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UNION ELECTRIC COMPANY **GAS SERVICE**

Applying to

MISSOURI SERVICE AREA

RIDER A PURCHASED GAS ADJUSTMENT CLAUSE

* APPLICABILITY

The Purchased Gas Adjustment (PGA) Clause applies to all sales and transportation services provided under all natural gas rate schedules and contracts, including sales to transportation customers. In addition, the Company's Rolla System (consisting of Owensville, Rolla and Salem service areas) has an incremental PGA. For purposes of this clause, the term "cost of gas" shall be as defined under Section I.B.

Any increase or decrease in any PGA factor, including the Actual Cost Adjustment (ACA) factor, resulting from the application of this Rider A, shall be applied prorata to customers' bills for service rendered on and after the effective date of the change. Bills which contain multiple PGA rate changes, including the ACA component of such rate changes, during a customer's billing period shall be prorated between the old and new rates in proportion to the number of days in the customer's billing period that such rates were in effect. For all customers billed under the Company's Residential Service Rate Schedule, the proration of the PGA factors shall be based on the applicable usage-dependent blocked PGA factors.

I. PURCHASED GAS COST ADJUSTMENT

Filing of the PGA Α.

The Company shall be allowed to make up to four (4) PGA filings during each calendar year. One such filing will be effective in November of each year, but no more than one PGA filing shall become effective in any two consecutive calendar months unless specifically ordered by the Commission. Such PGA filings shall be made at least ten (10) business days prior to their effective dates.

All PGA filings shall be accompanied by detailed work-papers supporting the filing in an electronic format. Sufficient detail shall be provided so the level of hedging that is used to develop the gas supply commodity charge for the PGA factor can be determined.

Contents of PGA Filings - When proposing revisions to its filed PGA Β. factors, the Company shall file PGA tariff sheets with the Commission for approval which consist of:

*Indicates Change.

Issued Pursuant to the Order of the Mo. P.S.C. in Case No. GR-2010-0363. DATE OF ISSUE January 21, 2011 DATE EFFECTIVE February 20, 2011

ISSUED BY	Warner L. Baxter	President & CEO	St. Louis, Missouri
	Name of Officer	Title	Address

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MISSOURI SERVICE AREA

RIDER A PURCHASED GAS ADJUSTMENT CLAUSE

*The Regular Purchased Gas Adjustment (RPGA) Factor - A ¢/Ccf factor to reflect the current estimate of the annualized cost of various natural gas services purchased by the Company, including but not limited to firm and interruptible gas supply, gathering services, firm and interruptible transportation service, storage services, gas price volatility mitigation instruments, including but not limited to, financial instruments, and any service which bundles or aggregates these various services. The RPGA factor for the Residential Service Rate will vary depending on customer usage.
The Actual Cost Adjustment (ACA) Factor - A ¢/Ccf factor to reflect the annual reconciliation of actual purchased gas and pipeline service costs with the actual recovery of such costs through the application of this Rider A. Revised ACA factors shall be filed with the PGA filing to be effective in November of each year.
In addition, in any PGA filing, the Company may include a rate adjustment, hereinafter referred to as the "PGA Filing Adjustment Factor (FAF), not to exceed five cents (5.0¢) per Ccf which is designed to refund to, or recover from customers any over or under recoveries of gas costs that have accumulated since the Company's last ACA filing.
**The Residential Service Rate PGA shall be calculated based on customer's usage with the applicable PGA factors as noted in this Schedule.
For the purpose of the computations herein, the cost of gas recoverable through the RPGA and ACA shall include:
a) The cost of any liquid or gaseous hydrocarbons purchased for injection into the gas stream;
 b) Gathering, transportation and storage costs related to such liquid or gaseous hydrocarbons;
c) Costs associated with mitigating price volatility in the Company's gas supply portfolio, including but not limited to, financial instruments; and
d) All other costs associated with the purchase, transportation and/or storage of natural gas under a rate, tariff or contract subject to regulation by the Federal Energy Regulatory Commission (FERC) or successor agency including, but not limited to, costs billed as take-or-pay and transition charges.
As used in this Rider, the following definitions shall apply: "filing month" - the month in which a RPGA or ACA is determined by the Company and filed with the Commission;
* Indicates Change. ** Indicates Addition.
Issued Pursuant to the Order of the Mo. P.S.C. in Case No. GR-2010-0363. DATE OF ISSUE January 21, 2011 DATE EFFECTIVE February 20, 2011

