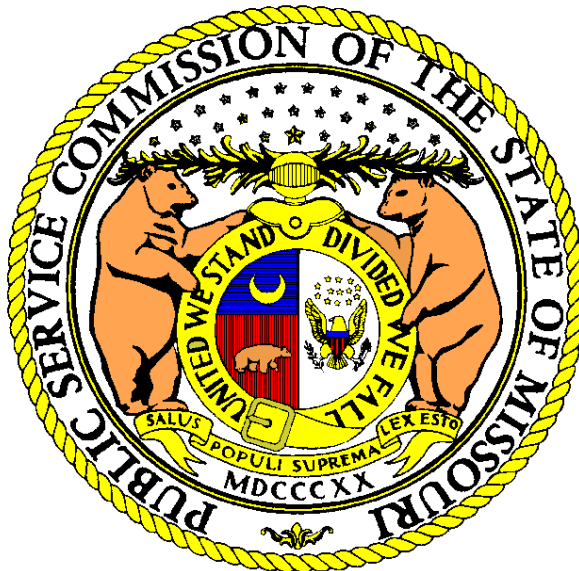


MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

CLASS COST OF SERVICE



SPIRE MISSOURI, INC., d/b/a SPIRE

**SPIRE EAST and SPIRE WEST
GENERAL RATE CASE**

CASE NO. GR-2021-0108

*Jefferson City, Missouri
May 26, 2021*

**** Denotes Confidential Information ****

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SPIRE MISSOURI, INC., d/b/a SPIRE
SPIRE EAST and SPIRE WEST
GENERAL RATE CASE
Case No. GR-2021-0108**

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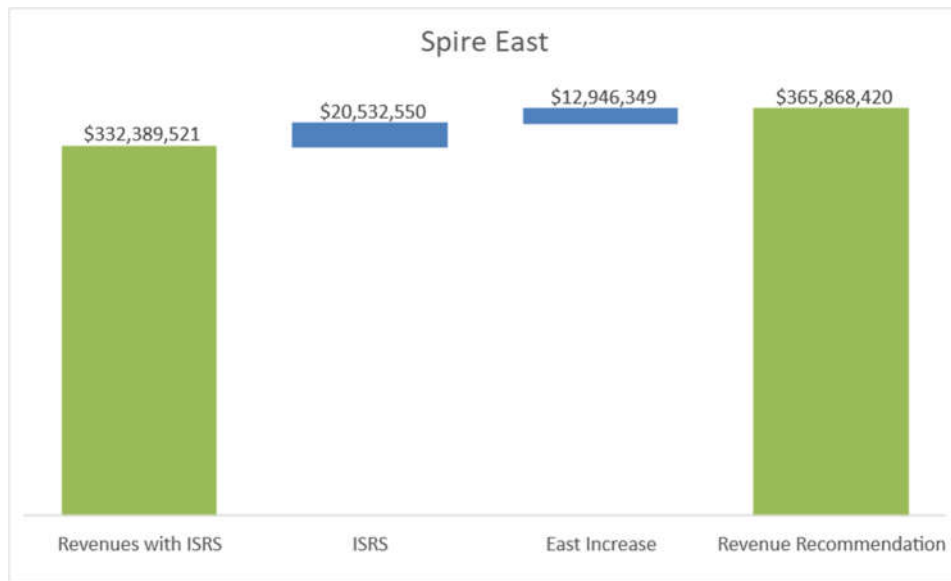
1 **STAFF'S CLASS COST OF SERVICE REPORT OF**
2 **SPIRE MISSOURI, INC., d/b/a SPIRE**

3 **SPIRE EAST and SPIRE WEST**
4 **GENERAL RATE CASE**

5 **Case No. GR-2021-0108**

6 **I. Executive Summary**

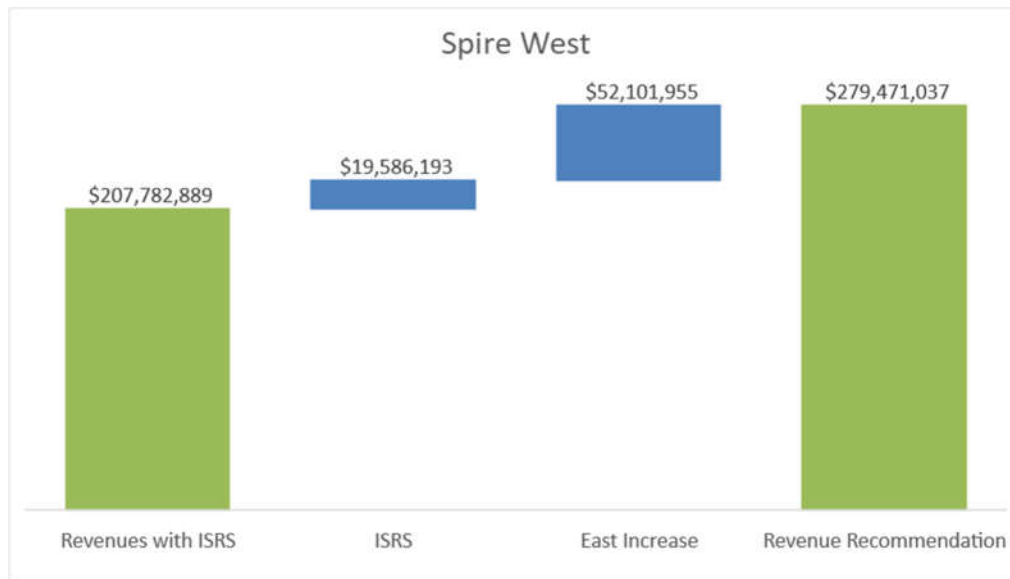
7 As presented in the *Staff Direct Cost of Service Report* (“*COS Report*”) Staff recommends
8 that the Commission increase Spire East’s revenue requirement by \$12,946,349 from existing
9 revenues of \$352,922,071 and increase Spire West’s revenue requirement by \$52,101,955 from
10 existing revenues of \$227,369,082.¹ Both recommendations are based on a return on equity
11 (“ROE”) of 9.37%, as depicted in the graphs below.² Staff also recommends that Spire’s
12 Infrastructure System Replacement Surcharge (“ISRS”) be reset to zero, from the current rates
13 designed to collect annual ISRS revenues of \$47.3 million. These values result in approximate
14 increases of 3.7% and 22.9% for Spire East and Spire West, respectively, or an approximate 11.2%
15 increase from a total company perspective.



¹ Inclusive of true up allowances of \$6.3 and \$4.8 million for Spire East and Spire West, respectively.

² On December 11, 2020, Spire Missouri filed tariff sheets designed to implement an increase to its natural gas retail rate revenues by \$111 million. On a consolidated basis, this represents a requested 9.5% increase in existing Spire Missouri total revenues, or approximate rates.

1



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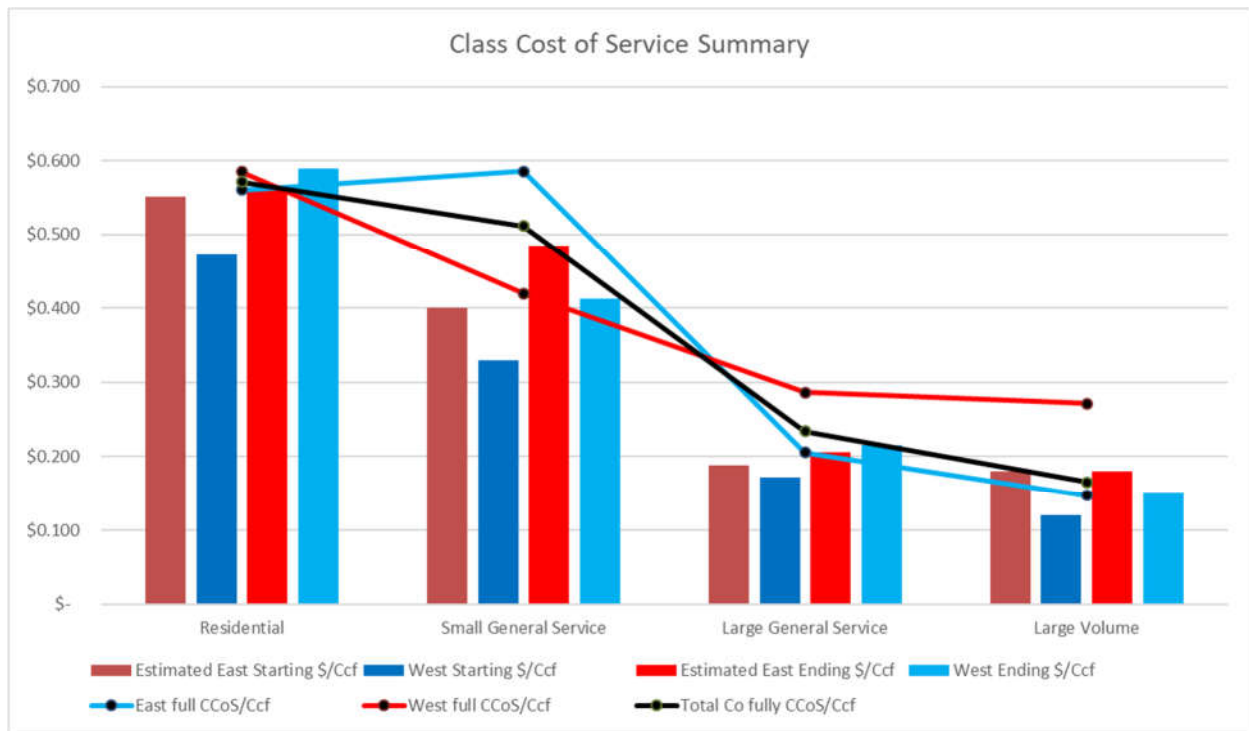
3 In addition to providing Staff's recommendations for implementing this recommended
 4 increase and addressing other tariff and rate design issues, this Direct Report also addresses to the
 5 extent necessary (1) Spire's request to consolidate rate districts, (2) Spire's request to bill in
 6 Therms rather than Ccf for Spire East, and (3) Spire's request to discontinue the Weather
 7 Normalization Adjustment Rider ("WNAR") and replace it with a Rate Normalization Adjustment
 8 ("RNA"). Staff also addresses concerns with Spire's current practices as they relate to Spire's
 9 adherence to its promulgated tariff.

10 **A. Class Cost-of-Service and Rate Design Overview**

11 Staff recommends this increase in revenue per rate district (Spire East and Spire West)
 12 be implemented as increases in the revenue responsibility of certain classes within each rate
 13 district. The sizing of these increases relative to other classes within a rate district are referred to
 14 as "interclass" revenue responsibility issues. How specific rate schedules should be designed to
 15 recover that class's revenue responsibility are referred to as "intraclass" revenue responsibility
 16 issues. Staff based its interclass revenue responsibility recommendations on its Class Cost of
 17 Service ("CCOS") Study. In this case, Staff's CCOS study is designed to determine what the cost
 18 of serving each class of customers would be, if all costs (including the cost of capital, or "rate of
 19 return") were allocated appropriately among all customer classes.

20 Staff's recommended interclass revenue responsibility shifts are designed to reasonably
 21 bring each class closer to producing the system-average rate of return used in determining Staff's

1 recommended revenue requirement, without increasing the revenue responsibility of classes that
 2 are found to be over-contributing. The graph below first provides the current (“starting”) revenues
 3 for each indicated class within each rate district, divided by the Ccf of usage associated with that
 4 class. The graphs further illustrate the allocated cost of serving each class (“full CCOS”), and
 5 Staff’s recommended class revenue requirement (“ending”), also divided by the number of Ccf
 6 used by that class. Note, the Spire East information is provided as estimated \$ per Ccf, although
 7 Spire East customers are currently billed using Therms. Also note, the Spire West information
 8 does not reflect the recommended reconfiguration of the General Service classes and Large
 9 Volume classes, nor the creation of a Transportation class.



12 Note, this figure presents simple averages, and does not represent the average bill a
 13 customer on these rate schedules may pay, given the various rate structure components such as
 14 customer charges, volumetric charges that vary with usage and/or season, demand charges, and
 15 the general seasonality of gas consumption.

16 Staff’s rate design and rate structure recommendations in this case are largely designed to
 17 improve the reasonableness of customers’ bills from a rate continuity perspective, while

1 minimizing customer impacts to mitigate the substantial increase contemplated.³ Given Spire's
2 request to consolidate rate districts, Staff's recommendations better align rate structures across rate
3 districts to facilitate eventual consolidation of Spire East and Spire West, if and when appropriate.

4 Rate continuity issues within Spire West's General Services classes appear to be driven by
5 existing rate designs. The promulgated Spire West rate schedules include a Small General Service
6 ("SGS") rate schedule, generally for customers using less than 10,000 Ccf annually, and a Large
7 General Service ("LGS") rate schedule, generally for customers using more than 10,000 Ccf
8 annually. However, some customers using less than 10,000 Ccf annually are currently in the
9 LGS rate class, and some customers using more than 10,000 Ccf annually are currently in the SGS
10 rate class.

11 A summary of Staff's rate design recommendations is below:

- 12 1) Staff **does not** recommend consolidation of rate schedules across rate districts at this time
13 but will continue to review the appropriateness of doing so. Staff **does** recommend changes
14 in rate structure at this time to facilitate the potential consolidation of rate districts.
- 15 2) Staff does not oppose Spire's requested change to Ccf from Therms as the basis for Spire
16 East's customer bills.
- 17 3) Staff recommends promulgation of a Residential Retention rate option for both rate
18 districts.
- 19 4) Staff recommends the Commission order Spire to develop and retain demand determinants
20 for all customers for potential future use in rate development.
- 21 5) Staff recommends Spire investigate the reasonableness of its estimated usage associated
22 with unmetered gas lighting service.
- 23 6) Staff recommends elimination of the Spire East Interruptible rate schedule.
- 24 7) Staff recommends changes to the rate structure of Spire West's Small General Service,
25 Large General Service, and Large Volume Service rate schedules, and creation of a
26 Transportation rate schedule, and clarification of tariff language indicating eligibility for
27 service on each rate schedule.

³ This is a particular concern with the Spire West non-residential rate structure and design, and with Spire's enforcement of tariff provisions related to customer eligibility for service on a particular rate schedule.

8) Spire East interclass revenue responsibility recommendation:

Step 1a: Preserve the revenue responsibility of any class providing revenues in excess of its cost of service.

Step 1b: For any class providing revenues within 5% of its cost of service, increase that class's revenue responsibility by the amount indicated to exactly match its cost of service at an equal rate of return.

Step 2: For remaining classes, increase revenue responsibility proportionate to their contribution to revenues, except that it should not exceed the amount indicated to exactly match their cost of service at an equal rate of return.

Step 3: For remaining classes, increase revenue responsibility proportionate to their contribution to revenues.

