tracker to recover the costs associated with Polyvinyl Chloride (PVC) pipe as well as other infrastructure spending related to production, transmission and distribution plant facilities. The Company proposes that the calculation of the CR Tracker is consistent with the calculation of the ISRS.

Q. PLEASE SUMMARIZE STAFF'S RECOMMENDATION RELATED TO COMPANY'S PROPOSED AD VALOREM OR PROPERTY EXPENSE TRACKER.

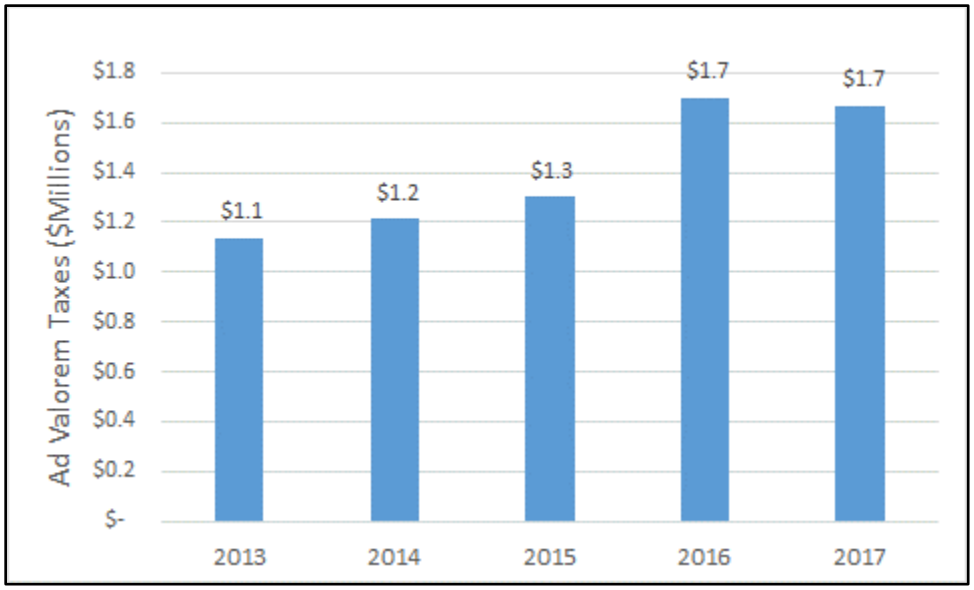
A. Staff does not support the Company's proposed Ad Valorem Tax Tracker ("AVT Tracker"), stating that property tax expenses are "not extraordinary as they are incurred every year and are not volatile." [7]

Q. WHAT IS THE COMPANY'S POSITION REGARDING THE AVT TRACKER PROPERTY EXPENSE TRACKER.

A. The Company continues to believe that an AVT Tracker is necessary and provides significant benefits to the Company and its customers. The Company's analysis shows significant variability in property tax expenses over the past five years. Figure 17 shows this historic variability in Company's ad valorem taxes for NEMO, SEMO and WEMO. The Figure shows that the Company's historical ad valorem taxes ranged from a low of $1.1 million to a high of $1.7 million.

[7] Staff Cost of Service Report at page 74

Figure 17: 5-Year Historical Ad Valorem Taxes for NEMO, SEMO and WEMO Regions



The Company believes that such variation in ad valorem taxes justifies the AVT Tracker to ensure that there is no over-recovery or under-recovery of ad valorem taxes. Such over- or under-recovery could be as much as $0.6 million. The Company's proposed AVT Tracker eliminates such over- or under-recovery of costs through an annual true-up of taxes, ensuing that the Company recovers only the ad valorem taxes paid each year.

Q. PLEASE SUMMARIZE STAFF'S RECOMMENDATION RELATED TO COMPANY'S PROPOSED BAD DEBT EXPENSES TRACKER.

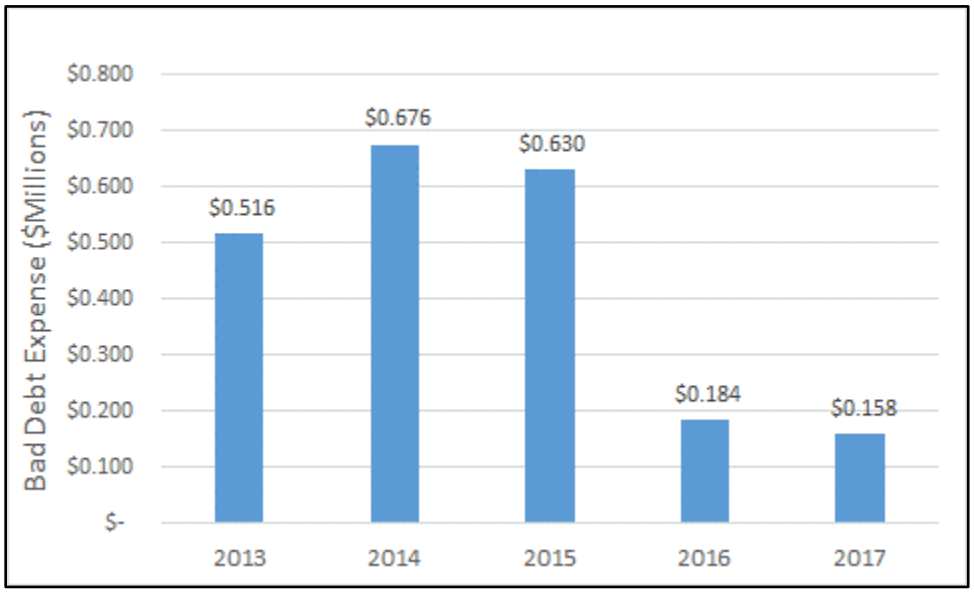
A. Staff does not believe that the Company's proposed Bad Debt Tracker ("BD Tracker") is necessary, stating that it will address the issue in rebuttal testimony.[8]