ISSUED BY	Warner L. Baxter	President & CEO	St. Louis, Missouri
	Name of Officer	Title	Address

Applying to _____

P.S.C. Mo. No.27th RevisedSHEET No.24Cancelling P.S.C. Mo. No.26th RevisedSHEET No.24

UNION ELECTRIC COMPANY GAS SERVICE

MISSOURI SERVICE AREA

RIDER A PURCHASED GAS ADJUSTMENT CLAUSE
"base period" - <mark>the first twelve (12) of the thirteen (13) months</mark> immediately preceding the filing month;
"firm sales" - the sales associated with the Company's Residential, General Service, and Interruptible (Assurance Gas) rate classifications;
II. <u>DETERMINATION OF REGULAR PURCHASED GAS ADJUSTMENT (RPGA)</u> The RPGA will be determined in accordance with the following:
A. <u>Commodity-Related Charges</u> The commodity-related charges shall include but not be limited to producer gas supply commodity charges, pipeline transmission and gathering commodity charges, expected costs or cost reductions to be realized for the entire applicable period, storage withdrawals,
gas purchases under fixed-price contracts, and the Company's cost of gas price volatility mitigation instruments, including but not limited to, financial instruments, except for call options for which only cost reductions expected to be realized during the months covered by the Company's PGA filing shall be reflected. A commodity-related per unit ¢/Ccf factor shall be determined by dividing commodity-related costs by total sales volumes during the base period.
* One hundred percent (100%) of MoGas Pipeline LLC's, Zone 2 commodity-related costs shall be excluded from the PGA factor determination and included in the incremental PGA factor developed solely for the Company's Rolla System. The divisor for the commodity-related costs shall include the sales volumes of the customers located in the Rolla System. The divisor for the commodity-related costs in the incremental PGA factor shall only include the sales volumes of the customers located in the Rolla System.
 B. <u>Demand-Related</u> (Capacity, Reservation, Space, Deliverablity) Charges For the purpose of the computations herein "demand-related" shall mean gas costs relating to fixed pipeline transportation and storage charges, fixed gas supply charges, and other FERC- authorized fixed charges. 1. <u>Purchased Gas</u> For each natural gas supply purchased during the base period multiply the number of units of demand purchased during the base period by their respective charge(s) in effect on the first day of the filing month and divide by firm sales volumes during the base period.
*Indicates Change.
Issued Pursuant to the Order of the Mo. P.S.C. in Case No. GR-2010-0363.DATE OF ISSUEJanuary 21, 2011DATE EFFECTIVEFebruary 20, 2011

ISSUED BY	Warner L. Baxter	President & CEO	St. Louis, Missouri
	Name of Officer	Title	Address

P.S.C. Mo. No. 2 6th Revised SHEET No. 25 5th Revised SHEET No. 25

UNION ELECTRIC COMPANY **GAS SERVICE**

Applying to

MISSOURI SERVICE AREA

RIDER A PURCHASED GAS ADJUSTMENT CLAUSE * 2. Supplemental Gas For each supplemental (temporary and emergency) gas supply purchased during the base period multiply the number of units purchased each month of the base period by the charge(s) in effect on the first day of the filing month and divide by firm sales volumes during the base period; in the case of a supply initially accounted for as an inventory item, multiply the number of units taken from inventory each month of the base period by the most current inventory unit price for such supply and divide by firm sales volumes during the base period. 3. Purchased Seasonal/Peaking Storage For each seasonal/peaking type storage service purchased during the base period multiply the units of demand purchased during the base period by their respective charge(s) in effect on the first day of the filing month and divide by firm sales volumes during the base period; if there is no purchase of a specific storage service for the filing month, the last charge(s) paid for such storage service purchased in the base period shall be used. 4. Purchased Balancing Storage For each balancing type storage service purchased during the base period multiply the units of demand purchased during the base period by their respective charge(s) in effect on the first day of the filing month and divide by total sales volumes during the base period; if there is no purchase of a specific storage service for the filing month, the last charge(s) paid for such storage service purchased in the base period shall be used. 5. Transportation Service For each separate related transportation service purchased during the base period multiply the number of units of demand purchased during the base period by their respective charge(s) in effect on the first day of the filing month, less 1.25¢ per Ccf times the units of interruptible sales, and divide the resulting balance of demand costs by firm sales volumes during the base period; if there is no purchase of a specific transportation service for the filing month, the last charge(s) paid for such transportation service purchased during the base period shall be used. * Indicates Reissue. P.S.C. Mo. DATE OF ISSUE April 27, 2004 DATE EFFECTIVE May 1, 2004