The results of these adjustments as applied to Staff's direct case are provide below:

Spire East	Residential	Small General Service	Large General Service	Large Volume	LV Transport
Total Cost of Service	\$ 279,441,210	\$ 42,640,661	\$ 29,481,158	\$ 823,305	\$ 7,801,461
Current Rate Revenue	\$ 275,083,737	\$ 29,185,361	\$ 26,954,134	\$ 1,005,525	\$ 14,890,501
\$ Change Recommended Step 1	\$ 4,357,473	\$ -	\$ -	\$ -	\$ -
\$ Change Recommended Step 2	\$ -	\$ 4,460,733	\$ 2,527,024	\$ -	\$ -
\$ Change Recommended Step 3	\$ -	\$ 1,592,008	\$ -	\$ -	\$ -
Recommended Class Revenue Responsibility	\$ 279,441,210	\$ 35,238,102	\$ 29,481,158	\$ 1,005,525	\$ 14,890,501
% Change Recommended	1.58%	20.74%	9.38%	0.00%	0.00%

Spire East (continued)	Interruptible Sales	General L.P. Gas	Unmetered Gas Light	Vehicular Fuel
Total Cost of Service	\$ 411,091	\$ 26,542	\$ 52,297	\$ 12,649
Current Rate Revenue	\$ 544,840	\$ 12,417	\$ 42,762	\$ 24,746
\$ Change Recommended Step 1	\$ -	\$ -	\$ -	\$ -
\$ Change Recommended Step 2	\$ -	\$ 1,898	\$ 6,536	\$ -
\$ Change Recommended Step 3	\$ -	\$ 677	\$ -	\$ -
Recommended Class Revenue Responsibility	\$ 544,840	\$ 14,992	\$ 49,298	\$ 24,746
% Change Recommended	0.00%	20.74%	15.28%	0.00%

9) Spire West interclass revenue responsibility recommendation, including consolidation of the General Service classes and Large Volume class:

Step 1a: Consolidate the General Service classes and Large Volume class for study purposes to establish rate continuity.

1 Step 1b: Preserve the revenue responsibility of any class providing revenues in excess of
 2 its cost of service.

3 Step 2: For remaining classes, increase revenue responsibility proportionate to their
 4 contribution to revenues.

5 The results of these adjustments as applied to Staff’s direct case are provide below:
 6

Spire West	Residential	General Services & LV	Transportation	Unmetered Gas Light
Total Cost of Service	\$ 217,430,673	\$ 47,481,246	\$ 14,124,771	\$ 5,023
Current Rate Revenue	\$ 175,409,043	\$ 33,202,431	\$ 17,081,051	\$ 1,271
\$ Change Recommended Step 1	\$ -	\$ -	\$ -	\$ -
\$ Change Recommended Step 2	\$ 43,809,184	\$ 8,292,454	\$ -	\$ 317
Recommended Class Revenue Responsibility	\$ 219,218,227	\$ 41,494,885	\$ 17,081,051	\$ 1,588
% Change Recommended	24.98%	24.98%	0.00%	24.98%

7
 8 10) Staff recommends the approximate residential rates provided below, retaining the
 9 inclining block rate structure ordered by the Commission in Case Nos. GR-2017-0215 and
 10 GR-2017-0126.

	West	East (Therms)	East (Ccf)
Customer Charge	\$ 20.00	\$ 22.00	\$ 22.00
Winter	\$ 0.27567	\$ 0.2422576	\$ 0.24710
Summer 1	\$ 0.24810	\$ 0.2423459	\$ 0.24719
Summer 2	\$ 0.30609	\$ 0.2641158	\$ 0.26940

11
 12
 13 *Staff Expert/Witness: Sarah L.K. Lange*

14 **II. Class Cost-of-Service Study**

15 The purpose of rate design for a natural gas utility is to reasonably relate the manner in
 16 which customers are charged for a service to the manner in which the company incurs non-gas
 17 costs and expenses to provide service and to make service available. However, various public
 18 policy concerns, ranging from bill understandability to mitigating company disincentives to
 19 promote energy conservation, temper strict adherence to the seemingly precise results of these
 20 cost-causation studies.

21 Non-gas costs and expenses are allocated or assigned to each class through the performance
 22 of a CCOS study. The purpose of Staff’s CCOS study is to determine the level of revenue

1 reasonably necessary for each class to cover (1) its assignment or allocation of the company’s cost
 2 of doing business, excluding the cost of gas, (2) its allocation of cost of the return on the utility’s
 3 investments to provide service, and (3) the income tax liability associated with the return on equity
 4 provided by that class.⁴

5 The results of Staff’s CCOS studies are shown below and summarized in the accompanying
 6 graphs, for Spire East and Spire West, respectively.

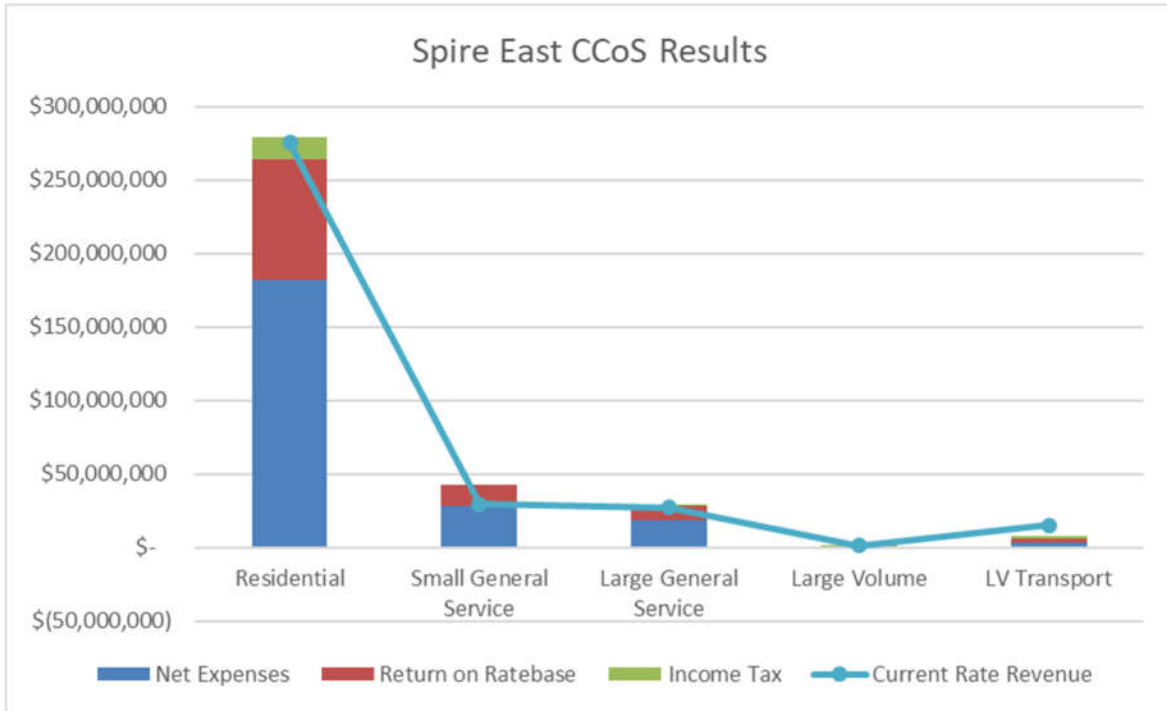
Spire East	Residential	Small General Service	Large General Service	Large Volume	LV Transport
Net Expenses	\$ 181,410,931	\$ 28,561,382	\$ 18,757,988	\$ 526,540	\$ 3,453,493
Return on Ratebase	\$ 82,529,188	\$ 14,268,053	\$ 9,381,840	\$ 212,025	\$ 2,260,971
Income Tax	\$ 15,501,091	\$ (188,774)	\$ 1,341,330	\$ 84,740	\$ 2,086,997
Total Cost of Service	\$ 279,441,210	\$ 42,640,661	\$ 29,481,158	\$ 823,305	\$ 7,801,461
Current Rate Revenue	\$ 275,083,737	\$ 29,185,361	\$ 26,954,134	\$ 1,005,525	\$ 14,890,501
\$ Change to Match Exactly	\$ 4,357,473	\$ 13,455,300	\$ 2,527,024	\$ (182,220)	\$ (7,089,040)
% Change to Match Exactly	1.58%	46.10%	9.38%	-18.12%	-47.61%

Spire East (continued)	Interruptible Sales	General L.P. Gas	Unmetered Gas Light	Vehicular Fuel
Net Expenses	\$ 253,661	\$ 17,691	\$ 31,451	\$ 5,030
Return on Ratebase	\$ 105,441	\$ 10,050	\$ 19,193	\$ 4,028
Income Tax	\$ 51,989	\$ (1,199)	\$ 1,653	\$ 3,591
Total Cost of Service	\$ 411,091	\$ 26,542	\$ 52,297	\$ 12,649
Current Rate Revenue	\$ 544,840	\$ 12,417	\$ 42,762	\$ 24,746
\$ Change to Match Exactly	\$ (133,749)	\$ 14,125	\$ 9,535	\$ (12,097)
% Change to Match Exactly	-24.55%	113.75%	22.30%	-48.89%

10

⁴ In prior cases Staff presented its CCOS results as the rate of return provided by each class through existing revenues, however Staff in this case attempts to simplify its presentation of this issue. While these categories are cleanly delineated in the graphs and charts provided below, it is important to consider that a significant portion of the company’s expense is depreciation expenses, which is allocated to the classes based on the allocation of the underlying plant. It is also important to consider that under most CCOS studies, the income tax required by a class is related to the ROE provided by a class under current rates – so a class that is not exceeding its allocation of expenses from the newly-determined revenue requirement through its current rates will not be allocated income tax and will instead be allocated negative taxes.

1



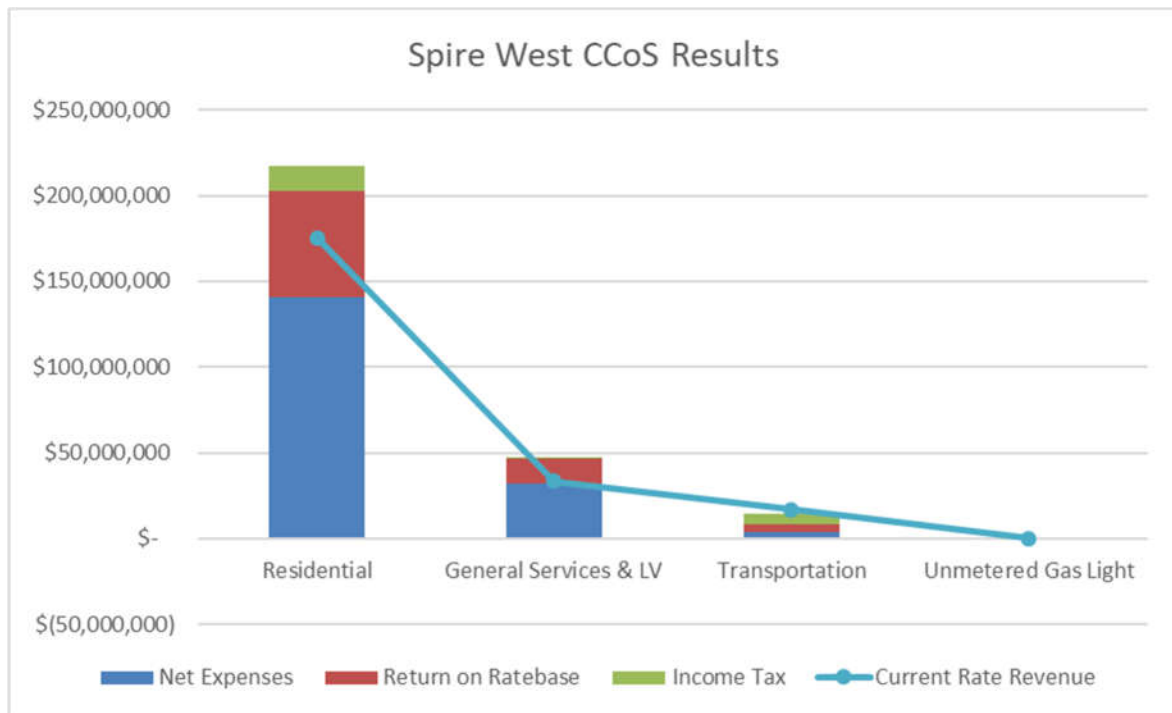
2

3

<u>Spire West</u>	Residential	General Services & LV	Transportation	Unmetered Gas Light
Net Expenses	\$ 140,654,122	\$ 31,781,070	\$ 3,991,707	\$ 3,805
Return on Ratebase	\$ 61,821,974	\$ 15,088,582	\$ 4,500,895	\$ 2,308
Income Tax	\$ 14,954,577	\$ 611,594	\$ 5,632,169	\$ (1,090)
Total Cost of Service	\$ 217,430,673	\$ 47,481,246	\$ 14,124,771	\$ 5,023
Current Rate Revenue	\$ 175,409,043	\$ 33,202,431	\$ 17,081,051	\$ 1,271
\$ Change to Match Exactly	\$ 42,021,630	\$ 14,278,815	\$ (2,956,280)	\$ 3,752
% Change to Match Exactly	23.96%	43.01%	-17.31%	295.22%

4

1



5

2

3 These studies only reflect the non-gas portion of a customer's bill; they do not include costs
 4 associated with the Purchased Gas Adjustment clause ("PGA"), ISRS, or any weather and
 5 conservation adjustment mechanism. The PGA portion of a customer's bill captures the majority
 6 of the purely variable cost associated with serving a customer – which is the cost of the gas that
 7 customer has consumed – along with reconciliations for changes in the average cost of gas which
 8 customers currently and formerly consumed.

9 It would not be reasonable to attempt to exactly match each class to its CCOS-determined
 10 revenue responsibility for a number of reasons. First, a CCOS study is something of an academic
 11 exercise. Every dollar of revenue requirement must go somewhere, and while Staff has endeavored
 12 to allocate revenue requirement as reasonably as possible, items like corporate salaries, office
 13 buildings, and plant installed for customers who have long left the system, do not have clear cost
 14 causation among current customers. Further, allocation of the distribution system and other plant

⁵ Observe that the blue current revenue line for Spire West Residential exceeds its allocation of expenses and covers just over half of its allocation for return on rate base. It may be tempting to refer to this deficit as a "subsidy," but that would be a misnomer. This situation is more accurately referred to as an "under-contribution." It is fair to say that all subsidies are under-contributions, but not all under-contributions are subsidies.

1 is dependent upon the determinants at a given time, and the customers and usage underlying those
2 determinants are subject to constant change. Second, Staff generally views it as unreasonable to
3 decrease a given class's rates in a case where the company (or the rate district) is receiving an
4 overall increase. Third, excessive customer impacts should be avoided to reduce customer flight
5 from the system, resulting in stranded investment, and to generally benefit customers. Fourth,
6 preservation (or creation) of rate continuity should be considered to avoid rate switching, which
7 may defeat the goal of aligning allocated cost causation with revenue recovery. Finally, given the
8 structure of rate cases, parties' rate design recommendations are aligned to a direct-filed revenue
9 position, and the allocation of that revenue requirement among specific accounts, using a specific
10 rate of return. Unless the Commission approves that exact set of accounting schedules as well as
11 the direct-filed billing determinants in setting the revenue requirement in a particular case, there is
12 an inherent disconnect between the CCOS study results used in providing a party's class cost of
13 service and rate design recommendations, and the actual class cost of service that would result at
14 the conclusion of a case. Other considerations include public policy, such as rate continuity, rate
15 stability, and revenue stability.