[8] Staff Cost of Service Report at page 75

Q. WHAT IS THE COMPANY'S POSITION REGARDING THE BD TRACKER?

A. The Company continues to believe that a BD Tracker is necessary and provides significant benefits to the Company and its customers. The Company's analysis shows significant variability in Bad Debt expenses over the past five years. Figure 18 shows this historic variability in Company's bad debt expenses for NEMO, SEMO and WEMO. The Figure shows that the Company's historical ad valorem taxes ranged from a low of $0.158 million to a high of $0.676 million.

Figure 18: 5-Year Historical Bad Debt Expenses for NEMO, SEMO and WEMO Regions



The Company believes that such variation in bad debt expenses justifies the BD Tracker to ensure that there is no over-recovery or under-recovery of bad debt expenses. Such over- or under-recovery could be as much as $500,000. The Company's proposed BD Tracker eliminates such over- or under-recovery of

costs through an annual true-up of expenses, ensuing that the Company recovers only bad debt expenses incurred each year.

Q. PLEASE SUMMARIZE STAFF'S RECOMMENDATION RELATED TO COMPANY'S PROPOSED VEGETATION MANAGEMENT/RIGHT-OF-WAY TRACKER.

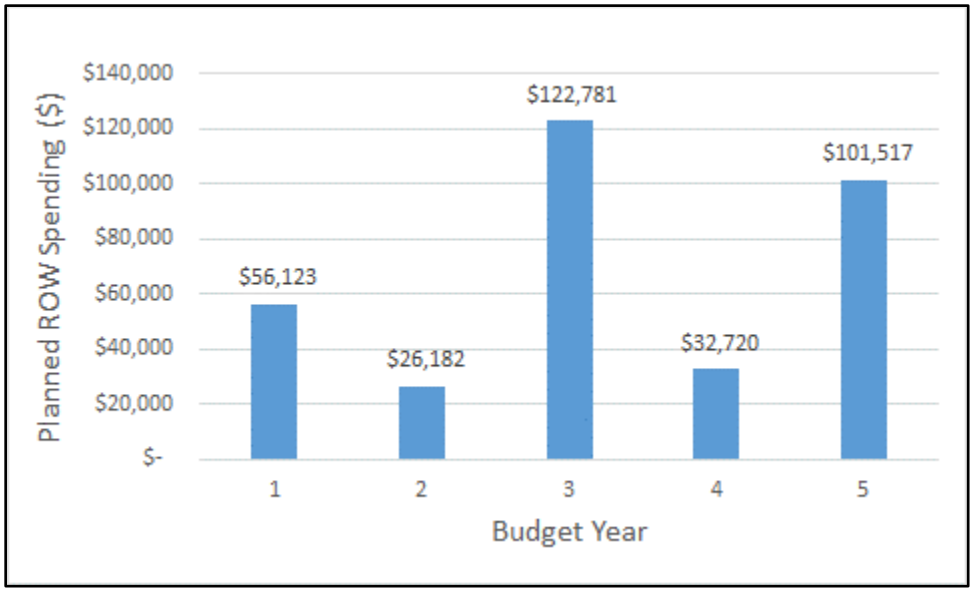
A. Staff does not believe that the Company's proposed Vegetation Management/ Right-of-Way Tracker ("ROW Tracker") is necessary as they are "not extraordinary, volatile nor material in nature." [9]

Q. WHAT IS THE COMPANY'S POSITION REGARDING THE ROW TRACKER?

A. The Company continues to believe that a ROW Tracker is necessary and provides significant benefits to the Company and its customers. The Company's planned Vegetation Management/ Right-of-Way ("ROW") spending over the next five years shows significant variability in vegetation management/right-of-way expenses. Figure 19 shows that the Company's planned spending varies significantly by year, with planned ROW spending ranging from a low of $26,182 to a high of $122,781. Planned ROW spending varies based on the number of miles needed to be worked each year as well as the cost per mile.

[9] Staff Cost of Service Report at page 77

Figure 19: 5-Year Planned ROW Spending for NEMO, SEMO and WEMO Regions



The Company believes that such variation in planned ROW spending justifies the ROW Tracker to ensure that there is no over-recovery or under-recovery of ROW expenses. Such over- or under-recovery of ROW expenses could be as much as $100,000. The Company's proposed ROW Tracker eliminates such over- or under-recovery of ROW expenses through an annual true-up of expenses, ensuring that the Company recovers only ROW expenses incurred each year.