ISSUED BY	G. L. Rainwater	Chairman & CEO	St. Louis, Missouri
_	NAME OF OFFICER	TITLE	ADDRESS

P.S.C. Mo. No.28th RevisedSHEET No.26Cancelling P.S.C. Mo. No.27th RevisedSHEET No.26

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Applying to _____

MISSOURI SERVICE AREA

RIDER A PURCHASED GAS ADJUSTMENT CLAUSE
* One hundred percent (100%) of MoGas Pipeline LLC's Zone 2 demand- related transportation costs shall be excluded from the PGA factor determination and included in the incremental PGA factor developed solely for the Company's Rolla System. The divisor for the demand-related costs shall include firm sales volumes of the customers located in the Rolla System. The divisor for the demand-related costs in the incremental PGA factor shall only include firm sales volumes of the customers located in the Rolla System.
C. Other Costs of Gas The total amounts of any costs, different from those referred to above, associated with the supply, transportation and/or storage service of natural gas during the base period under a rate, tariff or contract subject to regulation by the FERC or successor agency, divided by total sales and/or transported volumes, as applicable, during the base period. These costs include, but are not limited to, costs billed as take-or-pay and transition charges.
 D. <u>Determination of Class RPGA Factors</u> The RPGA factor for the firm sales rate classifications of natural gas service shall be calculated by summing the factors determined in Sections II.A. through II.C. above. The RPGA factor for the interruptible sales rate classification of natural gas service shall be calculated by summing the factors determined in Sections II.A., II.B.4., and II.C. above plus 1.25¢ per Ccf. The RPGA factor for the transportation rate classification shall be as calculated in Section II.C. above. *Indicates Change.
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ISSUED BY	Warner L. Baxter	President & CEO	St. Louis, Missouri
	Name of Officer	Title	Address

P.S.C. Mo. No. 2 8th Revised SHEET No. 27 7th Revised SHEET No. 27

UNION ELECTRIC COMPANY **GAS SERVICE**

Applying to

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RIDER A PURCHASED GAS ADJUSTMENT CLAUSE

III. ACTUAL COST ADJUSTMENT (ACA) ACCOUNT:

* An ACA account shall be maintained for the Company's service area to which natural gas is transported. In addition, a separate incremental ACA will be maintained for the Company's Rolla System. Said account shall be credited by the amount of any gas costs recovered through the action of this Rider in excess of actual gas costs incurred by the Company, and debited by the amount of any such recovered gas costs which is less than actual gas costs incurred by the Company. Such reconciliation of gas costs incurred and recovered shall be for the twelve (12) month period ending with August of each year, as defined herein.

Such excess or deficiency in total gas cost recovery for each sales rate classification and transportation rate classification shall be determined by a monthly comparison of the actual cost of gas for each month, including the prior period's ACA balance to the gas cost revenues recovered for the corresponding revenue month.

- 1. Demand-related costs applicable to "Purchased Gas" supply service, "Purchased Seasonal/Peaking Storage" service, "Supplemental Gas" service and "Transportation" of peaking storage service shall be allocated to the firm sales rate classifications.
- 2. Demand-related costs applicable to pipeline "Transportation" service and "Purchased Balancing Storage" service shall be allocated to firm sales and interruptible sales rate classifications. The interruptible sales customers will be allocated a portion of such "Transportation" demand costs. The balance of demand costs will then be allocated to the firm sales rate classification.

One hundred percent (100%) of MoGas Pipeline LLC's Zone 2 demandrelated transportation costs shall be excluded from the ACA factor determination and included in the incremental ACA factor developed solely for the Company's Rolla System.

*Indicates Change.

