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| **Exhibit No.:** | |
| **Issues:** | **Filing Overview**<br>**Introduction of Witnesses**<br>**Fresh Perspectives**<br>**One Spire Missouri**<br>**COVID-19 Assistance**<br>**Incentive Compensation**<br>**Combined Heat and Power**<br>**Carbon Neutral Initiative** |
| **Witness:** | **Scott A. Weitzel** |
| **Type of Exhibit:** | **Direct Testimony** |
| **Sponsoring Party:** | **Spire Missouri Inc.** |
| **Case No:** | **GR-2021-0108** |
| **Testimony Date:** | **December 11, 2020** |

**SPIRE MISSOURI INC.**

**CASE NO. GR-2021-0108**

# DIRECT TESTIMONY

**OF**

**SCOTT A. WEITZEL**

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# DIRECT TESTIMONY OF SCOTT A. WEITZEL

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Scott A. Weitzel and my business address is 700 Market Street, St. Louis, Missouri 63101.

**Q. WHAT IS YOUR PRESENT POSITION?**

A. I am the Managing Director of Regulatory and Legislative Affairs for Spire Missouri Inc. ("Spire" or "Company").

**Q. PLEASE STATE HOW LONG YOU HAVE HELD YOUR POSITION AND BRIEFLY DESCRIBE YOUR RESPONSIBILITIES.**

A. I have been in regulatory affairs since I joined Spire in August of 2016. I was promoted to my current position in December of 2019. In this position, I am responsible for all regulatory, rates, energy efficiency, and government affairs activities for Spire Missouri Inc. I have held previous roles for Spire as the Manager of Tariffs and Rate Administration and I also served as the Director of Rates and Regulatory Affairs.

**Q. PLEASE BRIEFLY DESCRIBE YOUR PREVIOUS PROFESSIONAL EXPERIENCE PRIOR TO JOINING SPIRE.**

A. Upon graduation from college, I was employed by CenterPoint Energy as a Gas Marketing Rep/Analyst where I handled billing, nominations, hedge settlement, and account management for commercial, industrial and municipal gas customers. I then spent 9 years working for Ameren Missouri in various roles relating to its gas supply operations. This work included scheduling gas, peak day planning, capacity and storage planning, gas supply procurement, capacity releases, hedging, gas accounting, responding to data requests, purchased gas adjustment ("PGA") analysis, and review of competitor's tariffs and cases. I then went to

work for Ameren Illinois in the area of gas business development where I focused on extending natural gas to communities that were not currently supplied with natural gas, and acquiring gas utilities and municipal gas systems.

**Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

A. I graduated from the University of Missouri-Columbia in 2003 with a Bachelor of Science in Human Environmental Sciences, with a major in Consumer Affairs and a minor in Leadership and Public Service. I received my Masters of Business Administration from Webster University in 2007.

**Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION ("COMMISSION")?**

A. Yes, in Files Nos. GR-2017-0215, GR-2017-0216, GO-2019-0058, GO-2019-0059 GU-2019-0011, and GU-2020-0376.

## PURPOSE OF TESTIMONY AND OVERVIEW OF FILING

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. The purpose of my testimony is to provide a high-level overview of the Company's filing, introduce the Company witnesses that are sponsoring testimony in support of the Company's filing, explain Fresh Perspective customer engagement program, discuss the Company's move to one Spire Missouri and address changes to Spire's incentive compensation plan. In addition, I will also explain the Company's proposal to implement new environmental initiatives: Combined Heat and Power and Spire's Carbon Neutral Initiative.

**Q. PLEASE SUMMARIZE THE COMPANY'S FILING.**

A. Since its last rate case,[1] Spire has maintained its focus to provide exceptional service to its customers at affordable rates. Spire has been listening to its customers' needs and requests and is implementing new initiatives to enhance service for its customers, including renewable natural gas options, carbon neutral initiatives, enhanced usage information and account management options, cutting-edge metering technology, and new platforms for streamlined customer and field technician interactions. This rate case filing is intended to allow Spire to recover its investment in these new measures in order to continue to provide excellent service at affordable rates. Spire has also continued to modernize its natural gas infrastructure by investing more than $850,000,000 since its last rate case. The infrastructure replacement program is primarily funded through the Infrastructure System Replacement Surcharge, § 393.1009 RSMo. *et seq*. ("ISRS"). Infrastructure investments in Spire West's service area have now hit the ISRS cap, and Spire must present this general rate case to the Commission in order to reset the ISRS cap so it can continue to maintain these critical investments.

**Q. WHAT ARE THE PRIMARY COMPONENTS OF THIS RATE CASE FILING?**

A. Spire filed its last rate case three years ago, in April 2017, primarily to address costs pertaining to ISRS investments. Spire's last base rate increase was in 2013. This filing requests recovery of Spire's investment in infrastructure and technology, and reflects an approximate $111million overall revenue deficiency. Reducing this figure by estimated annual ISRS revenue of approximately $47 million results in an adjusted revenue deficiency of approximately $64 million. Apportioning this new revenue deficiency over our nearly 1.2 million customers in Missouri will result in an average increase in a typical residential bill of approximately $3.28 and

[1] Case Nos. GR-2017-0215 and GR-2017-0216.

5.55% per month. Importantly, even with this increase, customer bills will remain lower than they were fifteen years ago.