Q. PLEASE SUMMARIZE THE COMPANY'S POSITION ON PROPOSED COST TRACKERS.

A. The Company continues to believe that the proposed trackers are necessary and provide significant benefits to the Company and its customers. In addition, these cost recovery mechanisms are consistent with Missouri Statute.[10]

[10] See *Hevert Direct* at pages 20-21

VI. CONCLUSION

Q. PLEASE SUMMARIZE THE COMPANY'S REBUTTAL POSITION?

A. The Company continues to support its CCOS and rate design proposals. These include:

1. Consolidation of rates.
2. The CCOS study.
3. Proposed VBA Rider.
4. Proposed Cost Trackers.

The Company proposes an overall rate design solution that includes a phased approach to full consolidation of rates. The rate design solution includes Staff's partial consolidation of rates, including the revenue shift and methodology to adjust rates if the approved revenue requirement exceeds Staff's revenue requirement.

The Company's rate design solution also includes approval of Rider VBA or WNAR, consistent with the WNAR recently approved by the Commission in the most recent Laclede Gas Company and Missouri Gas Energy rate case proceedings, but applicable to the Residential and SGS rate classes.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

PARTIALLY CONSOLIDATED RATES COMPARISON

Rate Design Comparison	Current	Staff Proposed	* Staff Adjusted	Company Proposed
Residential				
Customer Charges				
NEMO	$ 20.00	$ 22.00	$ 27.50	$ 22.50
SEMO	$ 13.75	$ 16.00	$ 20.00	$ 22.50
WEMO	$ 20.00	$ 22.00	$ 27.50	$ 22.50
Volumetric Charges				
NEMO	$ 0.27690	$ 0.22828	$ 0.28536	$ 0.29446
SEMO	$ 0.18370	$ 0.22828	$ 0.28536	$ 0.29446
WEMO	$ 0.19206	$ 0.22828	$ 0.28536	$ 0.29446
Small General Service				
Customer Charges				
NEMO	$ 28.26	$ 30.00	$ 37.50	$ 34.00
SEMO	$ 17.46	$ 25.00	$ 31.25	$ 34.00
WEMO	$ 23.80	$ 28.00	$ 35.00	$ 34.00
Volumetric Charges				
NEMO	$ 0.07187	$ 0.09715	$ 0.12144	$ 0.11716
SEMO	$ 0.05782	$ 0.09715	$ 0.12144	$ 0.11716
WEMO	$ 0.06954	$ 0.09715	$ 0.12144	$ 0.11716
Medium General Service				
Customer Charges				
NEMO	$ 124.60	$ 130.00	$ 162.50	$ 140.00
SEMO	$ 126.99	$ 125.00	$ 156.25	$ 140.00
WEMO	$ 118.01	$ 120.00	$ 150.00	$ 140.00
Volumetric Charges				
NEMO	$ 0.23180	$ 0.21085	$ 0.26357	$ 0.27935
SEMO	$ 0.21124	$ 0.21085	$ 0.26357	$ 0.27935
WEMO	$ 0.26103	$ 0.21085	$ 0.26357	$ 0.27935
Large General Service				
Customer Charges				
NEMO	$ 623.01	$ 700.00	$ 875.02	$ 750.00
SEMO	$ 634.95	$ 750.00	$ 937.53	$ 750.00
WEMO	$ 590.03	$ 750.00	$ 937.53	$ 750.00
Volumetric Charges				
NEMO	$ 0.14583	$ 0.14251	$ 0.17814	$ 0.17926
SEMO	$ 0.18255	$ 0.14251	$ 0.17814	$ 0.17926
WEMO	$ 0.17794	$ 0.14251	$ 0.17814	$ 0.17926
Interruptible Service				
Customer Charges				
NEMO	$ 623.01	$ 650.00	$ 812.52	$ 750.00
SEMO	$ 634.95	$ 650.00	$ 812.52	$ 750.00
WEMO	$ -	$ 650.00	$ 812.52	$ 750.00
Volumetric Charges				
NEMO	$ 0.14583	$ 0.15481	$ 0.19352	$ 0.18908
SEMO	$ 0.18255	$ 0.15481	$ 0.19352	$ 0.18908
WEMO	$ -	$ 0.15481	$ 0.19352	$ 0.18908

* Reflects Staff's Rate Design adjusted to reflect the Company's proposed Revenue Requirement