16 *Staff Expert/Witness: Sarah L.K. Lange and Robin Kliethermes*

17 **A. Data Sources**

18 Staff's CCOS studies for Spire West and Spire East utilized Staff's revenue requirement
19 positions as filed on May 12, 2021, for Spire West's and Spire East cost-of-service. This data
20 includes:

- 21 • Adjusted Missouri investment and cost data by FERC account;
- 22 • Annualized, normalized rate revenues;
- 23 • Other operating and maintenance expenses;
- 24 • Depreciation and amortizations; and
- 25 • Taxes.

26 In addition, Staff reviewed Spire East's and Spire West's current CCOS studies and other current
27 workpapers on the average cost of customer service and information expenses and the level of
28 deposits per rate class. Staff's Engineering Analysis Department reviewed the underlying data

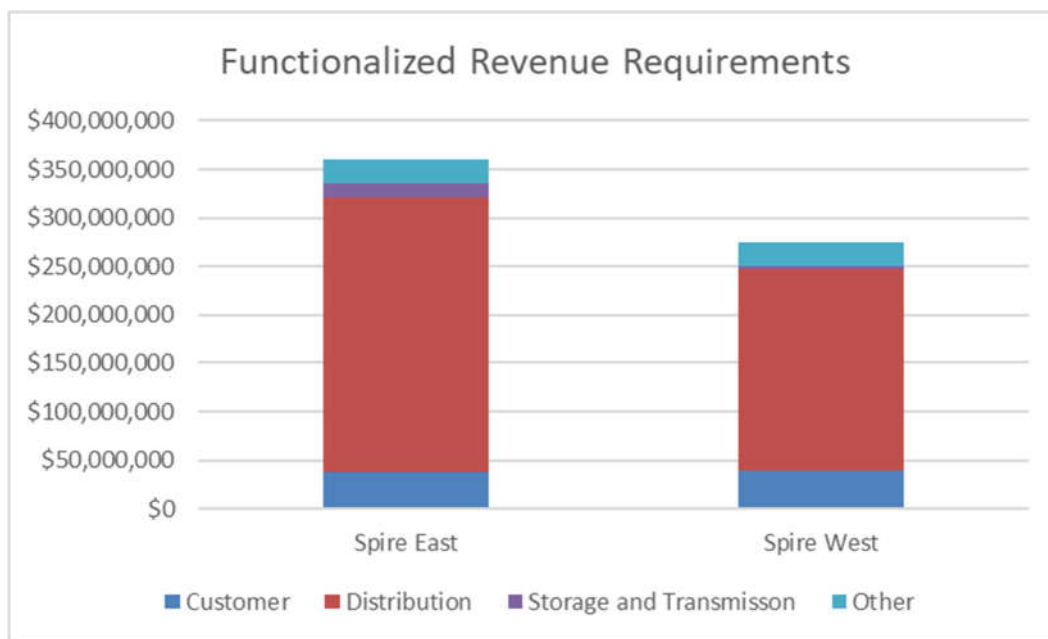
1 used to derive Staff’s allocations for the company’s investment in meters, regulator equipment,
 2 service lines and mains; and these allocations are discussed in more detail further in the report.

3 **B. Functions**

4 Functionalization refers to the simplified disaggregation of a utility’s revenue requirement
 5 into broad categories of simplified cost causation. Natural gas utilities differ from other utilities,
 6 such as electric, in that the production and transmission of the commodity is largely accomplished
 7 by entities other than the utility itself, and the utility recovers gas costs through the PGA, as
 8 opposed to the retail rates that are the subject of this general rate case. Thus, Staff has not examined
 9 functionalized energy costs in this CCOS study.

10 The Distribution Function, consisting of the revenue requirement associated with
 11 Distribution Mains, Distribution Meters and Regulators, and Distribution Services, is the largest
 12 cost component. It generates 79% of the total Spire East revenue requirement and 76% of the total
 13 Spire West revenue requirement.

14 The Customer Function includes the revenue requirement associated with deposits,
 15 uncollectible accounts, and customer service and billing expenses. It generates 10% of the total
 16 Spire East revenue requirement and 15% of the total Spire West revenue requirement. The cost
 17 drivers for each function for each rate district are illustrated in the graphs below:
 18



19
 20 *Staff Expert/Witness: Robin Kliethermes*

1 **C. Allocation of Distribution Costs**

2 A natural gas distribution system contains all of the mains, services, and other
3 appurtenances that are necessary to deliver natural gas to consumers. Spire incurs costs to install,
4 maintain, and operate its distribution systems, and some method must be used to allocate those
5 costs among its customers. Staff uses two sets of factors to allocate distribution costs. The Mains
6 Allocation factors are used to allocate the cost of distribution mains between the different service
7 classes. The costs of meters, regulators, and service lines are allocated with Weighted Customer
8 factors.

9 The Mains Allocation factors are calculated with a number of inputs, including the average
10 cost per foot of main, the average length of main associated with each customer, and the number
11 of customers in each class. Within the calculation for the Mains Allocation factors, the distribution
12 system is divided into two parts according to Staff’s Stand Alone/Integrated System method. The
13 Stand Alone/Integrated System method is based on the idea that distribution mains have joint costs
14 and joint benefits. The section of main that is necessary to extend a distribution system to serve
15 one customer will also be used to transport natural gas to downstream customers as well. The
16 fraction of the distribution system considered to be Stand Alone for each class is calculated by
17 using the average per foot costs of main, the lengths of mains associated with average customers
18 in each class, and the total current cost-of-mains for the entire distribution system. The fraction of
19 the system classified as Integrated is then calculated as one minus the Stand Alone fraction.
20 The Integrated part of the system is further allocated with peak day natural gas demands for each
21 customer class. The peak day demands are based on normal peak day weather that is developed
22 by Staff. The Mains allocation factors for each class are the sum of the Stand Alone and Integrated
23 components.

24 The Weighted Customer factors for meters, regulators, and service lines are based on the
25 equipment and installation costs for average customers in each class. The Residential Classes are
26 always given a weight of one with the other classes’ weights being calculated by dividing their
27 average costs by the costs of the Residential Classes.

28 *Staff Expert/Witness: Charles T. Poston, PE*

1 **D. Allocation of Customer Service Costs**

2 Customer service costs include expenses incurred for billing and customer services.
3 Customer-related costs are costs necessary to make natural gas service available to the customer,
4 regardless of whether the service is utilized. Examples of such costs include meter reading, billing,
5 postage, and customer service expenses. Staff allocated these costs to customer classes based on
6 the number of customers in the class.

7 **E. Revenues**

8 Operating revenues consist of (1) the revenue that the utility collects from the sale of
9 natural gas to Missouri retail customers (“rate revenues”), and (2) the revenue the utility receives
10 for providing other services (“other revenues”). Rate revenues do not include revenues from ISRS,
11 PGA or any weather and conservation adjustment riders. Staff also uses rate revenues in
12 developing its rate design recommendation and will use them to develop the rate schedules
13 required to implement the Commission’s ordered revenue requirement and rate design for Spire
14 East and Spire West in these cases. Staff in its CCOS Study used the normalized and annualized
15 class rate revenues in Staff’s COS Report filed May 12, 2021, totaling \$347,744,023 for Spire East
16 and \$225,693,795 for Spire West.

17 **F. Allocation of Taxes**

18 Taxes consist of real estate and property taxes, payroll tax expenses, and income taxes.
19 Real estate and property tax expenses are directly related to the original cost investment in plant
20 for Spire East and Spire West, so these expenses are allocated to customer classes on the basis of
21 the sum of the previously allocated production, distribution and general plant investment.

22 Payroll tax expenses are directly related to payroll expenses for Spire East and Spire West,
23 so these expenses are allocated to customer classes on the basis of previously allocated payroll
24 expenses.

25 Lastly, Staff separately allocated income taxes for Spire East and Spire West to customer
26 classes based on the percentage of net income produced by each customer class.

27 *Staff Expert/Witness: Robin Kliethermes*

1 **III. Rate Structure and Rate Design**

2 As an introductory matter, it is important to recall that the rates discussed in this report are
3 those found only on the class rate schedules. This report does not address the “Natural Gas Cost”
4 portion of a customer’s bill – the rate for which is adjusted through the PGA rate – nor the ISRS
5 portion of the customer’s bill, nor any applicable weather and conservation adjustment mechanism.
6 “Rate Structure” generally refers to the elements and requirements for service associated with each
7 rate schedule, while “Rate Design” generally refers to the establishment of relative values for those
8 rate elements.

9 Staff’s primary objective in this report is to recommend rates for each rate district to
10 facilitate collection of the final Commission-determined revenue requirement, which is unlikely
11 to match the requests or recommendations of any party in total or in functionalized components.
12 Staff also addresses rate continuity issues in Spire West’s General Service subclasses and provides
13 a recommendation regarding eventual consolidation of those subclasses across rate districts. For
14 the non-residential classes, Staff recommends restructuring the Spire West Small General Service,
15 Large General Service, and Large Volume Service rate schedules, and creating a Transportation
16 Service rate schedule to promote rate continuity, mitigate customer impacts, remove incentives for
17 rate switching, and align structures with Spire East.⁶ For Spire East, Staff recommends elimination
18 of the Interruptible rate schedule, and expanded use of demand determinants if data exists, while
19 maintaining or improving rate continuity to minimize incentives for rate switching.⁷ As noted,
20 Staff does not oppose a shift of the basis for customer billing from Therms to Ccf as Spire requests,
21 which has been incorporated in many, but not all, values and figures presented in this report.

⁶ The rates and determinants associated with the recommended Transportation class have not been developed at this time, but Staff will work with the company to do so as this case and normalized and annualized determinants are developed.

⁷ Data is not currently available to prepare rates and determinants associated with the demand charge recommendation, but Staff will work with the company to do so as this case and normalized and annualized determinants are developed. Similarly, the elimination of the Interruptible class will have a small impact on the rates applicable to other classes, which will be incorporated as those determinants are better identified.

A. Consolidation of Rate Districts

Staff does not recommend consolidation of the rate districts at this time, due to the excessive customer bill impact that would cause. The tables below provide the bill experienced by customers at various usage levels, with and without ISRS. The last two columns provide a comparison of the West bill to the East bill, for various customer classes and usage levels:

Residential Non-Gas Bill Comparison								
	Pre-ISRS		With ISRS				Pre-ISRS	With ISRS
	East Bill	West Bill	East Bill	West Bill	East \$/Ccf	West \$/Ccf		
Customer Using 10 Ccf Summer	\$24.10	\$21.41	\$26.88	\$24.73	\$2.41	\$2.14	-13%	-9%
Customer Using 10 Ccf Winter	\$24.33	\$21.56	\$27.11	\$24.88	\$2.43	\$2.16	-13%	-9%
Customer Using 50 Ccf Summer	\$32.50	\$27.04	\$35.28	\$30.36	\$0.65	\$0.54	-20%	-16%
Customer Using 50 Ccf Winter	\$33.67	\$27.82	\$36.45	\$31.14	\$0.67	\$0.56	-21%	-17%
Customer Using 100 Ccf Summer	\$45.21	\$35.72	\$47.99	\$39.04	\$0.45	\$0.36	-27%	-23%
Customer Using 100 Ccf Winter	\$45.33	\$35.64	\$48.11	\$38.96	\$0.45	\$0.36	-27%	-23%
Customer Using 200 Ccf Summer	\$70.65	\$53.08	\$73.43	\$56.40	\$0.35	\$0.27	-33%	-30%
Customer Using 200 Ccf Winter	\$68.66	\$51.27	\$71.44	\$54.59	\$0.34	\$0.26	-34%	-31%

SGS Non-Gas Bill Comparison								
	Pre-ISRS		With ISRS				Pre-ISRS	With ISRS
	East Bill	West Bill	East Bill	West Bill	East \$/Ccf	West \$/Ccf		
Customer Using 50 Ccf	\$45.12	\$35.75	\$49.54	\$40.73	\$0.90	\$0.71	-26%	-22%
Customer Using 100 Ccf	\$55.24	\$41.50	\$59.66	\$46.48	\$0.55	\$0.41	-33%	-28%
Customer Using 200 Ccf	\$75.48	\$52.99	\$79.90	\$57.97	\$0.38	\$0.26	-42%	-38%
Customer Using 400 Ccf	\$115.96	\$75.98	\$120.38	\$80.96	\$0.29	\$0.19	-53%	-49%
Customer Using 500 Ccf	\$136.21	\$87.48	\$140.63	\$92.46	\$0.27	\$0.17	-56%	-52%
Customer Using 750 Ccf	\$186.81	\$116.21	\$191.23	\$121.19	\$0.25	\$0.15	-61%	-58%
Customer Using 1000 Ccf	\$237.41	\$144.95	\$241.83	\$149.93	\$0.24	\$0.14	-64%	-61%
Customer Using 1250 Ccf	\$288.01	\$173.69	\$292.43	\$178.67	\$0.23	\$0.14	-66%	-64%

LGS Non-Gas Bill Comparison								
	Pre-ISRS		With ISRS				Pre-ISRS	With ISRS
	East Bill	West Bill	East Bill	West Bill	East \$/Ccf	West \$/Ccf		
Customer Using 2000 Ccf Summer	\$389	\$283	\$405	\$305	\$0.19	\$0.14	-38%	-33%
Customer Using 2000 Ccf Winter	\$389	\$396	\$405	\$417	\$0.19	\$0.20	2%	3%
Customer Using 5000 Ccf Summer	\$786	\$512	\$802	\$534	\$0.16	\$0.10	-53%	-50%
Customer Using 5000 Ccf Winter	\$786	\$794	\$802	\$815	\$0.16	\$0.16	1%	2%
Customer Using 7500 Ccf Summer	\$1,117	\$704	\$1,132	\$725	\$0.15	\$0.09	-59%	-56%
Customer Using 7500 Ccf Winter	\$1,117	\$1,125	\$1,132	\$1,147	\$0.15	\$0.15	1%	1%
Customer Using 10000 Ccf Summer	\$1,447	\$895	\$1,463	\$916	\$0.14	\$0.09	-62%	-60%
Customer Using 10000 Ccf Winter	\$1,447	\$1,457	\$1,463	\$1,479	\$0.14	\$0.15	1%	1%

In general, Staff's revenue requirement analysis determined that Spire East rates should increase by approximately 3.7%, and Spire West rates should increase by approximately 22.9% to fully recover the cost of service and incorporate current ISRS amounts. Incorporating these changes as a blanket adjustment to rates in each district would result in the bills provided below, with the percentage difference between rate districts indicated in the last column:

Residential Non-Gas Bill Comparison with Blanket Increase					
	Scaled East Bill	Scaled West Bill	East \$/Ccf	West \$/Ccf	Difference
Customer Using 10 Ccf Summer	\$24.98	\$26.31	\$2.50	\$2.63	5%
Customer Using 10 Ccf Winter	\$25.23	\$26.51	\$2.52	\$2.65	5%
Customer Using 50 Ccf Summer	\$33.69	\$33.23	\$0.67	\$0.66	-1%
Customer Using 50 Ccf Winter	\$34.90	\$34.19	\$0.70	\$0.68	-2%
Customer Using 100 Ccf Summer	\$46.87	\$43.90	\$0.47	\$0.44	-7%
Customer Using 100 Ccf Winter	\$46.99	\$43.80	\$0.47	\$0.44	-7%
Customer Using 200 Ccf Summer	\$73.24	\$65.24	\$0.37	\$0.33	-12%
Customer Using 200 Ccf Winter	\$71.18	\$63.02	\$0.36	\$0.32	-13%

SGS Non-Gas Bill Comparison with Blanket Increase					
	Scaled East Bill	Scaled West Bill	East \$/Ccf	West \$/Ccf	Difference
Customer Using 50 Ccf	\$46.8	\$43.9	\$0.94	\$0.88	-6%
Customer Using 100 Ccf	\$57.3	\$51.0	\$0.57	\$0.51	-12%
Customer Using 200 Ccf	\$78.3	\$65.1	\$0.39	\$0.33	-20%
Customer Using 400 Ccf	\$120.2	\$93.4	\$0.30	\$0.23	-29%
Customer Using 500 Ccf	\$141.2	\$107.5	\$0.28	\$0.22	-31%
Customer Using 750 Ccf	\$193.7	\$142.8	\$0.26	\$0.19	-36%
Customer Using 1000 Ccf	\$246.1	\$178.2	\$0.25	\$0.18	-38%
Customer Using 1250 Ccf	\$298.6	\$213.5	\$0.24	\$0.17	-40%

LGS Non-Gas Bill Comparison with Blanket Increase					
	Scaled East Bill	Scaled West Bill	East \$/Ccf	West \$/Ccf	Difference
Customer Using 2000 Ccf Summer	\$404	\$348	\$0.20	\$0.17	-16%
Customer Using 2000 Ccf Winter	\$404	\$486	\$0.20	\$0.24	17%
Customer Using 5000 Ccf Summer	\$815	\$630	\$0.16	\$0.13	-29%
Customer Using 5000 Ccf Winter	\$815	\$975	\$0.16	\$0.20	16%
Customer Using 7500 Ccf Summer	\$1,157	\$865	\$0.15	\$0.12	-34%
Customer Using 7500 Ccf Winter	\$1,157	\$1,383	\$0.15	\$0.18	16%
Customer Using 10000 Ccf Summer	\$1,500	\$1,100	\$0.15	\$0.11	-36%
Customer Using 10000 Ccf Winter	\$1,500	\$1,791	\$0.15	\$0.18	16%

At this time, Staff recommends moving towards greater consistency in the non-residential rate structures for Spire East and Spire West, while retaining district-specific rates.

B. Interclass Shifts

As discussed above, Staff attempts to simplify its presentation of CCOS information and rate design recommendations in this case. In support, the most relevant information provided in the table below, as it pertains to interclass shifts, is a comparison of the “% Change to Match Exactly” row and the “% Change to Match Exactly, after Equal Increase” row.

<u>Spire East</u>	Residential	Small General Service	Large General Service	Large Volume
Net Expenses	\$ 181,410,931	\$ 28,561,382	\$ 18,757,988	\$ 526,540
Return on Ratebase	\$ 82,529,188	\$ 14,268,053	\$ 9,381,840	\$ 212,025
Income Tax	\$ 15,501,091	\$ (188,774)	\$ 1,341,330	\$ 84,740
Total Cost of Service	\$ 279,441,210	\$ 42,640,661	\$ 29,481,158	\$ 823,305
Current Rate Revenue	\$ 275,083,737	\$ 29,185,361	\$ 26,954,134	\$ 1,005,525
\$ Change to Match Exactly	\$ 4,357,473	\$ 13,455,300	\$ 2,527,024	\$ (182,220)
% Change to Match Exactly	1.58%	46.10%	9.38%	-18.12%
Equal Percentage Increase	\$ 10,241,240	\$ 1,086,557	\$ 1,003,490	\$ 37,435
Rate Revenue with Equal Increase	\$ 285,324,977	\$ 30,271,918	\$ 27,957,624	\$ 1,042,960
\$ Change to Match Exactly, after Equal Increase	\$ (5,883,767)	\$ 12,368,742	\$ 1,523,534	\$ (219,655)
% Change to Match Exactly, after Equal Increase	-2.14%	42.38%	5.65%	-21.84%

<u>Spire East</u>	LV Transport	Interruptible Sales	General L.P. Gas	Unmetered Gas Light	Vehicular Fuel
Net Expenses	\$ 3,453,493	\$ 253,661	\$ 17,691	\$ 31,451	\$ 5,030
Return on Ratebase	\$ 2,260,971	\$ 105,441	\$ 10,050	\$ 19,193	\$ 4,028
Income Tax	\$ 2,086,997	\$ 51,989	\$ (1,199)	\$ 1,653	\$ 3,591
Total Cost of Service	\$ 7,801,461	\$ 411,091	\$ 26,542	\$ 52,297	\$ 12,649
Current Rate Revenue	\$ 14,890,501	\$ 544,840	\$ 12,417	\$ 42,762	\$ 24,746
\$ Change to Match Exactly	\$ (7,089,040)	\$ (133,749)	\$ 14,125	\$ 9,535	\$ (12,097)
% Change to Match Exactly	-47.61%	-24.55%	113.75%	22.30%	-48.89%
Equal Percentage Increase	\$ 554,366	\$ 20,284	\$ 462	\$ 1,592	\$ 921
Rate Revenue with Equal Increase	\$ 15,444,867	\$ 565,124	\$ 12,879	\$ 44,354	\$ 25,667
\$ Change to Match Exactly, after Equal Increase	\$ (7,643,406)	\$ (154,033)	\$ 13,663	\$ 7,943	\$ (13,019)
% Change to Match Exactly, after Equal Increase	-51.33%	-28.27%	110.03%	18.58%	-52.61%

Using the Residential class as an example, the “% Change to Match Exactly” row indicates that the currently tariffed Spire East residential rates, when applied to the current customers and usage of the Spire East residential class, provide slightly less revenue than was

1 found in the CCOS study to be necessary to provide Spire with a system average rate of return on
2 rate base. However, increasing those rates by 3.7% (Staff's recommended total revenue
3 requirement increase for Spire East), would cause the Spire East Residential class to
4 over-contribute more than the class revenue requirement found by the CCOS study. Staff notes
5 that the revenue provided in this example exceeds the allocated expense for the class; failure to
6 meet the expenses would constitute a true economic subsidy for CCOS purposes. Staff further
7 reviews the relationship of each class's revenue to its allocation of return on rate base and income
8 tax in considering appropriate interclass shifts.

9 This review shows that the Residential and Large General Service rate schedules, when
10 applied to current customers and usages, produce revenues in the ballpark of the allocated class
11 cost of service, but other rate schedules do not. While it may be tempting to adjust the tariffed
12 rates to exactly match the revenue requirements indicated by these CCOS results, there are three
13 primary things to consider. First, as discussed above, CCOS results are not as exact as they appear.
14 Second, many or most customers cannot or will not pay a bill that more than doubles, which may
15 result in further flight from the system or uncollectables. Finally, and most germane to this
16 particular case, drastic changes in rates change the customers' opinions of which rate schedule
17 they would like to be served on. If customers with expensive-to-serve characteristics are currently
18 served on the Small General Service ("SGS") rate schedule as indicated by the CCOS, a
19 tremendous increase in SGS rates will likely cause many of them to elect to pay the higher Large
20 General Service ("LGS") customer charge to avoid the otherwise-applicable SGS rate increase.
21 Then, when the company files its next rate case, another CCOS will be prepared indicating that
22 the costly-to-serve customers, then on the LGS rate schedule, necessitate a hefty increase in LGS
23 rates relative to SGS, and the cycle will continue.

24 Thus, in recommending interclass revenue responsibility shifts, Staff not only reviews
25 the CCOS study results - as supplied in the table above for Spire East and the table below for
26 Spire West - but also the resulting rate continuity characteristics which are less dependent on
27 current class determinants.

1

Spire West	Residential	General Services & LV	Transportation	Unmetered Gas Light
Net Expenses	\$ 140,654,122	\$ 31,781,070	\$ 3,991,707	\$ 3,805
Return on Ratebase	\$ 61,821,974	\$ 15,088,582	\$ 4,500,895	\$ 2,308
Income Tax	\$ 14,954,577	\$ 611,594	\$ 5,632,169	\$ (1,090)
Total Cost of Service	\$ 217,430,673	\$ 47,481,246	\$ 14,124,771	\$ 5,023
Current Rate Revenue	\$ 175,409,043	\$ 33,202,431	\$ 17,081,051	\$ 1,271
\$ Change to Match Exactly	\$ 42,021,630	\$ 14,278,815	\$ (2,956,280)	\$ 3,752
% Change to Match Exactly	23.96%	43.01%	-17.31%	295.22%
Equal Percentage Increase	\$ 40,493,599	\$ 7,664,861	\$ 3,943,202	\$ 293
Rate Revenue with Equal Increase	\$ 215,902,642	\$ 40,867,292	\$ 21,024,253	\$ 1,564
\$ Change to Match Exactly, after Equal Increase	\$ 1,528,031	\$ 6,613,954	\$ (6,899,481)	\$ 3,459
% Change to Match Exactly, after Equal Increase	0.87%	19.92%	-40.39%	272.14%

2

3 As discussed elsewhere, Staff undertook an extensive exercise to reconfigure the Spire
4 West rates to establish rate continuity. Spire East's general service rate schedules are not as poorly
5 aligned as those at Spire West, but matching the Spire East SGS and LGS rates to the CCOS
6 study-determined class revenue requirement would cause such a misalignment. The table below
7 indicates the annual consumption at which a customer's LGS volumetric rate savings would equal
8 a customer's SGS customer charge savings. As illustrated below, currently, a customer would pay
9 a lower bill on Spire East's SGS rate schedule than its LGS rate schedule, unless that customer
10 uses more than 15,382 Therms in a given year. If the rates were set to the exact fully allocated
11 cost of service, customers would financially elect to migrate from the SGS rate schedule to the
12 LGS rate schedule for any usage over 6,795 Therms per year, which is well below the class
13 threshold for LGS of 10,000 Therms used annually per customer. At Staff's recommended
14 revenue responsibilities and rate design, the customer point of indifference is 11,359, which is in
15 reasonable relationship to the 10,000 annual Therms breakpoint from the SGS rate schedule to the
16 LGS rate schedule.

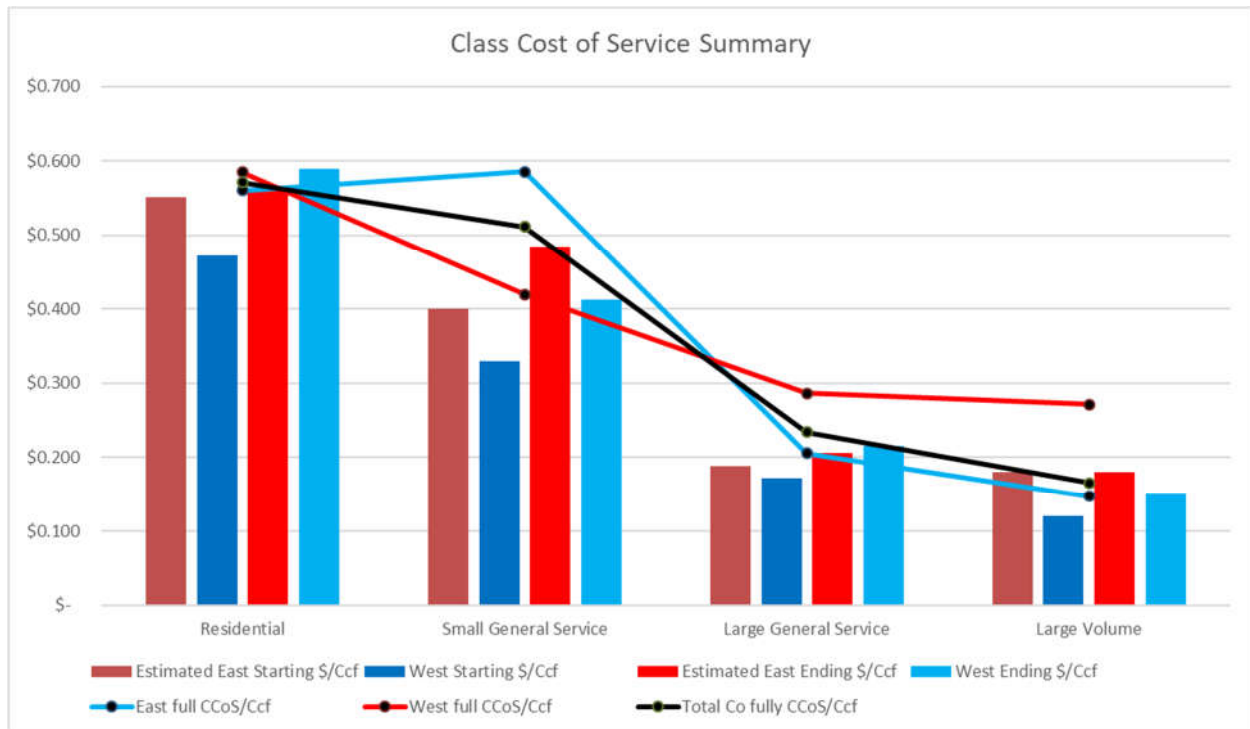
17

	Current	Exact	Staff Recommended
Difference in SGS & LGS Customer Charge	\$ 90.00	\$ 85.58	\$ 94.46
Difference in SGS & LGS Energy Charge	\$ (0.0702)	\$ (0.1511)	\$ (0.0998)
Annual consumption level of Indifference	15,382	6,795	11,359

18

1 In considering various interclass revenue responsibilities, Staff observed the relationship between
 2 general service customer charges and energy charges to ensure that the level of indifference
 3 between the SGS and LGS rate schedules is in excess of 10,000 Therms.

4 Staff’s recommended interclass revenue responsibility shifts are designed to reasonably
 5 bring each class closer to producing the system-average rate of return used in determining Staff’s
 6 recommended revenue requirement without increasing the revenue responsibility of classes that
 7 are found to be over-contributing. The graph below first provides the current (“starting”) revenues
 8 for each indicated class within each rate district, divided by the Ccf of usage associated with that
 9 class. The graphs further illustrate the allocated cost of serving each class (“full CCOS”), and
 10 Staff’s recommended class revenue requirement (“ending”), also divided by the number of Ccf
 11 used by that class. Note, the Spire East information is provided as estimated \$ per Ccf, although
 12 Spire East customers are currently billed using Therms. Also note, the Spire West information
 13 does not reflect the recommended reconfiguration of the General Service classes and Large
 14 Volume classes, nor the creation of a Transportation class.



16 Note that this figure presents simple averages and does not represent the average bill a
 17 customer on these rate schedules may pay, given the various rate structure components such as
 18

1 customer charges, volumetric charges that vary with usage and/or season, demand charges, and
2 the general seasonality of gas consumption.