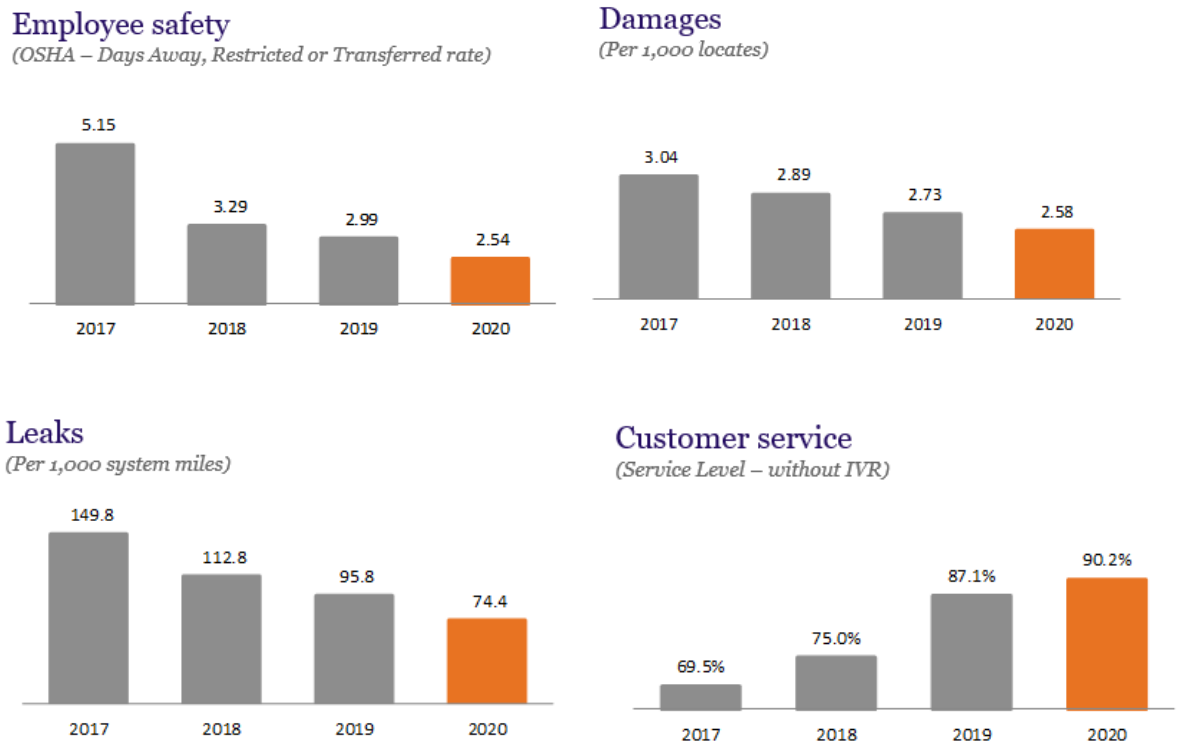
**Q. PLEASE CONTINUE WITH YOUR SUMMARY OF THE COMPANY'S FILING.**

A. In the Company's last rate case, Spire proposed certain modifications to its general rules and regulations and tariffs to bring greater consistency to the regulatory and operational practices of its operating units, formerly Laclede Gas and Missouri Gas Energy. The prior rate case was the first general rate case filed since Laclede Gas Company acquired Missouri Gas Energy on July 17, 2013. While the previous rate case was pending, on August 30, 2017, Laclede Gas Company changed its name to Spire Missouri Inc., and now operates in its two Missouri service territories as Spire Missouri East and Spire Missouri West. This rate case advances the Company's ongoing efforts to lessen or eliminate the rate and tariff differences existing between the legacy designations of Spire East and Spire West to create one Spire Missouri. I will discuss the continued movement towards one Spire in greater detail later in my testimony.

**Q. PLEASE DESCRIBE THE INFRASTRUCTURE INVESTMENTS SPIRE HAS MADE SINCE THE LAST RATE CASE.**

A. Spire is committed to strategic investment to improve our infrastructure and customer connection systems. Since the last rate case filing, Spire has invested nearly $1 billion dollars in new distribution pipeline infrastructure. These investments help Spire to reduce leaks, improve service and reliability, result in lower maintenance costs, reduce methane emissions and ensure continued quality service to our customers. For example, in fiscal year 2019 alone, Spire invested $287 million to replace 359 miles of aging infrastructure, resulting in a 21% leak reduction per 1,000 system miles of distribution pipelines. Over the last five years, Spire has reduced leaks per 1,000 system miles by 66%. As seen in the charts below, Spire Missouri has

improved in many service and safety areas since its last rate case filing. This further emphasizes the value our customers and the environment are receiving because of the investments we are making.




## INTRODUCTION OF SPIRE WITNESSES

**Q. WHAT WITNESSES ARE SPONSORING TESTIMONY IN SUPPORT OF SPIRE'S FILING?**

**A.** The following witnesses testifying on behalf of Spire, and their respective subject matters, are as follows:

| **Witness** | **Testimony/Issues** |
|---|---|
| Scott Carter | Delivering Value for Communities<br>Customer Engagement<br>Need for and Timing of Rate Relief |
| Scott Weitzel | Filing Overview<br>Introduction of Witnesses |

| | |
|---|---|
| | Single Tariff<br>Incentive Compensation<br>Carbon Neutral Program<br>Combined Heat and Power |
| Wes Selinger | Revenue Requirement<br>Expense Adjustments<br>Capital Structure<br>Cost of Service/Rate Design<br>Multifamily Pilot<br>Weather/Conservation Tariff<br>Renewable Natural Gas |
| Shelly Antrainer | Proposed Tariff Changes |
| Trisha Lavin | Minimum Filing Requirements<br>Payment Partner Program<br>Therms/CCf |
| Chuck Kuper | Income Tax<br>Property Tax |
| Scott Madden<br><br>(Dylan D'Ascendis)<br><br>(Tim Lyons) | <br><br>ROE<br>Capital structure<br><br>Cash working capital |
| Tim Krick | Allocations/CAM<br>Pension Assets |
| Alicia Mueller | Weather normalization<br>Revenue adjustments |
| Shaylyn Dean | Energy Efficiency Tariff Changes |
| Alan Felsenthal | Pensions<br>OPEBs<br>ADIT-ARAM amortization<br>Normalized flow through adjustment |

## FRESH PERSPECTIVE CUSTOMER ENGAGMENT PROGRAM AND OTHER CUSTOMER SERVICE INITIATIVES

**Q. PLEASE EXPLAIN FRESH PERSPECTIVE CUSTOMER ENGAGEMENT PROGRAM.**

A. At Spire, we are dedicated to ensuring that our customers come first. To fully understand our customers' needs and goals, we have been actively listening to customers through programs such as our statewide Fresh Perspective customer engagement research. This research helps the Company deliver the services our customers want and still maintain our commitment to keeping costs low, all while consistently providing safe, reliable, and high quality service.

We designed the methodology for the Fresh Perspective program to achieve two key objectives: (1) identify customer perceptions, areas of concern, and unmet needs in key markets to help Spire develop relevant responses; and (2) utilize the research findings to more meaningfully engage with our customers across Missouri.

**Q. HOW DID SPIRE IMPLEMENT THE FRESH PERSPECTIVE PROGRAM?**

A. To start, we held in-person focus groups in St. Louis, Joplin, and Kansas City that contained a diverse mix of participants. The focus groups demonstrated that Missourians enjoyed hearing about Spire's community and customer initiatives, and that the personal interaction, helpful information regarding Spire, and hospitality displayed during the focus groups were invaluable in engaging customers and further enhancing their positive impressions of Spire.

In the second phase of the Fresh Perspective program, we invited previous research respondents and other members of the community to participate in Listening Labs held in St. Louis, Joplin, and Kansas City. The Listening Labs were designed to help customers evaluate whether Spire was listening to their previously communicated needs. The Listening Labs showed that

connecting face to face with Spire employees was meaningful to customers, and demonstrated Spire's commitment to its customers and their communities. We also learned that to successfully engage with consumers regarding Spire's programs, communications must be sharable, frequent, and accessible. The final phase of the Fresh Perspective program involved a twenty-minute online survey in which 1,097 Spire customers participated. Qualitative results from earlier phases of the Fresh Perspective program indicated that customers' receipt of facts pertaining to Spire raised customers' awareness, and that energy assistance and efficiency programs generate the most customer interest. The survey results validated the earlier qualitative findings.

**Q. WHAT ARE SOME KEY INSIGHTS SPIRE REALIZED FROM THE FRESH PERSPECTIVE PROGRAM?**

A. The key insights are that the customers are interested in affordability, programs that help the community, and the environment. The customer engagement research showed us that our customers want more programs to help them save energy and money, such as in-home energy audits, customer usage insights, appliance rebates and financing. Customers also are looking to Spire to provide online tools to make their online experience simpler, including online customer portal systems and payment options including, autopay, paperless billing, and pay by text. The data also showed that Spire's programs and services available to assist limited-income populations, such as our current low-income tariff program and our Red Tag program, are very well-received by our customers. I personally heard customers say they support helping their neighbors even if they don't personally qualify for the programs. Spire witness Trisha Lavin will provide testimony highlighting expansions and enhancement of these critical programs. The environment also topped the list of customers' needs and interests. Spire witness Wes Selinger will describe a tariff that will allow customers to buy renewable natural gas, a direct response to

this customer input. Towards the end of my testimony, I will describe a voluntary carbon neutral initiative that customers can elect to offset their natural gas carbon emissions.