BILL IMPACT ANALYSIS: PARTIAL CONSOLIDATION VS. FULL CONSOLIDATION AT COMPANY REVENUE REQUIREMENT

RESIDENTIAL SERVICE

Bill Impact Analysis: Residential Service		Partial Consolidation at Company Revenue Requirement					Full Consolidation at Company Revenue Requirement				
		Low 20	Low 35	Med 50	Med 65	High 150	Low 20	Low 35	Med 50	Med 65	High 150
NEMO	Existing	$ 27.03	$ 31.18	$ 35.34	$ 39.49	$ 63.03	$ 27.03	$ 31.18	$ 35.34	$ 39.49	$ 63.03
SEMO	Existing	17.47	20.23	22.99	25.74	41.36	17.47	20.23	22.99	25.74	41.36
WEMO	Existing	24.63	27.51	30.39	33.27	49.60	24.63	27.51	30.39	33.27	49.60
NEMO	Proposed	$ 33.21	$ 37.49	$ 41.77	$ 46.05	$ 70.30	$ 28.39	$ 32.81	$ 37.22	$ 41.64	$ 66.67
SEMO	Proposed	25.71	29.99	34.27	38.55	62.80	28.39	32.81	37.22	41.64	66.67
WEMO	Proposed	33.21	37.49	41.77	46.05	70.30	28.39	32.81	37.22	41.64	66.67
NEMO	Diff.	$ 6.18	$ 6.31	$ 6.43	$ 6.56	$ 7.28	$ 1.36	$ 1.62	$ 1.89	$ 2.15	$ 3.64
SEMO	Diff.	8.23	9.76	11.28	12.81	21.45	10.92	12.58	14.24	15.90	25.31
WEMO	Diff.	8.58	9.98	11.38	12.77	20.71	3.76	5.29	6.83	8.37	17.07
NEMO	% Diff.	22.9%	20.2%	18.2%	16.6%	11.5%	5.0%	5.2%	5.3%	5.4%	5.8%
SEMO	% Diff.	47.1%	48.2%	49.1%	49.8%	51.9%	62.5%	62.2%	61.9%	61.8%	61.2%
WEMO	% Diff.	34.8%	36.3%	37.4%	38.4%	41.7%	15.3%	19.2%	22.5%	25.1%	34.4%
NEMO	Cum. % of Customers	6.9%	25.0%	54.0%	76.4%	99.2%	6.9%	25.0%	54.0%	76.4%	99.2%
SEMO	Cum. % of Customers	15.3%	44.4%	74.0%	89.2%	99.8%	15.3%	44.4%	74.0%	89.2%	99.8%
WEMO	Cum. % of Customers	9.2%	31.6%	60.4%	82.1%	99.9%	9.2%	31.6%	60.4%	82.1%	99.9%
NEMO	Cum. % of Usage	1.6%	11.5%	35.2%	59.7%	96.4%	1.6%	11.5%	35.2%	59.7%	96.4%
SEMO	Cum. % of Usage	4.5%	25.0%	55.9%	77.5%	98.9%	4.5%	25.0%	55.9%	77.5%	98.9%
WEMO	Cum. % of Usage	2.6%	16.2%	42.6%	68.9%	99.5%	2.6%	16.2%	42.6%	68.9%	99.5%

SMALL GENERAL SERVICE

Bill Impact Analysis: Small General Service (SGS)		Partial Consolidation at Company Revenue Requirement				Full Consolidation at Company Revenue Requirement			
		Low 25	Low 50	Med 150	High 500	Low 25	Low 50	Med 150	High 500
NEMO	Existing	$ 32.2	$ 34.0	$ 41.1	$ 66.3	$ 32.2	$ 34.0	$ 41.1	$ 66.3
SEMO	Existing	$ 19.0	$ 20.4	$ 26.2	$ 46.4	$ 19.0	$ 20.4	$ 26.2	$ 46.4
WEMO	Existing	$ 26.5	$ 28.2	$ 35.2	$ 59.5	$ 26.5	$ 28.2	$ 35.2	$ 59.5
NEMO	Proposed	$ 40.5	$ 43.6	$ 55.7	$ 98.2	$ 36.9	$ 39.9	$ 51.6	$ 92.6
SEMO	Proposed	$ 34.3	$ 37.3	$ 49.5	$ 92.0	$ 36.9	$ 39.9	$ 51.6	$ 92.6
WEMO	Proposed	$ 38.0	$ 41.1	$ 53.2	$ 95.7	$ 36.9	$ 39.9	$ 51.6	$ 92.6
NEMO	Diff.	$ 8.4	$ 9.6	$ 14.6	$ 31.9	$ 4.8	$ 5.9	$ 10.4	$ 26.3
SEMO	Diff.	$ 15.3	$ 16.9	$ 23.3	$ 45.5	$ 18.0	$ 19.4	$ 25.4	$ 46.1
WEMO	Diff.	$ 11.6	$ 12.9	$ 18.0	$ 36.2	$ 10.5	$ 11.6	$ 16.4	$ 33.1
NEMO	% Diff.	26.1%	28.3%	35.4%	48.2%	14.8%	17.4%	25.4%	39.6%
SEMO	% Diff.	80.8%	82.9%	88.9%	98.1%	94.7%	95.3%	96.9%	99.4%
WEMO	% Diff.	43.6%	45.6%	51.3%	60.8%	39.5%	41.3%	46.6%	55.6%
NEMO	Cum. % of Customers	15.6%	35.1%	78.6%	97.3%	15.6%	35.1%	78.6%	97.3%
SEMO	Cum. % of Customers	25.4%	50.5%	86.4%	98.7%	25.4%	50.5%	86.4%	98.7%
WEMO	Cum. % of Customers	20.7%	45.6%	82.0%	97.8%	20.7%	45.6%	82.0%	97.8%
NEMO	Cum. % of Usage	1.8%	8.2%	41.8%	83.3%	1.8%	8.2%	41.8%	83.3%
SEMO	Cum. % of Usage	3.9%	14.9%	52.2%	88.8%	3.9%	14.9%	52.2%	88.8%
WEMO	Cum. % of Usage	3.0%	12.3%	44.4%	84.9%	3.0%	12.3%	44.4%	84.9%