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P.S.C. Mo. No. 2 10th Revised SHEET No. 28 9th Revised SHEET No. 28

UNION ELECTRIC COMPANY **GAS SERVICE**

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3. Commodity-related costs applicable to "Purchased Gas" supply service, "Purchased Seasonal/Peaking Storage" service, "Purchased Balancing Storage" service and "Transportation" service shall be allocated to each sales rate classification based on the ratio of each such classes' respective actual sales to the sum of total sales for the related revenue month. One hundred percent (100%) of MoGas Pipeline LLC's Zone 2 Commodityrelated costs shall be excluded from the ACA factor determination and included in the incremental ACA factor developed solely for the Company's Rolla System. "Other Cost of Gas" incurred shall be allocated as applicable to 4. sales rate classification and transportation rate each classification based on the ratio of each such classes' respective actual sales and transported volumes to the sum of such sales and transported volumes for the related revenue month. Any refunds which the Company receives in connection with natural 5. gas services purchased, together with any interest included in such refunds, will be refunded to the Company's applicable customers unless otherwise ordered by the Commission. Such refunds shall be credited to the ACA account in the month received and shall be a part of the overall ACA interest calculation. The refund amount will be allocated to each firm sales, interruptible sales and transportation rate classification based upon the same allocation of such costs as calculated during the base period in Section II. herein. *6. The total gas cost recovered each month shall be equal to the product of the billed Ccf of each rate classification times the sum of the applicable RPGA and ACA factors. The RPGA factor will include, if applicable, the FAF factor. 7. For the ACA period ending with August of each year, the aggregate excess or deficiency in gas cost recovery as described above shall be accumulated to produce a cumulative balance of excess or deficiency of gas cost recovery by sales and transportation rate classifications. ACA factors shall be computed by dividing these cumulative balances by the estimated sales and transportation volumes during the subsequent twelve-month billing period of November - October, for each of the sales and transportation rate classifications. All actual ACA revenue recovered shall be debited or credited to the appropriate monthly balance of the ACA account.

* Indicates Change.

Issued Pursuant to the Order of the Mo. P.S.C. in Case No. GR-2010-0363. DATE OF ISSUEJanuary 21, 2011DATE EFFECTIVEFebruary 20, 2011

ISSUED BY	Warner L. Baxter	President & CEO	St. Louis, Missouri
	Name of Officer	Title	Address

UNION ELECTRIC COMPANY **GAS SERVICE**

Applying to

MISSOURI SERVICE AREA

RIDER A PURCHASED GAS ADJUSTMENT CLAUSE The divisor shall include the estimated sales volumes of the customers located in the Rolla System. The divisor for the incremental ACA factor shall only include the estimated sales volumes of the customers located in the Rolla System. 8. For each month during the ACA period and for each month thereafter interest, at a simple rate equal to the prime bank lending rate (as published in the Wall Street Journal on the first business day of the following month), minus two (2) percentage points (but not less than zero) shall be credited to customers for any overrecovery of gas costs or credited to the Company for any underrecovery of gas costs. Interest shall be computed based upon the average of the accumulated beginning and ending monthly ACA account balances. The Company shall maintain detailed work-papers that provide the interest calculation on a monthly basis. *9. These ACA factors shall be rounded to the nearest 0.01¢/Ccf and applied to billings of each applicable sales and transportation rate classification, commencing in November of each year, and shall remain in effect until superseded by subsequent ACA factors calculated according to this provision. *Indicates Change. Issued Pursuant to the Order of the Mo. P.S.C. in Case No. GR-2010-0363. DATE OF ISSUE January 21, 2011 DATE EFFECTIVE February 20, 2011

ISSUED BY	Warner L. Baxter	President & CEO	St. Louis, Missouri
	Name of Officer	Title	Address