**Q. WHAT OTHER INITITIATIVES HAS SPIRE LAUNCHED TO ENHANCE CUSTOMER SERVICE?**

A. Spire is installing advanced metering technology to improve metering quality and provide enhanced safety. These investments in new technology allow Spire to provide smarter, safer, and more efficient service to our customers. Spire has also implemented an online customer portal, MyAccount, which provides customers with instant access to their account twenty-four hours a day, seven days a week. This portal currently has nearly 700,000 registered users in Missouri. Our commitment to customer service has also resulted in reducing many appointment windows to two hours, a very popular option among customers that we intend to expand.

**Q. HOW DOES SPIRE REDUCE IMPACTS ON THE ENVIRONMENT?**

A. Spire is among the first natural gas utilities in the U.S. to commit to carbon neutrality by mid-century. Since 2005, Spire has reduced methane emissions by more than 39%, and we project a nearly 54% reduction by 2025. Customers have also requested Spire provide environmentally friendly energy options, and we are proposing to establish a carbon neutral program and renewable natural gas choice in this case. Spire also sponsors projects and partners with local organizations throughout Missouri on environmental projects such as Forest Re-Leaf Missouri and Forest Park Forever.

## COVID-19 CUSTOMER ASSISTANCE PROGRAMS AND AFFORDABILITY

**Q. HAS SPIRE TAKEN ANY ACTION TO ASSIST ITS CUSTOMERS DURING THE COVID-19 PANDEMIC?**

A. Yes. Given the extreme impact COVID-19 has had on the economy, many of Spire's customers have fallen on difficult economic times. In order to assist our customers who have been impacted by COVID-19, early in the pandemic, Spire suspended disconnects and expanded financial assistance to limited-income customers and small business struggling during the pandemic. This assistance included expanding our DollarHelp Program to help support customers impacted by the pandemic. Spire's DollarHelp program is a grant program funded by Spire, its employees, and customers (through voluntary contributions), in partnership with United Way, that assists customers with paying their energy bills when other public assistance programs have been exhausted. In April 2020, Spire also filed a revision to its low-income tariff and motion for expedited approval to devote approximately $940,000 of funding to customers financially impacted by COVID-19. This effort helped over 6,000 Missourians during the pandemic. Further, to protect our customers and employees, Spire maintains strict adherence to guidelines for slowing the spread of the coronavirus from the Centers for Disease and Control and Prevention (CDC), including the use of personal protective equipment and social distancing at customers' homes. Through our COVID customer assistance programs, Spire continues to show its commitment to our community and our vulnerable customers.

**Q. WHAT ELSE HAS SPIRE DONE TO HELP CUSTOMERS DURING THE COVID-19 PANDEMIC?**

A. Yes. From the beginning of the pandemic, Spire has been committed to ensuring our community maintains access to safe, reliable natural gas. Our employees are unwavering in their dedication to providing this essential service to our customers. Spire has balanced its obligation

to continue to provide this essential service with its desire to put customers first by making several concentrated efforts to assist customers affected by the pandemic. Spire has obtained regulatory approval to implement several programs, including:

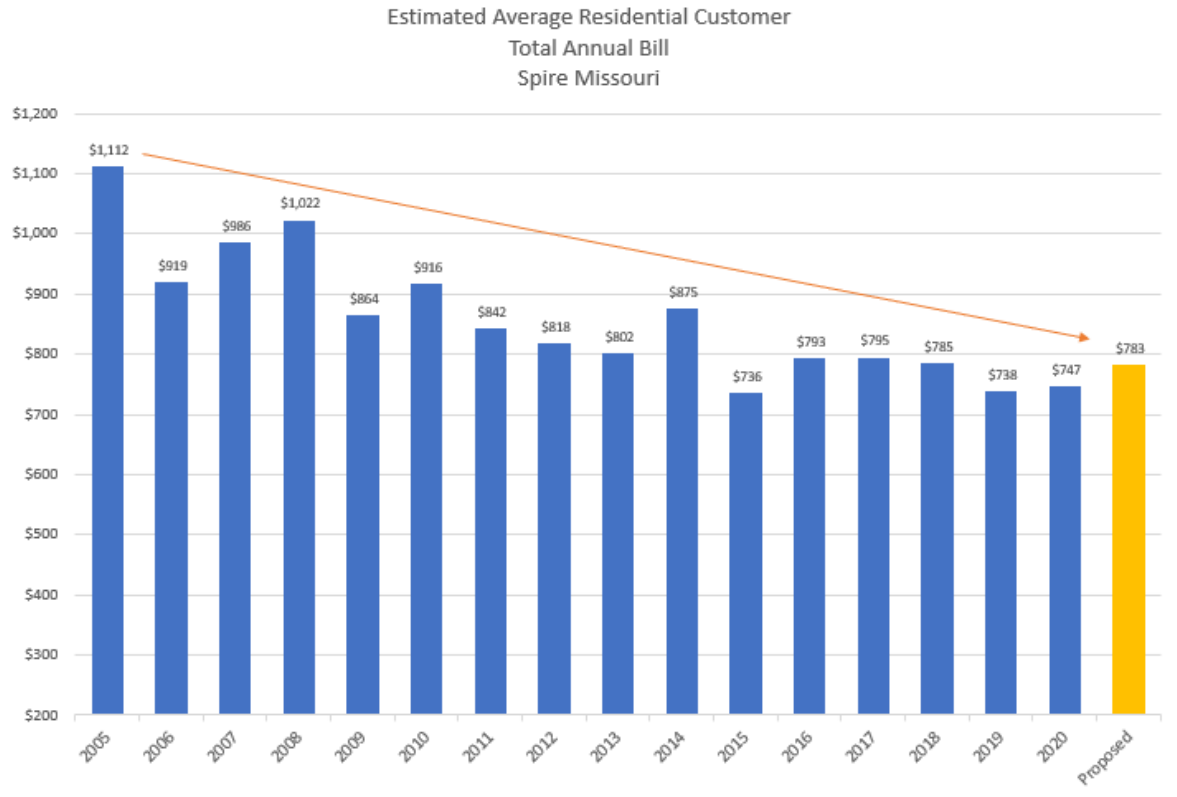
- Pandemic and COVID assistance through Spire Missouri Low income program: COVID assist $100 bill credit
- Residential assistance program: $100 bill credit and up to $300 in arrearage matching. Also providing an option for an 18-month payment plan
- Small business assistance program: $100 a month credit for up to 5 months ($500)
- Inspection Waivers: postpones Spire field work if customers don't feel comfortable with company employees in their home

In addition, Spire has contributed in other ways, including:

- Waiving disconnect and late payment fees, $2.6M of revenue forgone in FY20
- Contributing $500,000 to DollarHelp.
- Suspending some disconnections as a result of the pandemic.

**Q. KNOWING THAT BILL PAYMENT IS A CONCERN FOR MANY CUSTOMERS, IS THE COMPANY'S SERVICE AFFORDABLE?**

A. Natural gas continues to be more cost effective than other energy sources, and we have focused on bringing a more competitively-priced and more secure gas supply to Missouri homes and businesses by connecting to one of the largest natural gas pipelines in America, the Rockies Express pipeline. Our customers' natural gas bills are lower today than they were fifteen years ago, and we are dedicated to keeping costs low for our customers.




**Q. WHY IS IT IMPORTANT FOR SPIRE TO OFFER AN AFFORDABLE PRODUCT?**

A. Spire's product is natural gas. Natural gas is a fuel of choice in Missouri. Most Missourians need electricity and water as necessities. Heating, hot water, and cooking can be done through propane or electricity. Natural gas is cleaner, more efficient, and more reliable in Missouri than those alternatives. These are all compelling benefits of our product, but delivered price is also critical. Because of transformational shifts in the domestic production of natural gas and the corresponding changes in interstate pipeline flows in the U.S., Spire is able to be competitive on price as well. That is why an average Missourian will save nearly $800 a year using our product compared to energy alternatives. Since we are an energy of choice, we have a greater responsibility to manage cost and offer a product that brings value to our customers.