MEDIUM GENERAL SERVICE

Bill Impact Analysis: Medium General Service (MGS)		Partial Consolidation at Company Revenue Requirement				Full Consolidation at Company Revenue Requirement			
		Low 300	Low 500	Med 1,000	High 7,000	Low 300	Low 500	Med 1,000	High 7,000
NEMO	Existing	$ 203	$ 250	$ 366	$ 1,756	$ 203	$ 250	$ 366	$ 1,756
SEMO	Existing	191	233	339	1,606	191	233	339	1,606
WEMO	Existing	201	253	384	1,950	201	253	384	1,950
NEMO	Proposed	$ 242	$ 294	$ 426	$ 2,007	$ 224	$ 280	$ 419	$ 2,095
SEMO	Proposed	235	288	420	2,001	224	280	419	2,095
WEMO	Proposed	229	282	414	1,995	224	280	419	2,095
NEMO	Diff.	$ 38	$ 45	$ 60	$ 251	$ 20	$ 30	$ 54	$ 339
SEMO	Diff.	45	55	81	395	33	47	81	489
WEMO	Diff.	28	29	30	45	23	26	36	146
NEMO	% Diff.	18.8%	17.8%	16.5%	14.3%	10.0%	12.0%	14.7%	19.3%
SEMO	% Diff.	23.3%	23.6%	24.0%	24.6%	17.3%	20.0%	23.8%	30.5%
WEMO	% Diff.	14.0%	11.3%	7.8%	2.3%	11.4%	10.5%	9.3%	7.5%
NEMO	Cum. % of Customers	24.2%	40.7%	67.5%	100.0%	24.2%	40.7%	67.5%	100.0%
SEMO	Cum. % of Customers	36.3%	57.4%	80.2%	100.0%	36.3%	57.4%	80.2%	100.0%
WEMO	Cum. % of Customers	18.8%	43.8%	71.9%	100.0%	18.8%	43.8%	71.9%	100.0%
NEMO	Cum. % of Usage	4.2%	11.2%	30.8%	100.0%	4.2%	11.2%	30.8%	100.0%
SEMO	Cum. % of Usage	10.0%	22.2%	46.0%	100.0%	10.0%	22.2%	46.0%	100.0%
WEMO	Cum. % of Usage	5.4%	16.9%	40.8%	100.0%	5.4%	16.9%	40.8%	100.0%

LARGE GENERAL SERVICE

Bill Impact Analysis: Large General Service (LGS)		Partial Consolidation at Company Revenue Requirement				Full Consolidation at Company Revenue Requirement			
		Low 7,000	Med 20,000	Med 50,000	High 150,000	Low 7,000	Med 20,000	Med 50,000	High 150,000
NEMO	Existing	$ 1,690	$ 3,586	$ 7,961	$ 22,544	$ 1,690	$ 3,586	$ 7,961	$ 22,544
SEMO	Existing	1,915	4,288	9,765	28,020	1,915	4,288	9,765	28,020
WEMO	Existing	1,859	4,172	9,510	27,304	1,859	4,172	9,510	27,304
NEMO	Proposed	$ 2,122	$ 4,438	$ 9,782	$ 27,596	$ 2,005	$ 4,335	$ 9,713	$ 27,638
SEMO	Proposed	2,185	4,500	9,845	27,659	2,005	4,335	9,713	27,638
WEMO	Proposed	2,185	4,500	9,845	27,659	2,005	4,335	9,713	27,638
NEMO	Diff.	$ 432	$ 852	$ 1,821	$ 5,052	$ 315	$ 749	$ 1,752	$ 5,095
SEMO	Diff.	270	212	80	(361)	90	47	(52)	(381)
WEMO	Diff.	326	328	334	354	146	163	202	334
NEMO	% Diff.	25.5%	23.8%	22.9%	22.4%	18.6%	20.9%	22.0%	22.6%
SEMO	% Diff.	14.1%	4.9%	0.8%	-1.3%	4.7%	1.1%	-0.5%	-1.4%
WEMO	% Diff.	17.5%	7.9%	3.5%	1.3%	7.8%	3.9%	2.1%	1.2%
NEMO	Cum. % of Customers	18.2%	63.6%	72.7%	100.0%	18.2%	63.6%	72.7%	100.0%
SEMO	Cum. % of Customers	25.0%	55.0%	85.0%	100.0%	25.0%	55.0%	85.0%	100.0%
WEMO	Cum. % of Customers	21.2%	46.2%	46.2%	46.2%	21.2%	46.2%	46.2%	46.2%
NEMO	Cum. % of Usage	4.4%	20.2%	29.5%	100.0%	4.4%	20.2%	29.5%	100.0%
SEMO	Cum. % of Usage	5.5%	19.1%	50.9%	100.0%	5.5%	19.1%	50.9%	100.0%
WEMO	Cum. % of Usage	2.4%	6.2%	6.2%	6.2%	2.4%	6.2%	6.2%	6.2%