UNION ELECTRIC COMPANY **GAS SERVICE**

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	RIDER A PURCHASED GAS ADJUSTMENT CLAUSE
10. The	Company concurrently with its annual ACA filing, shall:
(a)	Provide all documentation necessary to reconcile the Company's actual gas costs with its billed revenue. Provide all documentation of all natural gas purchases (commodity, demand or reservation charges or other charges) to support that the claimed costs are properly attributed to the ACA period and that the pipelines, natural gas suppliers, and any other vendors have charged or invoiced the Company for the volumes nominated and received at the proper rates.
(b)	Provide all documentation to support decisions made at the time of the Company's natural gas supply planning, capacity planning, purchasing practices, and operating decisions for the ACA period.
(с)	Provide documentation of the financial impact on customers of the Company's decisions regarding its gas supply, transportation and storage contracts.
(d)	Provide copies of all contracts in effect at any time during the ACA period. Include copies of all contracts related to the procurement of natural gas including but not limited to transportation, storage, and supply contracts and all schedules and exhibits and letter agreements related to gas procurement, gas costs and/or gas constraints.
* (e)	Provide all documentation to support the impact of discontinuing the transition mechanism.
**(f)	The documentation provided shall include fully functioning electronic spreadsheets. The term "document(s)" includes publication of any format, workpapers, letters, memoranda, notes, reports, analyses, computer analyses, test results, studies or data, recordings, transcriptions and printed, typed electronic or written materials of every kind in Company's possession, custody or control or within Company's knowledge.
*Indicates Ad **Indicates Re	
Issued Pursuant to the Order DATE OF ISSUE	of the Mo. P.S.C. in Case No. GR-2010-0363. January 21, 2011 DATE EFFECTIVE February 20, 2011

ISSUED BY	Warner L. Baxter	President & CEO	St. Louis, Missouri
	Name of Officer	Title	Address

P.S.C. Mo. No. 2 113th Revised SHEET No. 30 Cancelling P.S.C. Mo. No. 2 112th Revised SHEET No. 30

UNION ELECTRIC COMPANY **GAS SERVICE**

Applying to

MISSOURI SERVICE AREA

RIDER A

PURCHASED GAS ADJUSTMENT CLAUSE

PGA Statement

The PGAs (in c/Ccf) to be applied to the Company's basic rate schedules on and after the effective date of this tariff for gas sold or delivered to customers in this portion of the Company's service area, are as follows:

All Service Areas Other Than the Rolla System:

Residential	RPGA	ACA	TOTAL PGA
0 - 30 Ccf	5.42¢/Ccf	-6.64¢/Ccf	-1.22¢/Ccf
All Over 30 Ccf	84.94¢/Ccf	-6.64¢/Ccf	78.30¢/Ccf
General Service	52.64¢/Ccf	-6.64¢/Ccf	46.00¢/Ccf
Interruptible Service	33.08¢/Ccf	-1.21¢/Ccf	31.87¢/Ccf
Transportation Service	0.00¢/Ccf	0.00¢/Ccf	(0.00¢/Ccf)

DATE OF ISSUE	October 18, 2018	DATE EFFECTIVE	November 1, 2018

St. Louis, Missouri Address

 P.S.C. Mo. No.
 2
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UNION ELECTRIC COMPANY **GAS SERVICE**

Applying to

MISSOURI SERVICE AREA

RIDER A

PURCHASED GAS ADJUSTMENT CLAUSE

PGA Statement

The PGAs (in ¢/Ccf) to be applied to the Company's basic rate schedules on and after the effective date of this tariff for gas sold or delivered to customers in this portion of the Company's service area, are as follows:

Rolla System Service Area:

		Incremental			Incremental
	RPGA	RPGA	ACA	PGA	ACA
	(a)	(b)	(c)	(a)+(b)+(c)	
Residential					
0 - 30 Ccf	5.42¢/Ccf	21.29¢/Ccf	-6.64¢/Ccf	20.07¢/Ccf	-2.29¢/Ccf
All Over 30 Ccf	84.94¢/Ccf	21.29¢/Ccf	-6.64¢/Ccf	99.59¢/Ccf	-2.29¢/Ccf
General Service	52.64¢/Ccf	21.29¢/Ccf	-6.64¢/Ccf	67.29¢/Ccf	-2.29¢/Ccf
Interruptible Service	33.08¢/Ccf	1.25¢/Ccf	-1.21¢/Ccf	33.12¢/Ccf	0.00¢/Ccf

Transportation	0.00¢/Ccf	0.00¢/Ccf	0.00¢/Ccf	0.00¢/Ccf	0.00¢/Ccf
Service					

DATE OF ISSUE October 18, 2018 DATE EFFECTIVE November 1, 2018

ISSUED BY Michael Moehn Name of Officer

St. Louis, Missouri Address