## ONE SPIRE MISSOURI

**Q. WHAT STEPS IS SPIRE PROPOSING TO CONTINUE ITS EFFORTS TO UNIFY ITS LEGACY OPERATING UNITS INTO ONE SPIRE MISSOURI?**

A. As previously noted in my testimony, in the Company's last rate case, Spire made progress towards unification by proposing modifications to its general rules and regulations and tariffs to bring greater consistency to the regulatory and operational practices of its operating units, formerly Laclede Gas and Missouri Gas Energy, now Spire East and Spire West. The first step in unifying these two service territories was sharing one name- Spire Missouri. While we are currently one Spire Missouri, and certain tariffs and rules are consistent across the business units, remnants of the formerly separate companies remain in the form of several different tariffs and different rules and regulations.

**Q. DID SPIRE MAKE PROGRESS TOWARDS UNIFYING THE TWO OPERATING UNITS IN ITS LAST RATE CASE?**

A. Yes. Spire brought a more cohesive look to its tariffs in that case. As a result of the last general rates case, the following rate elements were harmonized on both sides of the state: rate design offerings, negotiated gas service riders, economic development riders, weather normalization adjustment rider, Infrastructure System Replacement Surcharge ("ISRS"), gas supply sharing mechanism, terms on rate tariffs, the Actual Cost Adjustment (ACA) review period, Red Tag Program, Rules and Regulations, and Low-Income Program.

**Q. WHAT FURTHER CONSISTENCY IS SPIRE PROPOSING IN THS PROCEEDING?**

A. Spire believes that as one unified company, it should have one tariff. Accordingly, to the extent feasible, Spire proposes to eliminate the separate tariffs for Spire East and Spire West and consolidate the existing East and West rate structures into a common Spire rate structure.

Customers across the state should expect the same treatment and offerings when dealing with Spire. Spire Missouri Inc. is the legal entity operating in Missouri. We do not have separate legal entities transacting business in the state.

**Q. ARE THERE CUSTOMER BENEFITS TO COMPLETE INTEGRATION OF TARIFFS?**

A. Yes. The movement towards single tariff pricing has multiple benefits for customers. A structured consolidation can result in equalized rates among customers of both Spire East and Spire West. Implementing consistent rates for similarly situated customer classes regardless of the customer's geographic location will result in more streamlined tariffs and consistency in treatment across the State of Missouri. The ability to spread fixed costs over a larger customer base will also result in customer charges that more accurately reflect the cost of service. Moreover, there are recordkeeping and administrative efficiencies, as well as customer benefits, to having a more simplified rate structure. For example, administrative costs may be lower by reducing the number of separate filings within a single rate proceeding. Customer service representatives may become more efficient at answering consumer questions based upon a consolidated rate structure, versus separate geographic rate structures.

**Q. WOULD THE COMMISSION THEIR STAFF, AND OTHER INTERVENORS BENEFIT FROM ONE SPIRE TARIFF?**

A. Absolutely. As the Company streamlines operations, its impact on regulators will also be reduced. We will no longer need to file two ISRS cases, two PGA cases, two responses, or open separate cases for other filings before the Commission that involve the same information, and there would be no need to issue orders to consolidate cases. This would make regulation of Spire more efficient and transparent by having all the data and information in one case**.** This process

will also streamline regulatory filings before the Commission and enhance transparency by having all of Spire's costs, information, or other inquires, centralized in one case. This will benefit the Company, the regulators, and intervenors.

**Q. ARE YOU AWARE OF OTHER MISSOURI UTILITIES THAT HAVE CONSOLIDATED THEIR TARIFFS IN THIS MANNER?**

A. Yes. Several other utilities have proposed consolidation of rates. It is my understanding that Missouri-American Water Company began consolidation of its tariffs in Case No. WR-2015-0301 and continued the consolidation process in Case Nos. WR-2017-0285 and SR-2017-0286; Liberty Utilities proposed to consolidate its three rate districts into a single district with uniform delivery charges in Case No. GR-2018-0013; and Kansas City Power & Light- Greater Missouri Operations ("GMO") proposed a comprehensive consolidation of two separate rate structures into one structure in Case No. ER-2016-0156. Similarly, Ameren Missouri requested consolidation of its two PGAs into one system-wide PGA in Case No. GR-2019-0077.

**Q. WHAT WERE THE OUTCOMES OF THESE REQUESTS FOR RATE AND TARIFF CONSOLIDATION?**

A. In the Liberty Utilities proceeding, the Commission Staff, the Office of the Public Counsel, Missouri Department of Economic Development, and Liberty Utilities filed a Unanimous Stipulation and Agreement on May 24, 2018. As part of the Stipulation and Agreement, the signatory parties agreed to adoption of rate consolidation for Liberty's Northeast Missouri ("NEMO") and Western Missouri ("WEMO") districts, under which base rates and charges were adjusted to make them the same in both districts for all customer classes. This

consolidation also contemplated that a single ISRS will be filed for both NEMO and WEMO.[2] The Commission approved the Stipulation and Agreement in its entirety on June 6, 2018.

**Q. PLEASE EXPLAIN AMEREN'S REQUEST TO CONSOLIDATE ITS PGA.**

A. As discussed in greater detail in the Direct Testimony of Ameren's Michael Harding, Ameren maintained a separate adder called the Incremental PGA for the Rolla area, consisting of Owensville, Rolla, and Salem. Ameren proposed to combine Rolla area customers with the larger non-Rolla customer base for purposes of calculating the PGA. Mr. Harding explained that consolidation of service territories reduces administrative requirements associated with tracking and reporting separate areas, maintaining and developing separate tariffs and rates, and reduces the possibility of customer confusion when attempting to interpret which rates should apply to them. Moreover, as Mr. Harding explained, although the non-Rolla PGA covers customers are served in two different geographic areas and are served by two different pipelines, the recovery of those costs is spread uniformly across all non-Rolla customers. Accordingly, inclusion of the Rolla customers in the system-wide recovery of all commodity-related costs is a logical extension of the current practice employed for the rest of the Company's gas customers.[3]

**Q. WAS AMEREN'S REQUEST TO CONSOLIDATE ITS PGA APPROVED?**

A. Yes. Similar to the Liberty Utilities proceeding, on July 18, 2019, the parties filed a Stipulation and Agreement in which the parties agreed that Ameren's request to consolidate its PGA was appropriate. There were several amended stipulations and agreements surrounding various issues not involving PGA consolidation. The Commission issued an Order approving all Stipulations and Agreements on August 21, 2019.

[2] Case No. GR-2018-0013, May 24, 2018 Unanimous Stipulation and Agreement at p. 3.

[3] Case No. GR-2019-0077, December 3, 2018 Direct Testimony of Michael W. Harding at pp. 20-21.

**Q. PLEASE EXPLAIN MISSOURI-AMERICAN WATER COMPANY'S ("MAWC") REQUEST TO CONSOLIDATE ITS THREE DIFFERENT WATER OPERATING DISTRICTS.**

A. In Case No. WR-2017-0285, MAWC requested that the Commission approve the consolidation of its three water operating districts into a single statewide tariff group. This proceeding was MAWC's second request for consolidation; in its prior general rate case MAWC proposed, and the Commission approved, the consolidation of its eight water operating districts into three.[4] In Case No. WR-2017-0285 the Commission also directed the parties to fully examine single-tariff pricing in its next rate case.[5]

**Q. ARE THERE OTHER UTILITIES WITH SERVICE TERRITORIES SPANNING THE STATE OF MISSOURI THAT HAVE A SINGLE TARIFF?**

**A.** Yes. Ameren Missouri's gas and electric operations span similar distances as Spire's territories, and share a common tariff.