3 Staff's rate design and rate structure recommendations in this case are largely designed to
4 improve the reasonableness of customers' bills from a rate continuity perspective, while mitigating
5 customer impacts in response to the substantial increases contemplated in this case.⁸ Staff also
6 took into account Spire's expressed desire to align rate structures across rate districts to facilitate
7 eventual consolidation, if and when appropriate.

8 For Spire East, Staff recommends the following steps be undertaken in allocating interclass
9 revenue responsibility:

10 Step 1a: Preserve the revenue responsibility of any class providing revenues in excess of
11 its cost of service.

12 Step 1b: For any class providing revenues within 5% of its cost of service, increase that
13 class's revenue responsibility by the amount indicated to exactly match its cost of service
14 at an equal rate of return.

15 Step 2: For remaining classes, increase revenue responsibility proportionate to its
16 contribution to revenues, except that it should not exceed the amount indicated to exactly
17 match its cost of service at an equal rate of return.

18 Step 3: For remaining classes, increase revenue responsibility proportionate to its
19 contribution to revenues.

20 The application of these steps produces the following:

21

Spire East	Residential	Small General Service	Large General Service	Large Volume	LV Transport
Total Cost of Service	\$ 279,441,210	\$ 42,640,661	\$ 29,481,158	\$ 823,305	\$ 7,801,461
Current Rate Revenue	\$ 275,083,737	\$ 29,185,361	\$ 26,954,134	\$ 1,005,525	\$ 14,890,501
\$ Change Recommended Step 1	\$ 4,357,473	\$ -	\$ -	\$ -	\$ -
\$ Change Recommended Step 2	\$ -	\$ 4,460,733	\$ 2,527,024	\$ -	\$ -
\$ Change Recommended Step 3	\$ -	\$ 1,592,008	\$ -	\$ -	\$ -
Recommended Class Revenue Responsibility	\$ 279,441,210	\$ 35,238,102	\$ 29,481,158	\$ 1,005,525	\$ 14,890,501
% Change Recommended	1.58%	20.74%	9.38%	0.00%	0.00%

22

⁸ This is a particular concern with the Spire West non-residential rate structure and design, and with Spire's enforcement of tariff provisions related to customer eligibility for service on a particular rate schedule.

Spire East (continued)	Interruptible Sales	General L.P. Gas	Unmetered Gas Light	Vehicular Fuel
Total Cost of Service	\$ 411,091	\$ 26,542	\$ 52,297	\$ 12,649
Current Rate Revenue	\$ 544,840	\$ 12,417	\$ 42,762	\$ 24,746
\$ Change Recommended Step 1	\$ -	\$ -	\$ -	\$ -
\$ Change Recommended Step 2	\$ -	\$ 1,898	\$ 6,536	\$ -
\$ Change Recommended Step 3	\$ -	\$ 677	\$ -	\$ -
Recommended Class Revenue Responsibility	\$ 544,840	\$ 14,992	\$ 49,298	\$ 24,746
% Change Recommended	0.00%	20.74%	15.28%	0.00%

For Spire West, Staff recommends the following steps be undertaken in allocating interclass revenue responsibility:

Step 1a: Consolidate the General Service classes and Large Volume class for study purposes to establish rate continuity.

Step 1b: Preserve the revenue responsibility of any class providing revenues in excess of its cost of service.

Step 2: For remaining classes, increase revenue responsibility proportionate to its contribution to revenues.

The application of these steps produces the following:

Spire West	Residential	General Services & LV	Transportation	Unmetered Gas Light
Total Cost of Service	\$ 217,430,673	\$ 47,481,246	\$ 14,124,771	\$ 5,023
Current Rate Revenue	\$ 175,409,043	\$ 33,202,431	\$ 17,081,051	\$ 1,271
\$ Change Recommended Step 1	\$ -	\$ -	\$ -	\$ -
\$ Change Recommended Step 2	\$ 43,809,184	\$ 8,292,454	\$ -	\$ 317
Recommended Class Revenue Responsibility	\$ 219,218,227	\$ 41,494,885	\$ 17,081,051	\$ 1,588
% Change Recommended	24.98%	24.98%	0.00%	24.98%

C. Residential Rate Structure and Design

In considering the customer impact of this rate case on the Residential class in particular, it is important to consider the impact of the ISRS. Currently, Spire West residential customers pay a customer charge of \$20.00 per month, as well as a current ISRS charge of \$3.32 per month. Spire East residential customers pay a customer charge of \$22.00 per month, and an ISRS charge of \$2.78 per month. However, the ISRS charges will be reset to zero upon conclusion of this case.

Staff's recommended increases in the revenue requirements of the residential rate schedules in this case are approximately \$43.8 million for Spire West, and \$4.3 million for Spire East. The net impact of this case for incorporating the recommended increase in the non-ISRS rates and removing the annual revenue that is produced by the current ISRS rates is provided in the table below:

	<u>West</u>	<u>East</u>
Revenue Requirement Increase:	\$ 43,809,184	\$ 4,381,600
Old ISRS:	\$ 19,586,193	\$ 20,532,550
Net Change Experienced:	\$ 24,222,990	\$ (16,150,951)
% Net Change Experienced	12%	-5%

It is important to remember that these changes do not include the cost of gas, which is included in the PGA. It is also important to recall that the ISRS is a flat charge per customer per month by rate schedule. In other words, it is felt more by lower users, and its rebase to zero in this case will be felt more by lower users.

Staff Expert/Witness: Sarah L.K. Lange

D. Residential Customer Charge

The residential customer charge should be sized to recover the variable costs of serving a customer, plus the portion of costs and expense allocated to the residential class that are associated with providing service to a meter, including the average cost of a meter and service line, and a portion of the allocation of the cost and expense of making service available for all customers. Staff included the below costs in the calculation of the residential customer charge:

- Distribution – services (investment and expenses)
- Distribution – meters and regulators (investment and expenses)
- Customer deposits
- Customer billing expenses
- Uncollectible accounts (write-offs)
- Customer service & information expenses
- Portion of income taxes

Staff's CCOS found the fully allocated functionalized customer cost on a per customer basis to be \$19.41 for Spire West, and \$24.06 for Spire East. As discussed above, CCOS results

1 are not as precise as they can appear. Two important factors to consider in sizing a customer
2 charge – particularly a residential customer charge – are customer impacts and revenue stability.
3 Utilities tend to obtain more residential customers over time. Although Spire – particularly the
4 portion of Spire then operating as Laclede – has experienced net attrition, Spire West continues to
5 expand and grow. Utilities enjoy the most financial upside by having a relatively high fixed
6 revenue per customer when experiencing growth, and they avoid the most financial downside by
7 having a relatively low fixed revenue per customer when experiencing net attrition. However, a
8 fixed customer charge that exceeds the marginal cost of serving an additional customer will
9 contribute to overearning in a customer net growth environment, and having a customer charge
10 that is artificially low contributes to inefficient system expansion. Inefficient system expansion
11 corrects with customer attrition when cost-based rates are eventually set; however this correction
12 results in underutilized infrastructure. The existence of underutilized infrastructure will then cause
13 the fully allocated functionalized customer cost on a per customer basis to exceed the marginal
14 cost of serving a customer.

15 In simplified terms, aside from the obvious considerations of customer impacts and a
16 CCOS-produced customer charge calculation, it is important to keep in mind that customers
17 coming onto and leaving the system are influenced by the size of the customer charge. Retention
18 of existing customers comes with a much lower infrastructure cost than addition of new customers,
19 and those infrastructure costs are borne by all customers. As discussed more fully below, Staff
20 has serious concerns with the level of infrastructure currently fully utilized. It appears Spire West
21 may have infrastructure that was deployed with an expectation of customers that never
22 materialized, and Spire East may have infrastructure now unused due to attrition. The existence
23 of these costs, particularly at the distribution level, which are disproportionately allocated to the
24 Residential and SGS classes cause the fully allocated functionalized customer cost on a per
25 customer basis to exceed the marginal costs of serving a customer to a level that may be
26 unreasonable. The marginal cost of restoring service to a site with an existing service line and
27 meter is significantly less than the cost of setting a new service line and meter, which is
28 significantly less than the cost of running a new distribution line and setting a new service line
29 and meter. The marginal cost of serving a new customer also varies by terrain, ground conditions,
30 and presence of other infrastructure or natural features such as roads, phone lines, streams, or
31 other structures.

Staff considered the bill impacts of various customer charge levels – (1) the fully allocated functionalized customer cost, (2) the existing level, and (3) the approximate total of current ISRS and customer charge, taking into account the existing ISRS charge which will rebase to zero at the conclusion of this case. These comparisons do not account for the cost of gas, which is recovered through the PGA:

Spire West Residential Non-Gas Bill Comparison							
	Current Bill with ISRS	New Bill if Customer Charge Set at:			% Change if Customer Charge Set at:		
		\$ 19.41	\$ 20.00	\$ 22.50	\$ 19.41	\$ 20.00	\$ 22.50
Customer Using 10 Ccf Winter	\$24.88	\$22.26	\$22.76	\$24.86	-11%	-9%	0%
Customer Using 50 Ccf Winter	\$31.14	\$33.67	\$33.78	\$34.28	8%	8%	10%
Customer Using 100 Ccf Winter	\$38.96	\$47.93	\$47.57	\$46.05	23%	22%	18%
Customer Using 200 Ccf Winter	\$54.59	\$76.44	\$75.13	\$69.60	40%	38%	27%
Customer Using 300 Ccf Winter	\$70.23	\$104.96	\$102.70	\$93.15	49%	46%	33%
Customer Using 400 Ccf Winter	\$85.87	\$133.47	\$130.27	\$116.70	55%	52%	36%
Customer Using 500 Ccf Winter	\$101.51	\$161.99	\$157.84	\$140.25	60%	55%	38%

Spire East Residential Non-Gas Bill Comparison							
	Current Bill with ISRS	New Bill if Customer Charge Set at:			% Change if Customer Charge Set at:		
		\$ 24.06	\$ 22.00	\$ 25.75	\$ 24.06	\$ 22.00	\$ 25.75
Customer Using 10Therm Winter	\$27.11	\$26.17	\$24.42	\$27.61	-3%	-10%	2%
Customer Using 50Therm Winter	\$36.45	\$34.62	\$34.11	\$35.03	-5%	-6%	-4%
Customer Using 100Therm Winter	\$48.11	\$45.18	\$46.23	\$44.31	-6%	-4%	-8%
Customer Using 200Therm Winter	\$71.44	\$66.29	\$70.45	\$62.88	-7%	-1%	-12%
Customer Using 300Therm Winter	\$94.77	\$87.41	\$94.68	\$81.44	-8%	0%	-14%
Customer Using 400Therm Winter	\$118.10	\$108.52	\$118.90	\$100.00	-8%	1%	-15%
Customer Using 500Therm Winter	\$141.43	\$129.64	\$143.13	\$118.57	-8%	1%	-16%

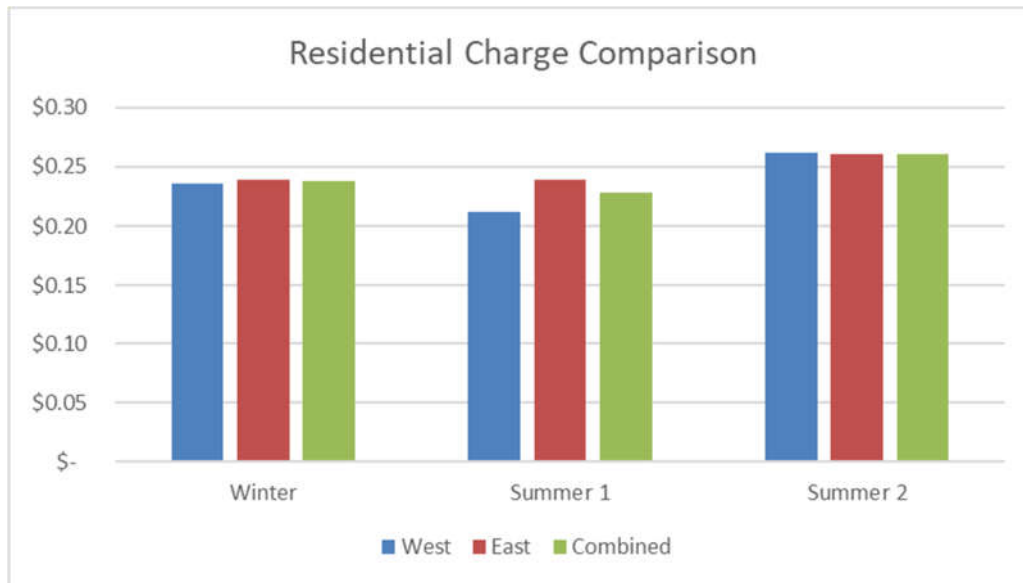
Please note that the Spire East comparison retains use of Therms as the determinant for both comparisons, to provide meaningful percentage changes.

Considering Staff's recommended residential revenue requirement increases, the various customer bill impacts including ISRS, the fully allocated functionalized customer cost on a per customer basis to exceed the marginal cost of serving a customer, the potential for excess fixed revenue recovery to contribute to overearnings at Spire West, concern for additional attrition at Spire East, and Staff's recommended Residential Retention rate schedule (discussed below), Staff recommends the Spire West customer charge be retained at \$20.00, and that the Spire East Customer charge be retained at \$22.00.

Staff notes that if the Commission would order alignment of the Spire East and Spire West residential rate schedules at Staff's recommended residential revenue requirements, setting the customer charge at approximately \$22.50 would result in volumetric rates that are very similar

1 between the rate districts, as indicated below in the table indicating current and resultant residential
 2 customer and volumetric charges, and the graph indicating resultant volumetric charges:

	West	East (Therms)	West	East (Therms)	East (Ccf)	Combined
	Current		After Increase		After Increase (Therms converted)	
Customer Charge	\$ 20.00	\$ 22.00	\$ 22.50	\$ 22.50	\$ 22.50	\$ 22.50
Winter	\$ 0.15637	\$ 0.23330	\$ 0.23551	\$ 0.2347079	\$ 0.23940	\$ 0.23769
Summer 1	\$ 0.14073	\$ 0.20994	\$ 0.21195	\$ 0.2347935	\$ 0.23949	\$ 0.22785
Summer 2	\$ 0.17362	\$ 0.25435	\$ 0.26149	\$ 0.2558850	\$ 0.26100	\$ 0.26119



7 *Staff Expert/Witness: Robin Kliethermes and Sarah L.K. Lange*

8 **E. Volumetric Rates**

9 The summer inclining block design developed in the last rate cases, GR-2017-0215 and
 10 GR-2017-0216, should be retained for the reasons stated in the Report and Order in those cases.
 11 The volumetric rates that retain this summer inclining block design, adjusted for the recommended
 12 revenue requirement increase and the various customer charge levels discussed above, are
 13 provided in the table below.