STAFF BILL IMPACT ANALYSIS: WITHOUT ISRS VS. WITH ISRS

RESIDENTIAL SERVICE

Bill Impact Analysis: Residential Service		Staff Revenue Requirement & Staff Rate Design					Staff Revenue Requirement & Staff Rate Design (with ISRS)				
		Low 20	Low 35	Med 50	Med 65	High 150	Low 20	Low 35	Med 50	Med 65	High 150
NEMO	Existing	$ 25.54	$ 29.69	$ 33.85	$ 38.00	$ 61.54	$ 27.03	$ 31.18	$ 35.34	$ 39.49	$ 63.03
SEMO	Existing	17.42	20.18	22.94	25.69	41.31	17.47	20.23	22.99	25.74	41.36
WEMO	Existing	23.84	26.72	29.60	32.48	48.81	24.63	27.51	30.39	33.27	49.60
NEMO	Proposed	$ 26.57	$ 29.99	$ 33.41	$ 36.84	$ 56.24	$ 26.57	$ 29.99	$ 33.41	$ 36.84	$ 56.24
SEMO	Proposed	20.57	23.99	27.41	30.84	50.24	20.57	23.99	27.41	30.84	50.24
WEMO	Proposed	26.57	29.99	33.41	36.84	56.24	26.57	29.99	33.41	36.84	56.24
NEMO	Diff.	$ 1.03	$ 0.30	$ (0.43)	$ (1.16)	$ (5.29)	$ (0.46)	$ (1.19)	$ (1.92)	$ (2.65)	$ (6.78)
SEMO	Diff.	3.14	3.81	4.48	5.15	8.94	3.09	3.76	4.43	5.10	8.89
WEMO	Diff.	2.72	3.27	3.81	4.35	7.43	1.93	2.48	3.02	3.56	6.64
NEMO	% Diff.	4.0%	1.0%	-1.3%	-3.1%	-8.6%	-1.7%	-3.8%	-5.4%	-6.7%	-10.8%
SEMO	% Diff.	18.0%	18.9%	19.5%	20.0%	21.6%	17.7%	18.6%	19.3%	19.8%	21.5%
WEMO	% Diff.	11.4%	12.2%	12.9%	13.4%	15.2%	7.9%	9.0%	9.9%	10.7%	13.4%
NEMO	Cum. % of Customers	6.9%	25.0%	54.0%	76.4%	99.2%	6.9%	25.0%	54.0%	76.4%	99.2%
SEMO	Cum. % of Customers	15.3%	44.4%	74.0%	89.2%	99.8%	15.3%	44.4%	74.0%	89.2%	99.8%
WEMO	Cum. % of Customers	9.2%	31.6%	60.4%	82.1%	99.9%	9.2%	31.6%	60.4%	82.1%	99.9%
NEMO	Cum. % of Usage	1.6%	11.5%	35.2%	59.7%	96.4%	1.6%	11.5%	35.2%	59.7%	96.4%
SEMO	Cum. % of Usage	4.5%	25.0%	55.9%	77.5%	98.9%	4.5%	25.0%	55.9%	77.5%	98.9%
WEMO	Cum. % of Usage	2.6%	16.2%	42.6%	68.9%	99.5%	2.6%	16.2%	42.6%	68.9%	99.5%

SMALL GENERAL SERVICE

Bill Impact Analysis: Small General Service (SGS)		Staff Revenue Requirement & Staff Rate Design				Staff Revenue Requirement & Staff Rate Design (with ISRS)			
		Low 25	Low 50	Med 150	High 500	Low 25	Low 50	Med 150	High 500
NEMO	Existing	$ 30.1	$ 31.9	$ 39.0	$ 64.2	$ 32.2	$ 34.0	$ 41.1	$ 66.3
SEMO	Existing	$ 18.9	$ 20.4	$ 26.1	$ 46.4	$ 19.0	$ 20.4	$ 26.2	$ 46.4
WEMO	Existing	$ 25.5	$ 27.3	$ 34.2	$ 58.6	$ 26.5	$ 28.2	$ 35.2	$ 59.5
NEMO	Proposed	$ 32.4	$ 34.9	$ 44.6	$ 78.6	$ 32.4	$ 34.9	$ 44.6	$ 78.6
SEMO	Proposed	$ 27.4	$ 29.9	$ 39.6	$ 73.6	$ 27.4	$ 29.9	$ 39.6	$ 73.6
WEMO	Proposed	$ 30.4	$ 32.9	$ 42.6	$ 76.6	$ 30.4	$ 32.9	$ 42.6	$ 76.6
NEMO	Diff.	$ 2.4	$ 3.0	$ 5.5	$ 14.4	$ 0.3	$ 0.9	$ 3.4	$ 12.3
SEMO	Diff.	$ 8.5	$ 9.5	$ 13.4	$ 27.2	$ 8.5	$ 9.4	$ 13.4	$ 27.1
WEMO	Diff.	$ 4.9	$ 5.6	$ 8.3	$ 18.0	$ 4.0	$ 4.6	$ 7.4	$ 17.1
NEMO	% Diff.	7.9%	9.4%	14.2%	22.4%	0.8%	2.7%	8.3%	18.5%
SEMO	% Diff.	45.1%	46.7%	51.4%	58.7%	44.6%	46.3%	51.1%	58.5%
WEMO	% Diff.	19.1%	20.5%	24.4%	30.7%	14.9%	16.4%	21.0%	28.7%
NEMO	Cum. % of Customers	15.6%	35.1%	78.6%	97.3%	15.6%	35.1%	78.6%	97.3%
SEMO	Cum. % of Customers	25.4%	50.5%	86.4%	98.7%	25.4%	50.5%	86.4%	98.7%
WEMO	Cum. % of Customers	20.7%	45.6%	82.0%	97.8%	20.7%	45.6%	82.0%	97.8%
NEMO	Cum. % of Usage	1.8%	8.2%	41.8%	83.3%	1.8%	8.2%	41.8%	83.3%
SEMO	Cum. % of Usage	3.9%	14.9%	52.2%	88.8%	3.9%	14.9%	52.2%	88.8%
WEMO	Cum. % of Usage	3.0%	12.3%	44.4%	84.9%	3.0%	12.3%	44.4%	84.9%