**Q. HOW DOES THE SCOPE OF SPIRE'S OPERATIONS COMPARE TO AMEREN MISSOURI'S SCOPE OF OPERATIONS?**

**A.** The service areas for the companies are similar. Spire's customers span from the Kansas City area to the St. Louis region. This distance is approximately 248 miles. For purposes of comparison, Ameren Missouri's gas and electric companies serve the St. Louis region, the Bootheel of Missouri in the far southeast corner of the state. Ameren's gas company serves cities east and north of Columbia, which is the middle of the state. Some of Ameren Missouri's electric service areas are even farther apart in the state than Spire's service areas.

[4] *See*, Case No. WR-2015-0301, May 26, 2016 Report and Order, pp. 27-28.

[5] *Id*. at p. 28

**Q. ARE THERE CERTAIN CIRCUMSTANCES WHERE SPIRE EAST AND SPIRE WEST WILL NOT UTILIZE CONSOLIDATED RULES OR TARIFFS?**

A. Yes, there will be a few circumstances where sharing the same rates and tariffs will not be feasible for Spire Missouri. This is further explained in my testimony below. Transportation customer threshold is one example.

**Q. IS THE COMPANY PROPOSING ANY CHANGES TO THE TRANSPORTATION THRESHOLDS?**

A. Yes, the Company is proposing reducing Spire East's threshold from 300,000 therms to 150,000 Ccf. This a stepped directional move to align the threshold closer to Spire Missouri West and other gas utilities in the state.

**Q. WHAT ARE SOME OF THE FACTORS THAT ARE PREVENTING TOTAL CONSOLIDATION OF THE TRANSPORTATION RATE CLASS?**

A. Legacy Laclede Gas has one of the highest transportation thresholds in the country at 300,000 therms. This greatly limits the number of customers that can be part of this class. On the other side of the state, legacy MGE has a much lower threshold of 30,000 Ccf. Since the legacy companies have this large difference in thresholds, it becomes too challenging in developing rates with a single cost of service. Another challenge in combining transportation rates is the rate structures. The current rate structures of the Eastern and Western territories are extremely different. More time and analysis is necessary to unify the transportation tariff without causing severe rate impacts.

**Q. IS SPIRE PROPOSING ANY CHANGES TO ITS PGA CLAUSE?**

A. Yes. Spire is proposing a single PGA and ACA rate, which will eliminate three currently existing PGA rates and five ACA rates in Eastern Missouri. Spire is also proposing certain modifications and enhancements to its PGA.

**Q. HOW DOES MISSOURI'S INTERSTATE GAS SUPPLY IMPACT THE PGA?**

**A.** Unfortunately, Missouri has historically lacked grid resiliency and supply diversity when it comes to interstate gas transmission and supply. The west side of the state is predominately supplied by one pipeline out of the mid-continent region. The middle of the state is supplied by another pipeline out of the mid-continent area. The east side of the state has been historically supplied by a pipeline out of the gulf/Louisiana region. More recently, the east side of the state has been also supplied by a new pipeline bringing in gas from prolific shale plays from the Appalachian region.

**Q. HOW DOES INTERSTATE SUPPLY DIVERSITY ENABLE A SINGLE PGA?**

A. The production basins supplying interstate pipelines usually drive the price for the gas purchased. With a single PGA, Missourians would be able to have supply and price diversity. A single PGA would enable a blended rate from several pricing basins instead of one primary pricing point, as exists today on the west side of the state. This would help level out any price spikes that a given supply basin might experience.

**Q. CAN YOU PROVIDE AN EXAMPLE OF A PRICE SPIKE?**

A. Yes. Some may remember the polar vortex in 2014. During the beginning of that year, the U.S. experienced very cold weather conditions. There were operational problems in the Oklahoma and Texas region that predominately supplies Western and Central Missouri. The prices in these regions jumped to $30-40 per MMbtu. The prices on the east side of the state

increased, but remained relatively manageable at $7-8 per MMbtu. Some of these increases flowed through to our customers. As a result, Western and Central Missouri customers had to pay a much higher price for gas because they were captive to one supply basin. Having a diverse gas supply portfolio for our customers helps level out price volatility, allows for more stable rates, and makes rates more affordable statewide when prices spike or interruptions occur as they did during the polar vortex in 2014.

**Q. PLEASE CONTINUE EXPLAINING THE BENEFITS RESULTING FROM ONE PGA.**

A. As with the consolidation of other rates, eliminating multiple PGA rates and establishing one consistent rate will reduce a portion of the administrative requirements in tracking and reporting separate areas, for both the Company and its regulators. When Spire buys gas, puts on a hedge position, or signs a contract with a pipeline, anywhere in the state, it does so under the legal entity Spire Missouri Inc. Following such transactions, Spire must currently take an additional step to separate all these costs to artificially break out the east/west designation for Commission review. The use of a single PGA will permit all Spire customers to benefit from increased purchasing power and negotiation of discounts on particular pipes. For example, discounts negotiated with suppliers in the Spire East region would similarly benefit the Spire West region, and vice versa. Having one PGA will also result in statewide recovery of all commodity-related costs and will uniformly spread these costs across Spire's geographic regions.

**Q. DO OTHER GAS COMPANIES IN THE STATE OF MISSOURI HAVE ONE PGA?**

A. Yes. Ameren Missouri gas has one PGA rate as discussed above. Their customers in Columbia and Jefferson City are paying for pipeline transportation rates that serve the

communities of Rolla and the Cape Girardeau. Similarly, the customers in Rolla and Cape Girardeau are paying for pipeline transportation rates that are not physically connected to their communities. Ameren Missouri's gas service customers benefits from a diversified transportation and gas supply portfolio.

**Q. ARE THERE ANY OTHER MATERIAL CHANGES TO THE PGA?**

A. Yes. Spire is updating the Gas Supply Incentive Plan (GSIP) and making it applicable to the western service area. These changes include updating market price tier levels and the new company wide blended annual benchmark price.

**Q. HOW DOES TARIFF CONSOLIDATION IMPACT THE SCHOOL TRANSPORTTION PROGRAM?**

**A.** The Company is proposing to use Spire East's Experimental School Transportation Program tariff as the single school transportation tariff with minor changes to the Capacity Release portion of the tariff.

**Q. EXPLAIN THE CHANGES TO THE CAPACITY RELEASE PROCESS FOR THE SPIRE MISSOURI SCHOOL GAS MARKETERS?**

**A.** Currently, the Company releases reserved pipeline capacity for the Spire East schools. For the Spire West schools, the gas marketers reserve their own capacity. By standardizing using the Spire East methodology, the Company is assured that the marketers are transporting gas using reliable city gate capacity. The marketers would also have the ability to access this capacity through several pipelines used by the Company. This capacity would then be released at Spire's cost.

**Q. DESCRIBE THE PROPOSED CHANGE TO THE GAS NOMINATION PROCESS FOR SCHOOLS.**

**A.** The Company is proposing to manage the gas nominations for all of the schools. This is the process currently used by the Spire East schools.