	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf
	West	West	West	East	East	East
	\$ 19.41	\$ 20.00	\$ 22.50	\$ 24.06	\$ 22.00	\$ 25.75
Winter	\$ 0.28515	\$ 0.27567	\$ 0.23551	\$ 0.21534	\$ 0.24710	\$ 0.18935
Summer 1	\$ 0.25663	\$ 0.24810	\$ 0.21195	\$ 0.21542	\$ 0.24719	\$ 0.18942
Summer 2	\$ 0.31661	\$ 0.30609	\$ 0.26149	\$ 0.23477	\$ 0.26940	\$ 0.20643

1 **F. Residential Retention Optional Schedule**

2 To address the attrition issue at Spire, Staff recommends creation of a Residential Retention
3 Rate optional rate schedule, as illustrated below:

4

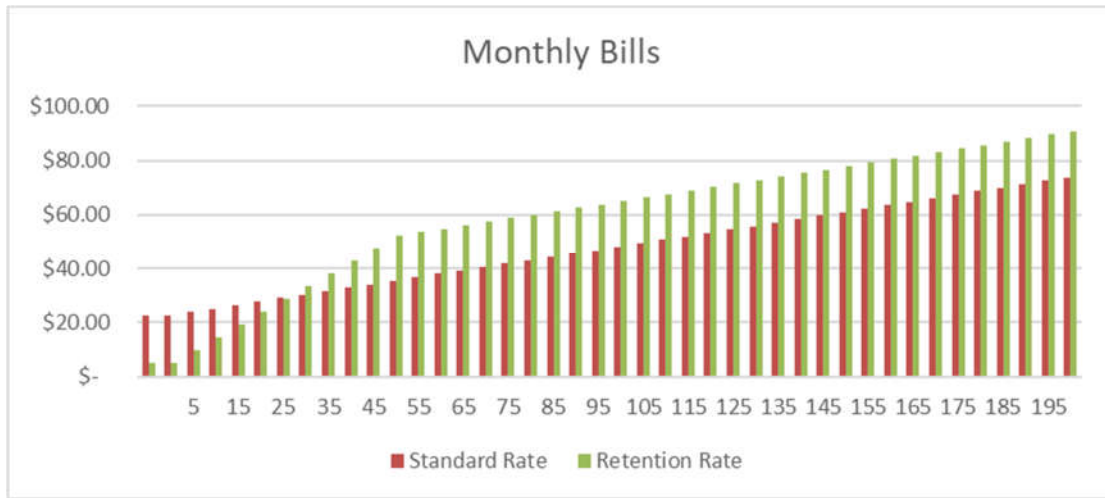
	Illustrative "Standard" Schdeule	Illustrative Retention Schdeule
Customer Charge	\$ 22.50	\$ 5.00
Winter < 50 Ccf	\$ 0.25966	\$ 0.94651
Winter >50 Ccf	\$ 0.25966	\$ 0.25966
Summer 1	\$ 0.24758	\$ 0.94651
Summer 2	\$ 0.28333	\$ 0.28333

5

6 Under this option customers would pay a customer charge sized to cover only the costs that
7 Spire would not incur if that customer ceased receipt of service – approximated at this time as
8 \$5.00 per month – reflecting estimates of the cost of rendering a bill, mailing a bill, processing
9 payment, and a small allocation of customer service expense. This would replace the otherwise
10 applicable customer charges proposed in this case of approximately \$20.00 to \$25.00 per month.
11 Customers using less than 25 Ccf per month would experience a reduced bill on the retention rate
12 compared to the standard rate. However, this service option has a much higher per-Ccf charge for
13 the first 50 Ccf per month than the standard rate. The higher-than-normal per Ccf charge will not
14 be applied to usage over 50 Ccf per month as a “safety valve,” so that in a severe-usage scenario,
15 a customer on this rate option would not pay more than approximately \$15.00 to \$20.00 more in a
16 given month than they would pay on the standard rate. The exact dollar value of the differential
17 will vary based on final rates.

18 Under the example above, for any level of usage over 50 Ccf per month, the premium is
19 capped at \$16.99. Based on preliminary estimates, the charge for usage below 50 Ccf per month
20 would be approximately \$0.95 per Ccf, with usage over that threshold being charged the
21 approximate \$0.26 to \$0.28 per Ccf applicable to usage on the standard rate. The example above
22 is illustrated in the graph below:

1



2

3 The objective of this rate option is to retain customers who use a minimal amount of gas,
 4 perhaps for cooking or as decorative or emergency heating. The availability of this rate would be
 5 limited to structures that have received service for 108 months in the prior 10 years, or have been
 6 equipped to receive gas service for 15 or more years, as the revenue provided over that time should
 7 roughly meet or exceed the investment associated with the initial cost of connecting that customer.
 8 This facilitates retention of those customers who would otherwise be vulnerable to leave the
 9 system, and reduces the subsidization of new growth and high usage by customers who occupy
 10 facilities that have been on the system for some time, and who may have pursued efficiency
 11 efforts or otherwise reduced their consumption. The design includes a safety valve so that if
 12 customers who opt onto the rate ultimately do use more than 50 Ccf in a month, the rate applicable
 13 to those Ccf drops back to the level otherwise applicable through the standard rate. This safety
 14 valve level also coincides with the break point for treatment under the Staff’s recommended RNA.

15 **IV. Spire East Non-Residential Rate Structure and Design**

16 **A. General Service Classes and Large Volume**

17 Due to changes in rate structure made in the last rate case, the Spire East non-residential
 18 rates are not as poorly aligned with the customer characteristic requirements as the Spire West
 19 rates. Staff recommends that rate continuity – that is, the reasonable transition from one rate
 20 schedule to another - be considered and implemented to the greatest extent possible when rates are

1 designed at the conclusion of this case, and that tariffs be revised to more clearly delineate required
2 changes in customer placement.

3 In response to Data Request (“DR”) No. 0282, Spire provided information indicating that
4 daily consumption determinants are generally available for analysis for virtually all customers, but
5 are not readily includable in the billing systems at this time. Staff recommends that Spire obtain
6 these determinants for development and refinement of the non-residential non-transportation rate
7 schedules at the earliest future opportunity. Staff is optimistic that a rate structure incorporating
8 demand determinants could be expanded in this case for customers of Spire East, and incorporated
9 for customers of Spire West in the next rate case. However, given the changes in class
10 configurations discussed herein,⁹ Staff is unable to provide exact recommendations at this time.

11 At this time, pending availability of additional demand determinate data, Staff recommends
12 that charges on these rate schedules be adjusted as a uniform percent adjustment to all rate
13 elements.

14 **B. Interruptible Rate Schedule**

15 In response to DR No. 0352, Spire indicated that it has not interrupted customers on its
16 interruptible service schedule within the last ten years, even during extreme weather events,
17 including the February 2021 event, when other customers were curtailed.¹⁰ Staff recommends
18 elimination of this schedule.

19 **C. Other Rate Schedules**

20 At this time, Staff recommends that charges for remaining rate schedules (specifically,
21 unmetered gas lighting, General L.P. Gas, and Vehicular Fuel) be adjusted as a uniform percent
22 adjustment to all rate elements. Staff further recommends that Spire take reasonable action to

⁹ These changes include elimination of the Spire East interruptible class, creation of a Spire West transportation class, and the realignment of the Spire West non-residential rate schedules.

¹⁰ Spire’s responses stated,

1) Spire MO East has not had an official interruption of service in the past 10 years for the Interruptible Service rate. 2) There were no other customer classes interrupted for MO East during this time period. 3) There was one curtailment event between February 8, 2021 and February 23, 2021. Approximately 50 commercial/industrial transportation customers were asked to curtail from February 15, 2021 through February 19, 2021 in the Southwest Missouri area of Spire's service territory.

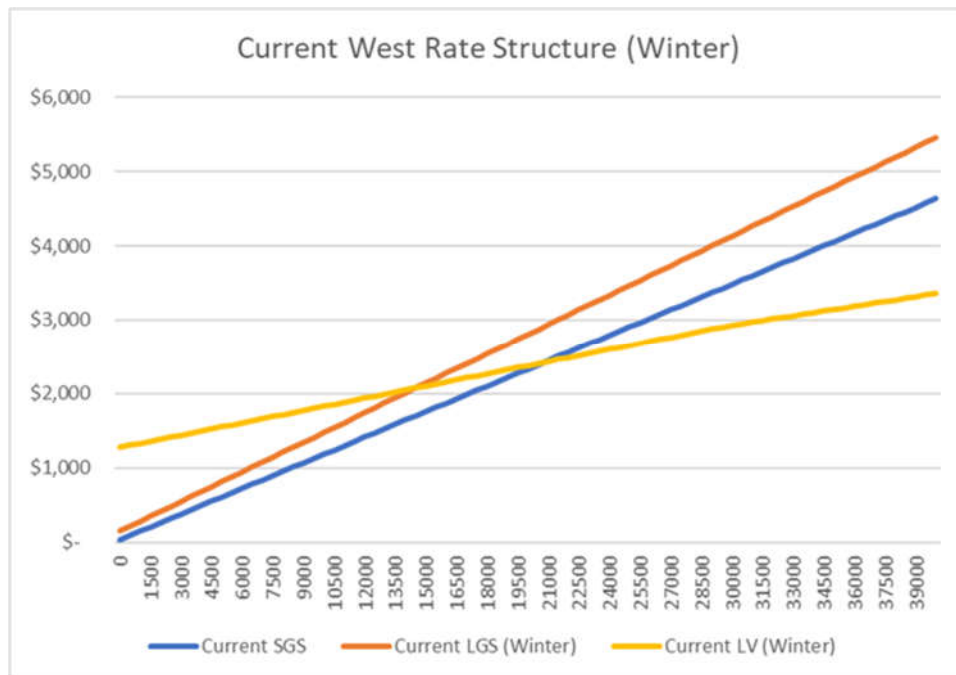
1 ensure that its estimated usage for unmetered gas lighting is as accurate as is practicable, in this
 2 and future cases.

3 **V. Spire West Non-Residential Rate Structure and Design**

4 **A. General Service Classes and Large Volume**

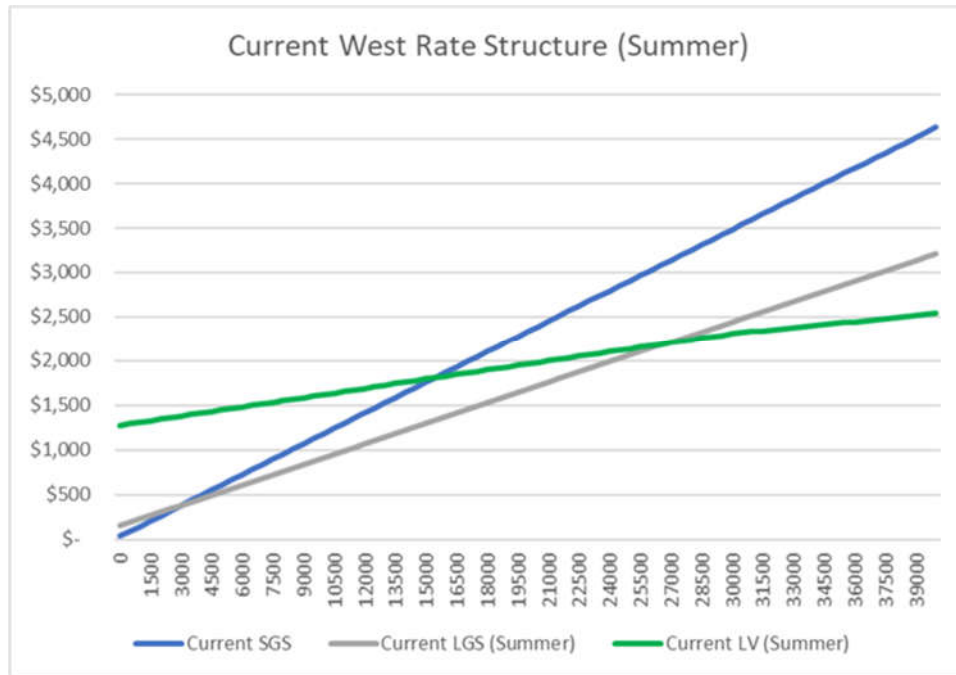
5 Spire experiences significant rate schedule-switching between the Small and Large General
 6 service classes in each rate district. As illustrated below in comparisons of monthly bills, it is
 7 cheaper to be served on Spire West’s SGS schedule than its LGS schedule at any level of winter
 8 usage, and an LGS summer bill only becomes cheaper than an SGS bill at usage exceeding
 9 3,000 Ccf per month; however, Spire’s tariff provides that the SGS class is the required rate
 10 schedule for customers consuming less than 10,000 Ccf annually. A customer would have to have
 11 significant summer usage in excess of 3,000 Ccf per month to make up the additional cost of the
 12 LGS customer charge, ISRS charge, and winter cost of gas.

13



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3 Staff recommends realignment of these rate schedules so there is minimal financial
 4 advantage (or harm) to the customer (or utility) from a customer being placed on the “wrong” rate.
 5 Staff also recommends Spire institute processes to annually place customers on the rate consistent
 6 with the tariff definition of that rate, and to ensure Spire’s compliance with its own tariff.
 7 Well-designed customer, demand, and commodity charges will ensure equitable treatment of
 8 customers within and across the newly-configured classes.

9 A new rate class should be created within Spire West for customers who procure their own
 10 gas and receive only transportation service from Spire, as already exists for Spire East.

11 To facilitate the development of rates at the conclusion of this rate case based on
 12 determinants that align with Spire’s current tariff provisions for class eligibility, Staff has
 13 undertaken an analysis of the usage of all Spire non-residential customers. This process was
 14 complicated by the presence of billing errors and corrections in the billing data. The presence of
 15 such errors is not uncommon and is not in and of itself problematic when it exists on a reasonable
 16 scale, but Staff did not have a simple means to verify whether a very high reading for a particular
 17 customer was the result of a billing error or the result of a lot of consumption by that customer.
 18 Staff intends to work with Spire during this case to address these issues to develop a comprehensive
 19 set of billing determinants and essentially revenue neutral rates to serve as the starting point for
 20 final rate development in this case.

1 For Spire West all non-residential non-transport customers with annual net consumption
2 of less than 10,000 Ccf should be served on the SGS class, and any changes to the existing tariff
3 language that Spire believes necessary to require this placement should be made.¹¹ In the analysis
4 described below, Staff has placed these customers in the SGS class.

5 Staff recommends that all non-residential non-transport customers with annual net
6 consumption in excess of 10,000 Ccf, but which did not use more than 30,000 Ccf in a single
7 billing cycle be placed in the LGS class, to be effectuated by slight revisions and enforcement of
8 existing tariff language.¹² Staff has done so in the analysis described below. Remaining customers
9 who used more than 30,000 Ccf in a single month have been placed in the Large Volume Service
10 (“LVS”) class for this analysis. The results of this analysis indicate that if all non-residential
11 non-transport customers were placed in the appropriate rate class based on test year billing data,
12 the rates provided below would produce more reasonable rate schedule cross-over points,

¹¹ Staff’s review of the existing tariff language indicates that this appears to be an existing requirement. The first sentence of the Availability section, found on Sheet No. 3, states

To natural gas service supplied at one point of delivery to commercial customers and industrial customers whose natural gas requirements at a single address or location do not exceed 10,000 Ccf* in any one year.