MEDIUM GENERAL SERVICE

Bill Impact Analysis: Medium General Service (MGS)		Staff Revenue Requirement & Staff Rate Design				Staff Revenue Requirement & Staff Rate Design (with ISRS)			
		Low 300	Low 500	Med 1,000	High 7,000	Low 300	Low 500	Med 1,000	High 7,000
NEMO	Existing	$ 194	$ 241	$ 356	$ 1,747	$ 203	$ 250	$ 366	$ 1,756
SEMO	Existing	190	233	338	1,606	191	233	339	1,606
WEMO	Existing	196	249	379	1,945	201	253	384	1,950
NEMO	Proposed	$ 193	$ 235	$ 341	$ 1,606	$ 193	$ 235	$ 341	$ 1,606
SEMO	Proposed	188	230	336	1,601	188	230	336	1,601
WEMO	Proposed	183	225	331	1,596	183	225	331	1,596
NEMO	Diff.	$ (1)	$ (5)	$ (16)	$ (141)	$ (10)	$ (14)	$ (25)	$ (151)
SEMO	Diff.	(2)	(2)	(2)	(5)	(3)	(3)	(3)	(5)
WEMO	Diff.	(13)	(23)	(48)	(349)	(18)	(28)	(53)	(354)
NEMO	% Diff.	-0.5%	-2.1%	-4.4%	-8.1%	-5.0%	-5.7%	-6.8%	-8.6%
SEMO	% Diff.	-1.1%	-0.9%	-0.7%	-0.3%	-1.3%	-1.1%	-0.8%	-0.3%
WEMO	% Diff.	-6.7%	-9.3%	-12.7%	-18.0%	-8.8%	-11.0%	-13.8%	-18.2%
NEMO	Cum. % of Customers	24.2%	40.7%	67.5%	100.0%	24.2%	40.7%	67.5%	100.0%
SEMO	Cum. % of Customers	36.3%	57.4%	80.2%	100.0%	36.3%	57.4%	80.2%	100.0%
WEMO	Cum. % of Customers	18.8%	43.8%	71.9%	100.0%	18.8%	43.8%	71.9%	100.0%
NEMO	Cum. % of Usage	4.2%	11.2%	30.8%	100.0%	4.2%	11.2%	30.8%	100.0%
SEMO	Cum. % of Usage	10.0%	22.2%	46.0%	100.0%	10.0%	22.2%	46.0%	100.0%
WEMO	Cum. % of Usage	5.4%	16.9%	40.8%	100.0%	5.4%	16.9%	40.8%	100.0%

LARGE GENERAL SERVICE

Bill Impact Analysis: Large General Service (LGS)		Staff Revenue Requirement & Staff Rate Design				Staff Revenue Requirement & Staff Rate Design (with ISRS)			
		Low 7,000	Med 20,000	Med 50,000	High 150,000	Low 7,000	Med 20,000	Med 50,000	High 150,000
NEMO	Existing	$ 1,644	$ 3,540	$ 7,915	$ 22,498	$ 1,690	$ 3,586	$ 7,961	$ 22,544
SEMO	Existing	1,913	4,286	9,762	28,017	1,915	4,288	9,765	28,020
WEMO	Existing	1,836	4,149	9,487	27,281	1,859	4,172	9,510	27,304
NEMO	Proposed	$ 1,698	$ 3,550	$ 7,826	$ 22,077	$ 1,698	$ 3,550	$ 7,826	$ 22,077
SEMO	Proposed	1,748	3,600	7,876	22,127	1,748	3,600	7,876	22,127
WEMO	Proposed	1,748	3,600	7,876	22,127	1,748	3,600	7,876	22,127
NEMO	Diff.	$ 54	$ 11	$ (89)	$ (421)	$ 7	$ (36)	$ (135)	$ (467)
SEMO	Diff.	(165)	(686)	(1,887)	(5,891)	(167)	(688)	(1,889)	(5,893)
WEMO	Diff.	(88)	(549)	(1,612)	(5,155)	(111)	(572)	(1,635)	(5,178)
NEMO	% Diff.	3.3%	0.3%	-1.1%	-1.9%	0.4%	-1.0%	-1.7%	-2.1%
SEMO	% Diff.	-8.6%	-16.0%	-19.3%	-21.0%	-8.7%	-16.0%	-19.3%	-21.0%
WEMO	% Diff.	-4.8%	-13.2%	-17.0%	-18.9%	-6.0%	-13.7%	-17.2%	-19.0%
NEMO	Cum. % of Customers	18.2%	63.6%	72.7%	100.0%	18.2%	63.6%	72.7%	100.0%
SEMO	Cum. % of Customers	25.0%	55.0%	85.0%	100.0%	25.0%	55.0%	85.0%	100.0%
WEMO	Cum. % of Customers	21.2%	46.2%	46.2%	46.2%	21.2%	46.2%	46.2%	46.2%
NEMO	Cum. % of Usage	4.4%	20.2%	29.5%	100.0%	4.4%	20.2%	29.5%	100.0%
SEMO	Cum. % of Usage	5.5%	19.1%	50.9%	100.0%	5.5%	19.1%	50.9%	100.0%
WEMO	Cum. % of Usage	2.4%	6.2%	6.2%	6.2%	2.4%	6.2%	6.2%	6.2%