**Q. ARE THERE ANY OTHER ITEMS TO INCLUDE PERTAINING TO IMPLEMENTING A SINGE SCHOOL TARIFF?**

**A.** The Company currently manages the school programs differently between Spire East and West. In fact, the largest gas marketer for Spire Missouri schools also has to manage different processes depending on which side of the state their school is located. This consolidation of the tariffs will help streamline the process by making processes identical for all of Spire.

## INCENTIVE COMPENSATION

**Q. WHAT HAS BEEN THE COMMISSION'S HISTORIC POLICY REGARDING INCENTIVE COMPENSATION?**

A. The Commission has previously disallowed earnings-based or equity-based compensation from rate recovery, noting that incentivizing employees to improve a company's bottom line aligns employee interests with shareholders, rather than ratepayers.[6] As such, the Commission has denied Spire's recovery of earnings-based or equity-based employee incentive compensation amounts in rates.[7]

[6] March 7, 2018 Amended Report and Order, Case Nos. GR-2017-0215, 0216, at pp. 122-123.

[7] Id.

**Q. HAS SPIRE MADE ANY REVISIONS TO ITS ANNUAL INCENTIVE PLAN?**

A. Yes. In the fall of 2018, Spire's management conducted a detailed review of the Company's current annual incentive plan ("AIP") design. This review was focused on the utility's business unit metric. Prior to this review, the business unit metric was Utility Operating Income. Following review and discussion by Spire management, the decision was made to eliminate this metric for all non-officer plan participants and establish two new metrics: (1) Utility Contribution Margin; and (2) Utility Adjusted O&M per customer.

**Q. PLEASE EXPLAIN HOW THESE METRICS ARE CALCULATED**.

A. Utility Contribution Margin is calculated in the following manner:

Utility Contribution Margin = Utility Gross Revenue-Gas Costs-Gross Receipts Tax, as referred to as Net Operating Revenue.

Utility Adjusted O&M per Customer is calculated as:

Utility Adjusted O&M per Customer = (Utility Operating & Maintenance Expenses + Property Taxes) /12 Month Average Customers.

**Q. WHAT IS SPIRE'S RATIONALE FOR ESTABLISHING THESE NEW METRICS?**

A. Spire believes that these two new metrics offer benefits for both our customers and our employees. By increasing the Contribution Margin, employee incentives are aligned with a direct benefit to the customer. Our employees can impact out Contribution Margin by adding and/or retaining customers. This increases Contribution Margin, broadening the base for which our cost structure can be distributed, and lessens the impact on existing customers. Customers also benefit directly from reductions in O&M per Customer. Improvements in efficiency and productivity, and reducing or eliminating of costs lowers Operating & Maintenance expenses,

which in turn lowers the cost structure proportioned to each of our customers. This impact can be compounded by also increasing our customers, which distributes our fixed and variable costs across a larger pool, thereby lowering each customer's total share of costs. Both of these customer-focused metrics contribute to more affordable rates for our customers while aligning and complementing Spire's other customer satisfaction and safety metrics.

**Q. WHAT BENEFITS DO THESE METRICS HAVE FOR SPIRE EMPLOYEES?**

A. These metrics allow each employee to have a clear "line of sight" and better understanding regarding how their day-to-day efforts can contribute to Contribution Margin and/or impact O&M per customer.

**Q. HOW DOES THE CHANGE IN AIP METRICS ALIGN WITH SPIRE'S GOALS AS A UTILITY?**

A. Overall, Spire believes that these changes reinforce our continued commitment to continuous improvement and creates a better line of sight to our employees and customers. Each employee's individual or team metrics continue to be directly aligned to the customer, as those metrics remain focused on customer satisfaction, safety, distribution infrastructure, cost savings and fiscal measurements.

**Q. WHAT CHANGES IS SPIRE PROPOSING TO ITS INCENTIVE COMPENSATION PLAN IN THIS PROCEEDING?**

A. Spire proposes to modify its incentive compensation plan to further move towards a more O&M-based performance metric. These changes more closely align with Spire's commitment to its customers to enhance service and maintain affordable natural gas delivery.

## COMBINED HEAT AND POWER

**Q. WHAT IS COMBINED HEAT AND POWER?**

A. Combined heat and power ("CHP"), also known as cogeneration, refers to technology that simultaneously generates electricity and uses thermal energy from a single fuel source. This is typically accomplished by recovering waste heat from the electric generation process and using it to provide the thermal load for a building. As discussed further below, CHP results in a significant increase in total system efficiency.

**Q. WHAT ARE THE BENEFITS OF CHP?**

A. CHP has multiple benefits, including: (1) increased energy efficiency; (2) reduced atmospheric emissions; (3) enhanced grid reliability and resilience; and (4) reduced energy and infrastructure costs.[8] CHP technology has beneficial applications for both critical infrastructure (*e.g.*, hospitals, government facilities, nursing homes, emergency shelters, data centers, etc.) as well as industrial, manufacturing, higher education, and other users.[9]

**Q. IS SPIRE PROPOSING A CHP INITIATIVE IN THIS PROCEEDING?**

A. Yes. Spire recognizes both its customers' requests and its civic duty to limit the environmental impacts of energy production, and believes this to be an appropriate time for Spire to establish a CHP initiative. CHP has also been a topic of policy discussions in Missouri in relation to grid resiliency and emergency response.

[8] *See, e.g.,* Missouri Department of Natural Resources, Division of Energy, Combined Heat and Power, https://energy.mo.gov/clean-energy/combined-heat-power.

[9] Id.

**Q. HAS SPIRE PREVIOUSLY PROPOSED A CHP PROGRAM OR INITIATIVE?**

A. No. However, as the Commission will recall, the Missouri Department of Energy ("DOE") proposed a CHP pilot program in Spire's last rate proceeding.[10] Among other DOE proposed parameters, DOE's CHP pilot program proposal contained the following guidelines; (1) establish a definition of critical infrastructure that encompasses the range of CHP applications; (2) authorize Spire to investigate and develop a proposed CHP pilot program to serve critical infrastructure, with a total program budget not to exceed $5.1 million; (3) allow Spire to track and request recovery of the costs associated with the CHP pilot program participation; and (4) allow Spire to extend cost recovery periods for customer repayments on the customer portion of necessary facilities to develop a CHP system.[11]

**Q. DID THE COMMISSION APPROVE DOE'S PROPOSED PILOT PROGRAM?**

A. No, it did not. The Commission did not approve DOE's proposal for the pilot program, but the Commission encouraged the parties to continue discussion regarding how best to improve energy reliability and resiliency for critical infrastructure and submit more detailed recommendations in the future.[12] Spire listened to the Commission and has continued those discussions and is now proposing a CHP Initiative.

**Q. PLEASE EXPLAIN THE PROPOSED CHP INITIATIVE SPIRE IS PROPOSING IN THIS PROCEEDING.**

A. This CHP initiative would allow Spire to investigate and develop a proposed CHP pilot program to serve critical infrastructure, with a total program budget not to exceed $4 million. This would also allow Spire to track and defer the costs associated with the CHP pilot program.

[10] Epperson Direct Testimony at pp. 4-18, Case Nos. GR-2017-0215, 0216.

[11] March 7, 2018 Amended Report and Order, Case Nos. GR-2017-0215, 0216, at pp. 139-142.

[12] Id. at p. 142.

Technologies, customer interest, and environmental impacts have changed since our last case. We look forward to working with the other parties to bolster the state's energy plan and resiliency, while reducing emissions.