The internal asterisk refers to the following language

* Annual consumption for purposes of the "Availability" section in Sheet Nos. 3 and 4 shall be based on the twelve months ended for the most recent fiscal year, except for new customers not connected to the company's system during such period, in which case, the company shall use estimated consumption, if the customer has not been connected to the company's system for a full twelve months, or consumption for the first twelve month period in which the customer was connected to the company's system. Such rate schedule shall be used for billing such customer until annual consumption is re-determined by the company, which redetermination shall be made no later than December 31, 2019 and each December 31st thereafter. If such re-determined usage shows that the customer should receive service under a different rate schedule, the customer shall receive service under that new rate schedule until usage is again re-determined.

¹² The LGS Availability provision on current Sheet No. 4 provides,

To natural gas service supplied at one point of delivery to commercial customers and industrial customers whose natural gas requirements at a single address or location are greater than 10,000 Ccf* in any one year and does not exceed 30,000 Ccf in any one month. Upon application and approval by the company, this rate is also applicable to commercial and industrial customers whose natural gas requirements at a single address or location exceeds 30,000 Ccf in any one month of a twelve-month billing period.

1 while matching the revenue customers in their current rate classes produced during the test year
2 as normalized:

Class	Customer Charge	Summer Block 1	Summer Block 2	Winter Block 1	Winter Block 2	Block Break Point
SGS	\$ 35.37	\$ 0.116242	\$ 0.132983	\$ 0.116242	\$ 0.132983	5,000
LGS	\$ 168.36	\$ 0.089645	\$ 0.068703	\$ 0.089645	\$ 0.089646	5,000
LVS	\$ 1,219.44	\$ 0.034797	\$ 0.023056	\$ 0.055740	\$ 0.043483	36,000

4
5 This design incorporates a slight incline for SGS customers with usage that would be
6 associated with a typical LGS customer, at an incline designed to recover the increased customer
7 charge revenue that would come from the customer taking service on the LGS rate schedule.

8 These rates are designed to collect the same level of revenue as the current Spire West tariff
9 with customers served on the appropriate rate schedule to establish reasonable continuity from one
10 rate class to the next.¹³ As an illustration, a customer using 5,000 Ccf in a given month would pay
11 the same bill, on average, whether served on SGS or LGS, but would pay a much higher bill if
12 they were served on Large Volume (“LV”). Similarly, a customer using just under 30,000 Ccf per
13 month would pay the same bill if they were served on LGS or LV, but pay a much higher bill if
14 they were served on SGS. Comparisons at various levels of usage are provided in the chart, below:

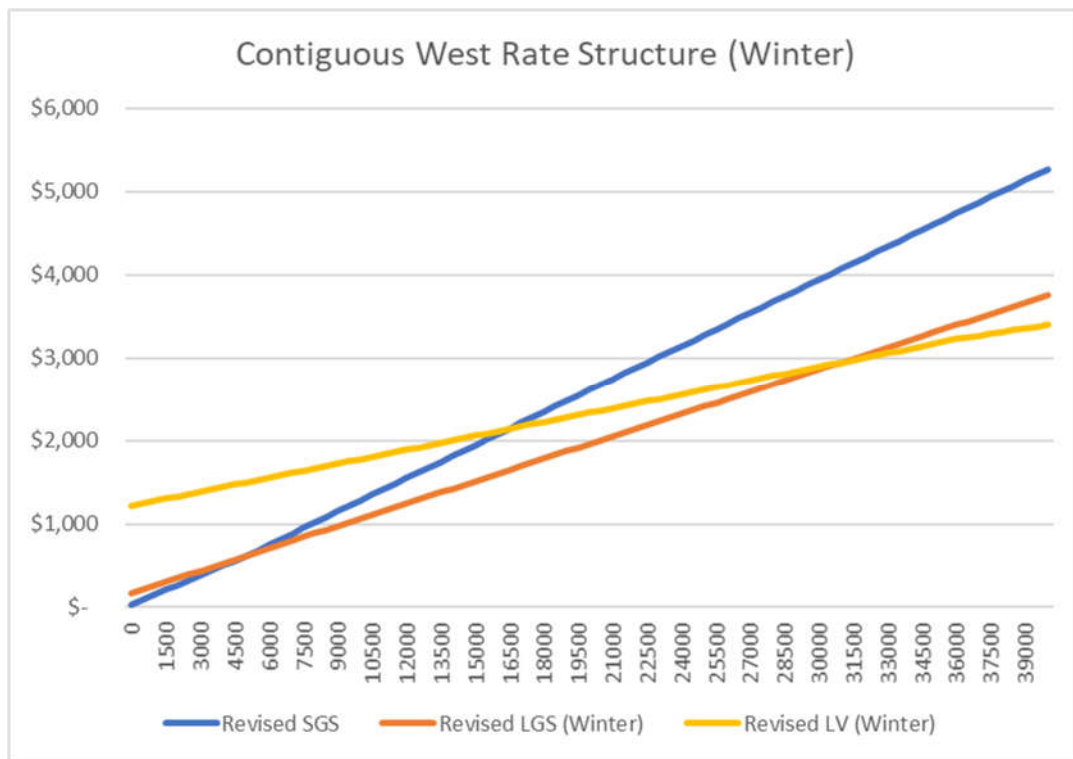
Level of Usage:	Monthly Bills			Average \$/Ccf		
	5,000	29,460	60,000	5,000	29,460	60,000
SGS	\$ 617	\$ 3,869	\$ 7,931	\$ 0.1233	\$ 0.1313	\$ 0.1322
LGS Winter	\$ 617	\$ 2,809	\$ 5,547	\$ 0.1233	\$ 0.0954	\$ 0.0925
LGS Summer	\$ 617	\$ 2,297	\$ 5,035	\$ 0.1233	\$ 0.0780	\$ 0.0839
LGS Average	\$ 617	\$ 2,553	\$ 5,291	\$ 0.1233	\$ 0.0867	\$ 0.0882
LV Winter	\$ 1,498	\$ 2,862	\$ 4,270	\$ 0.2996	\$ 0.0971	\$ 0.0712
LV Summer	\$ 1,393	\$ 2,245	\$ 3,653	\$ 0.2787	\$ 0.0762	\$ 0.0609
LV Average	\$ 1,446	\$ 2,553	\$ 3,961	\$ 0.2892	\$ 0.0867	\$ 0.0660

16
17 This rate design is the result of a subjective analysis of Spire West’s current rates and
18 the billing determinants developed through the above-described process to create rate designs
19 that reflect reasonable cross-overs among classes while minimizing customer rate volatility and

¹³ These rates do not reflect the additional revenue requirement recommended to be collected in this rate case. As provided below, Staff recommends these rates be increased through a uniform percentage adjustment, unless determinants become available to incorporate a reasonable demand-related element.

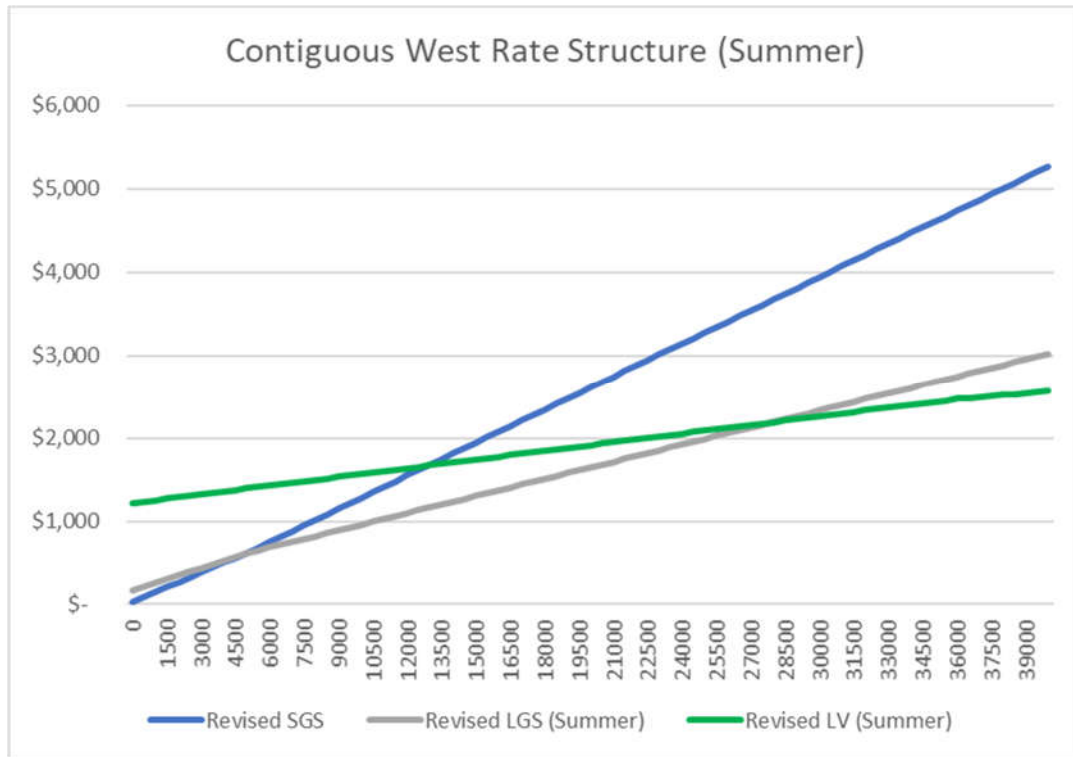
1 bill impacts. Staff undertook this exercise with the understanding that Spire seeks to consolidate
 2 certain rate schedules both within each rate district and across rate districts. Given the structural
 3 differences across rate districts and discontinuous rate designs in place within rate districts, this
 4 exercise first targets alignments of rates across classes within each district. Staff has also adjusted
 5 the Spire West LV rate structure to align with the block break point of 36,000 Ccf per month,
 6 consistent with Spire East’s current structure. The additional revenue this would generate from
 7 LV customers has been removed from the LV customer charge in this analysis. The current
 8 monthly ISRS charges have been incorporated into the customer charge as well.

9 The more orderly transitions this design achieves relative to Spire West’s current design
 10 are depicted in the graphs below:
 11



12

1



2

3 Notice that at the lowest levels of usage, the SGS class is the most advantageous for a
 4 customer, at middle levels the LGS class is most advantageous, and at high levels of consumption
 5 the LVS class offers the lowest customer bill.

6 At this time, pending availability of additional demand determinant data, Staff recommends
 7 that charges on these rate schedules **as reconfigured** be adjusted as a uniform percent adjustment
 8 to all rate elements.

9 **B. Transportation Rate Schedule**

10 Staff recommends development of a separate rate schedule for customers within the
 11 Spire West rate district that use the transmission and distribution system and related equipment to
 12 transport their own privately purchased gas. Currently, these customers are served on various rate
 13 schedules via a special tariff term. It is more reasonable to design a separate transportation rate
 14 schedule, preferably aligned with the terms of the Spire East transportation rate schedule as closely
 15 as possible.

C. Unmetered Gas Lighting

At this time, Staff recommends that charges for remaining rate schedules (specifically, unmetered gas lighting) be adjusted as a uniform percent adjustment to all rate elements. Staff further recommends that Spire take reasonable action to ensure that its estimated usage for unmetered gas lighting is as accurate as is practicable, in this and future cases.

Staff Expert/Witness: Sarah L.K. Lange

VI. Complications to Accurate Cost of Service Modeling

A. Concerns with System Growth and Attrition

Spire’s residential customer charge is heavily influenced by the presence of underutilized infrastructure. For example, as indicated in Spire East’s continuing property record, approximately 815,000 meters are included in Spire East’s rate base, at a gross value of approximately \$77 million. However, in response to Staff DR, Spire reported the total meter count for Spire East as 690,333 meters, with only 662,286 of those meters providing service to an active account. Spire’s DR responses indicate a pattern of continual new additions in support of new service while service is discontinued at other locations, as indicated below:

New small meters pursuant to service extensions 2/16 response to DR 205					
East			West		
2018	2019	2020	2018	2019	2020
2,720	2,842	3,225	3,968	4,096	4,115
		8,787			12,179

DR 203-204 meters removed without replacement					
East Res	7,533		West Res	6,453	
East SGS	1,643		West SGS	2,501	
	9,176			8,954	

1 A summary of the changes in the number of connected and disconnected meters is provided
2 below.¹⁴

	2018	2021	2018	2021	2018	2021	2018	2021	2018	2021	2018	2021
	Connected	Connected	Disconnected	Disconnected	Total	Total	Connected Change	Disconnected Change	Total Change	Current % Disconnected		
East Residential	610,954	620,886	36,649	24,811	647,603	645,697	9,932	(11,838)	(1,906)	3.84%		
East Combined General Services	40,784	41,188	4,095	3,235	44,879	44,423	404	(860)	(456)	7.28%		
East Large Volume non-Transport	69	39	1	1	70	40	(30)	-	(30)	2.50%		
East Combined Transportation	165	173	-	-	165	173	8	-	8	0.00%		
West Residential	461,254	501,094	17,358	10,938	478,612	512,032	39,840	(6,420)	33,420	2.14%		
West Combined General Service	54,770	33,958	3,896	2,160	58,666	36,118	(20,812)	(1,736)	(22,548)	5.98%		
West Large Volume Non-Transport	16	15	-	-	16	15	(1)	-	(1)	0.00%		
West Combined Transport	476	467	9	3	485	470	(9)	(6)	(15)	0.64%		

4 An approximation of the changes in meters as provided in this case in DR No. 0282 since
5 the most recent Spire rate case as provided in DR No. 0314 is provided below:
6

	2017	New Meters Installed	Meters removed not replaced	2021
East				
Meters	692,482	8,787	(9,176)	690,120
Residential Active	610,954			620,886
Total GS Active	40,784			41,188
Residential Inactive	36,649		7,533	24,811
Total GS Inactive	4,095		1,643	3,235
Running total:	692,482	701,269	692,093	(1,973)
West				
Meters	537,278	12,179	(8,954)	548,150
Residential Active	461,254			501,094
Total GS Active	54,770			33,958
Residential Inactive	17,358		6,453	10,938
Total GS Inactive	3,896		2,501	2,160
Running total:	537,278	549,457	540,503	7,647

8
9 It is important to consider that each meter added or removed includes system costs that far
10 exceed the rate base value of the meter. Based on extensive discussions between Staff and Spire,
11 Spire does not have accessible records to track the changes in the system over time; however, it is
12 reasonable to conclude that neighborhoods are built with gas service installed at homes or
13 businesses, but over time, customers cease taking gas service in favor of all-electric energy.

¹⁴ See DR No. 0282 in the instant case, and DR No. 0314 in the most recent Spire case, GR-2017-0215 and GR-2017-0216. Note that shifts have occurred in customer classes served and rate switching has occurred.

1 Meanwhile and elsewhere, new neighborhoods are being built out with gas services in place. This
2 process leaves an ever-expanding patchwork of costly infrastructure in-ground, and underutilized.
3 A reasonable means to address this issue includes offering an option, such as the Staff's proposed
4 residential retention rate, to keep those marginal usage customers connected and provide some
5 level of defrayment of system costs. However, it is imperative going forward to ensure that
6 extension policies and service area expansions are robustly supported by immediate revenues or
7 contributions offsetting the required rate base.