WEATHER NORMALIZATION ADJUSTMENT ("WNA") RIDER

1. APPLICABILITY AND PURPOSE

Applicability. The Weather Normalization Adjustment ("WNA") Rider is applicable to each CCF of gas delivered under the terms of the residential rate schedule throughout the entire service area of Liberty Missouri until such time as it may be discontinued or modified by order of the Commission in a general rate case. The Rider will be applied as a separate line item on a customer's bill.

Purpose. The purpose of WNA Rider is to mitigate the impact of weather on Liberty Missouri sales, and stabilize the recovery of the revenue requirement approved by the Missouri Public Service Commission (the "Commission") in the Company's most recent rate case proceeding.

2. CALCULATION OF ADJUSTMENT

The WNA Factor will be calculated for each billing cycle and billing month for the Residential and Small General Service classes as follows:

$$WNA_i = \sum_{j=1}^{18} \left(NDD_{ij} - ADD_{ij}\right) . C_{ij} \Big) . \beta$$

Where:

i	=	The applicable billing cycle month
WNA_i	=	Weather Normalization Adjustment
j	=	The billing cycle
NDD_{ij}	=	The total normal HDDs based on daily normal weather as determined in the most recent rate case
ADD_{ij}	=	The total actual heating degree days, base 65°
C_i	=	The total number of customer charges charged in billing month i
β	=	The coefficient representing use per customer per heating degree day

Monthly WNA_i = WNA_i x Volumetric Rate ("VR")$_i$

The VR applicable to each month shall be based on the respective residential and small general service volumetric rates from the Company's then most-recent rate case.

Residential. The VR shall be equal to the Residential Volumetric Charge for Gas Used established at the conclusion of each general rate case. For Case No. GR-2018-0013 the amount is $XXXX.

Small General Service. The VR shall be equal to the Small General Service Volumetric Charge for Gas Used established at the conclusion of each general rate case. For Case No. GR-2018-0013 the amount is $XXXX.

3. CURRENT SEMIANNUAL WNA ("CSWNA")

The CSWNA shall be the sum of the billing cycle WNA for each of the six Monthly WNA_i for the billing months in the applicable six month period divided by the annual volumetric billing determinates set for the residential and small general service rate classes in the most recent rate case.

4. SEMIANNUAL RECONCILIATION RATE ("SRR")

Two (2) months prior to the end of the twelve (12) months of billing of each CSWNA, the over- or under-billing of the numerator of the CSWNA shall be calculated based on ten (10) months actual sales and two (2) months projected sales. The amount of over- or under-billing shall be adjusted as ordered by the Commission, if applicable. The resulting amount shall be divided by the annual volumetric billing determinates set for the residential rate class in the most recent rate case. Two (2) months prior to the end of the twelve (12) months of billing of each SRR, the over- or under-billing of the SRR shall be calculated based on ten (10) months actual sales and two (2) months projected sales. Any remaining over- or under-billing from the SRR shall be applied to the next SRR. The two (2) months projected sales associated with each CSWNA and SSR shall be trued- up with actuals upon calculation of the next applicable SSR

5. FILING

The Company will make a semiannual rate filing with the Commission to adjust the WNA Rider. Each CSWNA and SRR will remain in effect for twelve (12) months. The total WNA Rider rate shall be the sum of all effective CSWNAs and SRRs.

6. OTHER

There shall be a limit of $0.05 per CCF on upward adjustments for the WNA and no limit on downward adjustment. Any WNA adjustments amounts in excess of $0.05 per CCF will be deferred for recovery from customers in the next WNA adjustment and applicable to part a. below.

a. Each month, carrying costs, at a simple rate of interest equal to the prime bank lending rate (as published in The Wall Street Journal on the first business day of such month), minus two percentage points, shall be applied to the Company's average beginning and ending monthly WNA balances. In no event shall the carrying cost rate be less than 0%. Corresponding interest income and expense amounts shall be recorded on a net cumulative basis for the WNA deferral period.

AFFIDAVIT OF TIMOTHY S. LYONS

STATE OF VERMONT)
)

On the 13TH day of April, 2018, before me appeared Timothy S. Lyons, to me personally known, who, being by me first duly sworn, states that he a partner at ScottMadden, Inc and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Timothy S. Lyons

Timothy S. Lyons

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

Megan Thomas

Notary Public

My commission expires: 02/10/2019

MEGAN THOMAS
Notary Public
State of Vermont
My Commission Expires Feb 10, 2019