## CARBON NEUTRAL OFFERING

**Q. WHY IS THE COMPANY OFFERING A VOLUNTARY CARBON NEUTRAL INITIATIVE IN THIS PROCEEDING?**

A. Put simply, our customers want products like this. In our previously discussed "Fresh Perspective" outreach, we found that some of our customers are willing to pay more on their bill to reduce their environmental impact. We all have a shared responsibility to care for our planet. As an energy company, we honor that responsibility, we operate with environmental sustainability in mind. Because our customers have told us that the environment is important to them, Spire has decided to offer a voluntary carbon offset program for natural gas usage. Residential natural gas usage is the lowest greenhouse gas emitter by sector, accounting for only 4% of total greenhouse gas emissions (GHG). In contrast, industry, electric generation, and the transportation sector account for nearly 75% of all GHG.

**Q. PLEASE EXPLAIN THE PROPOSED CARBON NEUTRAL INITIATIVE SPIRE IS PROPOSING IN THIS PROCEEDING.**

**A**. This program will allow Spire customers the ability to fully eliminate the average carbon footprint for their natural gas usage over time. The average Spire customer emits approximately 4 tons of CO2 per year. First, Spire will team up with Forest ReLeaf of Missouri (ReLeaf) to initiate this program. ReLeaf operates the only nonprofit community-assisted tree nursery in the region. ReLeaf is a catalyst for restoring and sustaining our urban forests. .

Voluntary participation for this program is proposed to begin at $4 per month, an amount that would allow Releaf to plant trees in Missouri to offset a customer's approximate annual natural

gas carbon footprint over the 30-year life of the trees. The proposed tree-based carbon sequestration will be verified by i-tTree, a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban and rural forestry analysis and benefits assessment tools. The i-Tree tools can help strengthen forest management and advocacy efforts by quantifying forest structure and the environmental benefits that trees provide. The monthly customer charges for customers who elect to participate will be $4 per month starting on the effective date of this program. The monthly charge includes the price of the trees, planting, and 20% in administration and marketing costs.

**Q. HOW LONG WILL THIS CUSTOMER ELECTION BE EFFECTIVE?**

A. Customers will be locked into program prices that follow the Company's fiscal year.

Customer charges could be as high as $6 per month in 2023, and $10 per month in 2024 or until the Company's next general rate case due to material, inflation, or other cost increases. Any program increases will require customers to voluntary re-enroll in the program.

**Q. IS THIS PROGRAM AVAILABLE TO ALL CUSTOMER CLASSES?**

A. Customized programs can be offered for commercial and industrial customers.

Please see schedule SAW-1 for more program details and a sample i-Tree report.

**Q. COULD THE COMPANY INVEST IN OTHER CARBON OFFSET BESIDES TREES?**

**A**. Yes**,** there could be supplemental investments. However, the Company will only be allowed to charge customers the monthly rate identified in Program costs identified above. If other carbon offset technologies become economically viable or have the potential to help

environmental efforts in Missouri, then the Company would be able to use Program funds to offset customers' carbon footprint by investing in such technologies that may include:

- Financial carbon offsets;
- Mechanical, filtration, chemical, facility bolt on, storage, or other technologies used to sequester or eliminate carbon output;
- Direct air capture;
- Land restoration;
- Algae farms or microalgae;
- Small scale renewable natural gas; or
- Other technologies not yet identified.

**Q. PLEASE DECRIBE HOW A CUSTOMER WOULD PARTICIPTE IN THIS PROGRAM AND REPORTING REQUIRMENTS.**

A. Customers can elect to participate by checking a box on their bill, or by signing-up on the Spire MyAccount portal. By December 31 of each year, the Company proposes to submit to Staff and OPC an annual report that includes: (i) the level of customer participation; (ii) the level of funds generated by the voluntary participants; (iii) type and amount of offset the investments made; and (iv) the amount of carbon offset resulting from program participation.

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes, it does.

**BEFORE THE PUBLIC SERVICE COMMISSION**
**OF THE STATE OF MISSOURI**

| | | |
|---|---|---|
| In the Matter of Spire Missouri Inc.'s Verified 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 |

A F F I D A V I T

| | | |
|---|---|---|
| STATE OF MISSOURI | ) | |
| | ) | SS. |
| CITY OF ST. LOUIS | ) | |

Scott A. Weitzel, of lawful age, being first duly sworn, deposes and states:

1. My name is Scott A. Weitzel. I am the Managing Director, Regulatory and Legislative Affairs for Spire Missouri Inc. My business address is 700 Market St., St Louis, Missouri, 63101.

2. Attached hereto and made a part hereof for all purposes is my direct testimony on behalf of Spire Missouri Inc. for the above referenced case.

3. Under penalty of perjury, I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.

*Scott Weitzel*

Scott A. Weitzel

Dated this 11th day of December, 2020.

Spire Missouri Inc.
700 Market St.
St. Louis, MO 63101

# Voluntary Carbon Neutral Initiative Offering

We all have shared responsibility to care for our planet. As an energy company, we honor that responsibility, operating with environmental safety and sustainability in mind. We have also heard from our customers that the environment is important to them. That is why we have decided to offer a voluntary carbon offset program for natural gas usage.

Residential natural gas usage is the lowest greenhouse gas emitter by sector, accounting for only 4% of total GHG. Industry, Electric generation, and the transportation sector account for nearly 75% of all GHG.

## The Program

This program will allow Spire Missouri customers the ability to eliminate their average carbon footprint for their natural gas usage by 100% over the life of the investment. The average Spire Missouri customer emits approximately 4 tons of CO2 per year.

Initially, Spire Missouri has teamed up with Forest ReLeaf of Missouri (ReLeaf). ReLeaf operates the only nonprofit community-assisted tree nursery in the region. ReLeaf is a catalyst for restoring and sustaining our urban forests. Their mission statement: we are planting trees and enriching communities.

Voluntary participation for this program will be set at $4 a month and would allow Releaf to plant trees in Missouri that would offset a customer's approximate annual natural gas carbon footprint over a 30 year life of the trees. The tree carbon sequestration is verified by i-tree. i-Tree is a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban and rural forestry analysis and benefits assessment tools. The i-Tree tools can help strengthen forest management and advocacy efforts by quantifying forest structure and the environmental benefits that trees provide.

The $4 a month charge includes the price of the trees, planting, and 20% in administration and marketing costs.

Monthly customer charges will be $4 a month starting on the effective date of this program. Customer charges could be as high as $6 a month in 2023, and $10 a month in 2024 or until the Company's next general rate case due to material, inflation, or other cost increases. Administration and marketing cost will remain at 20% until the next general rate proceeding. Any program increases will require customers to voluntary reenroll in the program. Customer's will be locked into program prices that follow the Company's fiscal year.

Customized programs can be offered for commercial and industrial customers. Costs and program details will be filed with the MPSC Staff and OPC 30 days prior to customer participation.

## Supplemental Programs

The Company will only be allowed to charge customers a monthly rate identified in Program costs identified above. If other carbon offset or technologies become economically viable or have the potential

to help environmental efforts in Missouri, then the Company can use program funds to offset customers carbon footprint by investing in:

-Financial carbon offsets

-Investing in mechanical, filtration, chemical, facility bolt on, storage, or other technologies used to sequester or eliminate carbon output

-Direct air capture

-Land restoration

-Algae farms or microalgae

-Small scale renewable natural gas

-Other technologies not yet identified

## Customer Participation

This will be a check the box option on a customer's bill or available for selection on the Spire "my account" portal.