8 **B. Concerns with Internal Recordkeeping Concerning System Growth and Attrition**

9 Spire has had difficulty retrieving data related to its customer level and the
10 cost-effectiveness of isolated system expansion projects. An internal audit (attached as
11 Appendix 2, Confidential Schedule SLKL-d1) noted that adequate processes are not in place to
12 confirm that customers in expansion areas are paying amounts required under current tariff.
13 The audit issues are not fully resolved at this time. Staff cautions against the grant of further CCNs
14 pending resolution of all audit issues, and a demonstration by Spire of adequate internal record
15 keeping abilities and practices.

16 *Staff Expert/Witness: Sarah L.K. Lange*

17 **VII. Weather and Conservation Adjustment Rider (Staff alternative RNA)**

18 Staff's alternative Rate Normalization Adjustment ("RNA") is a mechanism that is
19 designed to insulate the company from fluctuations in residential and SGS customer usage due to
20 weather and conservation.¹⁵ Spire's current mechanism, the Weather Normalization Adjustment
21 Rider ("WNAR"), is limited to insulating the company from fluctuations due to weather only.
22 The RNA does not distinguish between conservation efforts initiated by the company, such as the
23 promotion of ratepayer funded energy efficiency measures, and the actions that residential and
24 SGS customers take to wisely utilize natural gas and minimize waste on their own. For the reasons
25 stated here forthwith, Staff recommends the adoption of the RNA instead of the company's
26 currently effective WNAR.

¹⁵ The authorizing statute, RSMO 386.266.3. does not define "conservation". Webster's Third New International defines "conservation" as "The wise utilization of a natural product especially by a manufacturer so as to prevent waste and insure future use of resources that have been depleted."

1 The RNA accomplishes its designed purpose by insulating the company from fluctuations
2 in the Block 2 portions of its revenue requirement subject to volumetric recovery. All sales in
3 Block 2 are reconciled to rate case billing determinants. The company retains the risk in the
4 Block 1 volumetric recovery; there is no reconciliation of Block 1 sales to rate case billing
5 determinants. The breakpoint between Block 1 and Block 2 is discussed below. This design
6 insulates the company from sales fluctuations associated with deviations in weather-related sales
7 from what is normal, whether driven by the actual weather or by conservation efforts related to
8 weather. The RNA fully protects the company from ratepayer-funded conservation efforts that
9 target customers with usage exceeding the first block.

10 Under the RNA, the company retains the opportunity to increase its return by increasing
11 the number of customers taking service, but the company retains the risk derived from decreases
12 in its return driven by customers leaving the system. The RNA's impact on customers includes:
13 (1) limitation of the degree to which residential ratepayers collectively under- or over-contribute
14 and (2) passing along to residential ratepayers the benefit (or detriment) of increases (or decreases)
15 in sales associated with customer growth (or loss).

16 An adjustment to the RNA rate would be filed annually by the utility based on changes,
17 if any, in actual volumetric sales compared to the level of volumetric sales, by block, used in
18 establishing rates in the rate case. Since the RNA measures changes in actual sales, it is not
19 necessary to depend on speculative deemed savings or generic load shapes based on general
20 assumptions of how customers conserve energy. This design also avoids issues that have been
21 associated with the WNAR, including the failure of a third party to record the daily temperatures
22 and the ranking of weather. Appendix 2, Schedule MLS-d1 is a specimen tariff sheet for Staff's
23 alternative RNA.

24 *Staff Expert/Witness: Michael L. Stahlman*

Breakpoints to Identify Block 1 and Block 2

Staff reviewed the Spire West residential cumulative frequency information to determine the percentage of customers per month with bills exceeding the level of usage associated with Spire’s existing billing Block 1, 50 Ccf.¹⁶ Those results are provided below:

West Res.	JAN-20	FEB-20	MAR-20	APR-20	MAY-20	JUN-20	JUL-20	AUG-20	SEP-20	OCT-19	NOV-19	DEC-19
10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
20	99%	99%	98%	95%	81%	45%	29%	24%	26%	53%	96%	98%
30	97%	98%	95%	87%	58%	17%	8%	7%	7%	27%	90%	96%
40	95%	96%	91%	75%	38%	7%	3%	3%	3%	14%	82%	93%
50	93%	94%	86%	61%	24%	4%	2%	2%	2%	7%	73%	89%
60	90%	91%	80%	47%	15%	2%	1%	1%	1%	4%	63%	84%
70	86%	88%	72%	34%	9%	2%	1%	1%	1%	3%	53%	77%
80	82%	84%	62%	24%	6%	1%	1%	1%	1%	2%	43%	69%
90	76%	78%	53%	17%	4%	1%	1%	1%	1%	1%	34%	60%
100	70%	72%	44%	12%	3%	1%	1%	1%	1%	1%	26%	51%
110	62%	64%	35%	9%	2%	1%	1%	1%	1%	1%	20%	43%
120	55%	57%	28%	6%	1%	1%	0%	1%	1%	1%	16%	35%
130	48%	49%	23%	5%	1%	1%	0%	0%	1%	0%	12%	29%
140	41%	42%	18%	4%	1%	1%	0%	0%	1%	0%	9%	23%
150	35%	36%	14%	3%	1%	0%	0%	0%	0%	0%	7%	19%

The same information is provided below for Spire East, in billed Therms. Note that the conversion of billed Therms to Ccf is not expected to have a meaningful impact on the results of this review.

East Res.	JAN-20	FEB-20	MAR-20	APR-20	MAY-20	JUN-20	JUL-20	AUG-20	SEP-20	OCT-19	NOV-19	DEC-19
10	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
20	99%	99%	98%	96%	85%	53%	34%	26%	28%	50%	96%	98%
30	98%	98%	97%	90%	65%	21%	10%	8%	8%	24%	90%	97%
40	96%	96%	94%	81%	45%	9%	4%	3%	4%	12%	82%	95%
50	94%	95%	91%	68%	29%	4%	2%	2%	2%	6%	73%	92%
60	92%	93%	87%	55%	18%	3%	1%	2%	2%	4%	63%	88%
70	88%	90%	80%	42%	11%	2%	1%	1%	2%	2%	54%	82%
80	84%	86%	73%	30%	7%	2%	1%	1%	1%	2%	45%	75%
90	78%	81%	64%	22%	5%	1%	1%	1%	1%	1%	37%	67%
100	72%	75%	55%	16%	3%	1%	1%	1%	1%	1%	30%	58%
110	65%	68%	46%	12%	2%	1%	1%	1%	1%	1%	24%	50%
120	58%	60%	38%	8%	2%	1%	0%	1%	1%	1%	19%	42%
130	50%	53%	31%	6%	2%	1%	0%	0%	1%	1%	15%	35%
140	43%	46%	24%	5%	1%	1%	0%	0%	1%	1%	12%	29%
150	37%	39%	20%	4%	1%	1%	0%	0%	1%	0%	10%	23%

¹⁶ Note that the residential break point of 50 Ccf per month coincides with the treatment of achieving equivalent rates under the Staff’s proposed residential retention rate option, discussed in Section III.F., above.

1 A review of this information indicates that the existing billing block of 50 units is not
 2 unreasonable for use as a break-point for sales assumed to vary largely with the number of
 3 customers taking service, and sales assumed to vary largely due to weather or to be most
 4 susceptible to reduction due to conservation.

5 Given the noted SGS/LGS rate continuity issues, it is more difficult to undertake this
 6 analysis for the SGS class. Based on Staff's realignment of the non-residential rate structures as
 7 described above, the range of 300-500 Ccf per month appears to reasonably capture the Spire SGS
 8 class's weather-sensitive usage by encompassing approximately 40% - 60% of SGS customers in
 9 heating months. This level retains for Spire much of the risk for changes in usage more closely
 10 related to the changes in the numbers of customers and for rate switching among classes. The
 11 associated tables are provided below:

West SGS	JAN-20	FEB-20	MAR-20	APR-20	MAY-20	JUN-20	JUL-20	AUG-20	SEP-20	OCT-19	NOV-19	DEC-19
100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
200	76%	77%	70%	56%	45%	47%	54%	53%	53%	50%	63%	71%
300	58%	59%	51%	35%	25%	28%	34%	33%	33%	31%	43%	52%
400	45%	46%	38%	22%	14%	16%	21%	19%	19%	19%	30%	39%
500	36%	37%	29%	14%	7%	9%	12%	10%	10%	11%	21%	30%
600	28%	29%	22%	8%	4%	4%	6%	5%	5%	6%	15%	23%
700	22%	23%	16%	5%	2%	2%	3%	2%	2%	4%	10%	17%
800	17%	18%	12%	3%	1%	1%	1%	1%	1%	2%	7%	13%
900	13%	14%	9%	2%	1%	1%	1%	1%	1%	1%	4%	9%
1,000	10%	10%	6%	1%	0%	0%	0%	0%	1%	1%	3%	7%
1,100	7%	8%	4%	1%	0%	0%	0%	0%	0%	1%	2%	5%
1,200	5%	5%	3%	0%	0%	0%	0%	0%	0%	0%	1%	3%
1,300	3%	4%	2%	0%	0%	0%	0%	0%	0%	0%	1%	2%
1,400	2%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
1,500	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

East SGS	JAN-20	FEB-20	MAR-20	APR-20	MAY-20	JUN-20	JUL-20	AUG-20	SEP-20	OCT-19	NOV-19	DEC-19
100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
200	77%	78%	74%	60%	49%	51%	57%	56%	57%	56%	64%	73%
300	60%	62%	56%	39%	29%	31%	37%	36%	36%	36%	45%	55%
400	48%	49%	44%	26%	17%	18%	23%	21%	22%	23%	32%	43%
500	39%	40%	34%	17%	10%	10%	13%	12%	12%	14%	22%	33%
600	31%	32%	26%	11%	5%	5%	7%	6%	7%	8%	16%	25%
700	25%	26%	21%	7%	3%	2%	3%	3%	3%	5%	11%	19%
800	20%	21%	16%	4%	2%	1%	2%	2%	2%	3%	7%	15%
900	15%	17%	12%	3%	1%	1%	1%	1%	1%	2%	5%	11%
1,000	12%	14%	9%	2%	1%	1%	1%	1%	1%	1%	3%	8%
1,100	9%	11%	7%	1%	1%	1%	1%	1%	1%	1%	2%	6%
1,200	7%	9%	5%	1%	1%	0%	0%	0%	1%	1%	1%	4%
1,300	5%	7%	4%	1%	1%	0%	0%	0%	1%	1%	1%	3%
1,400	4%	5%	3%	0%	0%	0%	0%	0%	1%	1%	1%	2%
1,500	3%	4%	2%	0%	0%	0%	0%	0%	0%	1%	0%	1%

15 Although Staff's rate design reflects that all SGS usage below 5,000 Ccf be priced at the
 16 same rate, it will be necessary to create fictitious blocks within the Spire billing system to
 17

1 effectuate the RNA. For example, Block 1a for usage 0-299 Ccf, Block 1b for usage 300-499 Ccf,
2 and Block 1c for usage 500 – 5,000 Ccf.¹⁷

3 *Staff Expert/Witness: Sarah L.K. Lange and Michael L. Stahlman*

4 **RNA Operation**

5 The RNA will be a rider. Staff recommends an annual adjustment be applied to all Ccf
6 sales that occur in a block identified in the tariff. Staff recommends that the timing of these filings
7 be such that the portion of sales that will be projected be during the summer, and that the revised
8 rider rate will take effect prior to October 1. This will allow the same rate to be in effect for
9 essentially all customers' winter usage.¹⁸

10 As discussed, this design insulates the company from sales fluctuations associated with
11 deviations in weather-related sales from normal, whether driven by the actual weather, or by
12 conservation efforts related to weather, or any conservation measure that occurs in a month when
13 that customer's usage exceeds the first block. Thus, the RNA protects the company from
14 ratepayer-funded conservation efforts that target customers with usage exceeding the first block,
15 but the company would retain the opportunity to increase its return by increasing the number of
16 customers taking service, and the company and remaining ratepayers retain the risk from decreases
17 in their return driven by customers leaving the system. While customer growth may impact usage
18 in Block 2, this mechanism does not specifically identify and adjust for customer growth; while
19 its volumetric impact is mitigated in Block 2.¹⁹

20 **Appendices**

21 **Appendix 1 - Staff Credentials**

22 **Appendix 2 - Other Staff Schedules**

¹⁷ Staff understands that Ameren Missouri implemented this billing system change to facilitate its Delivery Charge Adjustment (“DCA”) rider within its General Service class.

¹⁸ It will also be necessary to incorporate appropriate tariff provisions to transfer from the existing mechanism to the revised mechanism, and to true-up amounts due and under- or over-collected pursuant to the existing mechanism.

¹⁹ Staff acknowledges that the departure or addition of a customer does have an impact on second block sales; however the intent of the RNA mechanism is to insulate the company from all sales variations in the second block.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Spire Missouri Inc.'s d/b/a)
Spire Request for Authority to Implement a) Case No. GR-2021-0108
General Rate Increase for Natural Gas)
Service Provided in the Company's Missouri)
Service Areas)

AFFIDAVIT OF ROBIN KLIETHERMES

STATE OF MISSOURI)
)
COUNTY OF COLE) ss.

COMES NOW ROBIN KLIETHERMES and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff's Class Cost of Service Report*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.



ROBIN KLIETHERMES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 26th day of May 2021.



Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Spire Missouri Inc.'s d/b/a)
Spire Request for Authority to Implement a) Case No. GR-2021-0108
General Rate Increase for Natural Gas)
Service Provided in the Company's Missouri)
Service Areas)

AFFIDAVIT OF SARAH L.K. LANGE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SARAH L.K. LANGE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff's Class Cost of Service Report*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Sarah L.K. Lange
SARAH L.K. LANGE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 26th day of May 2021.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070

D. Suzie Mankin
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Spire Missouri Inc.'s d/b/a)
Spire Request for Authority to Implement a) Case No. GR-2021-0108
General Rate Increase for Natural Gas)
Service Provided in the Company's Missouri)
Service Areas)

AFFIDAVIT OF CHARLES T. POSTON, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW CHARLES T. POSTON, PE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Class Cost of Service Report*; and that the same is true and correct according to his best knowledge and belief.

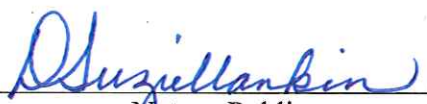
Further the Affiant sayeth not.



CHARLES T. POSTON, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 25th day of May 2021.



Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Spire Missouri Inc.'s d/b/a)
Spire Request for Authority to Implement a)
General Rate Increase for Natural Gas)
Service Provided in the Company's Missouri)
Service Areas)

Case No. GR-2021-0108

AFFIDAVIT OF MICHAEL L. STAHLMAN

STATE OF MISSOURI)
)
COUNTY OF COLE)

ss.

COMES NOW MICHAEL L. STAHLMAN and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff's Class Cost of Service Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.




MICHAEL L. STAHLMAN

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 25th day of May 2021.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070



Notary Public