## Reporting

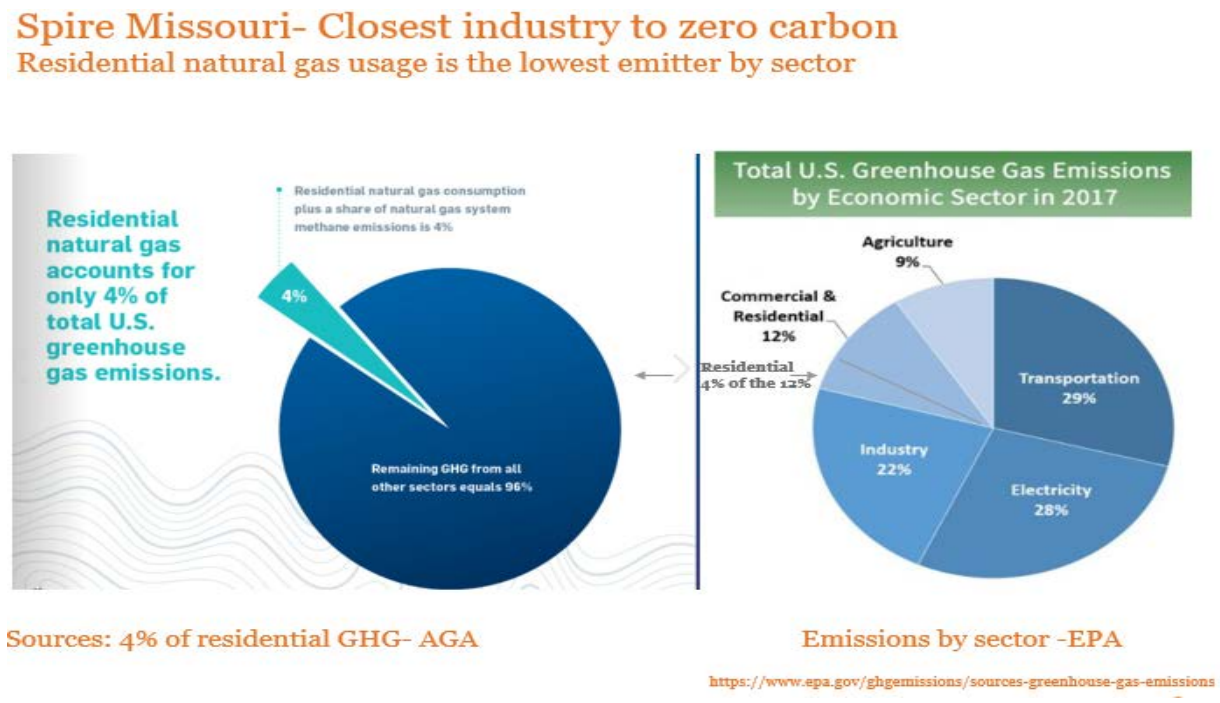
By December 31 of each year, the company will submit to Staff and OPC an annual report that has:

Customer participation

Funds brought in by the voluntary participants

Investments made

Report quantifying the carbon offset



# Project Report - i-Tree Planting Calculator v2.1.2

Location: St. Louis, Missouri 63110
Electricity Emissions Factor: 819.91 kilograms CO2 equivalent/MWh
Fuel Emissions Factor: 93.57 kilograms CO2 equivalent/MMBtu
Lifetime: 30 years
Tree Mortality: 0%

All amounts in the tables are for the full lifetime of the project.

| Location | | $CO_2$ (Carbon Dioxide) Benefits | | | |
|---|---|---|---|---|---|
| **Group Identifier** | **Tree Group Characteristics** | **$CO_2$ (Carbon Dioxide) Avoided (pounds)** | **$CO_2$ Avoided ($)** | **$CO_2$ Sequestered (pounds)** | **$CO_2$ Sequestered ($)** |
| 1 | • (1.0) Oak, Northern red (Quercus rubra) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 9,299.7 | $216.28 | 2,729.8 | $63.49 |
| 2 | • (1.0) Redbud, Eastern (Cercis canadensis) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and northeast (45°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 3,005.2 | $69.89 | 95.2 | $2.21 |
| 5 | • (1.0) Sycamore, American (Platanus occidentalis) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 11,550.5 | $268.63 | 3,334.8 | $77.56 |
| 6 | • (1.0) Baldcypress (Taxodium distichum) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 9,732.1 | $226.34 | 2,411.1 | $56.08 |
| 9 | • (1.0) Birch, River (Betula nigra) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 10,504.6 | $244.30 | 4,002.2 | $93.08 |

| Location | | $CO_2$ (Carbon Dioxide) Benefits | | | |
|---|---|---|---|---|---|
| **Group Identifier** | **Tree Group Characteristics** | **$CO_2$ (Carbon Dioxide) Avoided (pounds)** | **$CO_2$ Avoided ($)** | **$CO_2$ Sequestered (pounds)** | **$CO_2$ Sequestered ($)** |
| 10 | • (1.0) Catalpa, Northern (Catalpa speciosa) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 8,253.8 | $191.96 | 3,503.2 | $81.47 |
| 11 | • (1.0) Hawthorn, Green (Crataegus viridis 'Winter King') at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 3,005.2 | $69.89 | 2,392.6 | $55.65 |
| 12 | • (1.0) Dogwood, Gray (Cornus racemosa) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 3,005.2 | $69.89 | 13.1 | $0.31 |
| 13 | • (1.0) Cherry, Black (Prunus serotina) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 10,937.0 | $254.36 | 5,482.8 | $127.51 |
| 14 | • (1.0) Buckeye, Ohio (Aesculus glabra) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 10,050.0 | $233.73 | 5,331.5 | $123.99 |

| Location | | $CO_2$ (Carbon Dioxide) Benefits | | | |
|---|---|---|---|---|---|
| **Group Identifier** | **Tree Group Characteristics** | **$CO_2$ (Carbon Dioxide) Avoided (pounds)** | **$CO_2$ Avoided ($)** | **$CO_2$ Sequestered (pounds)** | **$CO_2$ Sequestered ($)** |
| 15 | • (1.0) Coffeetree, Kentucky (Gymnocladus dioicus) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 5,230.5 | $121.64 | 1,683.4 | $39.15 |
| 16 | • (1.0) Hackberry, Northern (Celtis occidentalis) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 10,186.7 | $236.91 | 551.8 | $12.83 |
| 17 | • (1.0) Hornbeam, American (Carpinus caroliniana) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 3,005.2 | $69.89 | 1,103.0 | $25.65 |
| 18 | • (1.0) Hazlenut, American (Corylus americana) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 3,005.2 | $69.89 | 3.5 | $0.08 |
| 19 | • (1.0) Maple, Sugar (Acer saccharum) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 9,913.3 | $230.55 | 1,437.7 | $33.44 |

| Location | | $CO_2$ (Carbon Dioxide) Benefits | | | |
|---|---|---|---|---|---|
| **Group Identifier** | **Tree Group Characteristics** | **$CO_2$ (Carbon Dioxide) Avoided (pounds)** | **$CO_2$ Avoided ($)** | **$CO_2$ Sequestered (pounds)** | **$CO_2$ Sequestered ($)** |
| 20 | • (1.0) Oak, Swamp white (Quercus bicolor) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 10,641.3 | $247.48 | 5,004.2 | $116.38 |
| 21 | • (1.0) Serviceberry, Eastern (Amelanchier canadensis) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 3,005.2 | $69.89 | 199.3 | $4.63 |
| 22 | • (1.0) Walnut, Black (Juglans nigra) at 1.0 inch DBH (Diameter at Breast Height).<br>• Planted 40-59 feet and north (0°) of buildings that were built post-1980 with heat and A/C.<br>• Trees are in excellent condition and planted in full sun. | 9,891.0 | $230.03 | 4,869.3 | $113.24 |