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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. GR-2019-0077

SURREBUTTAL TESTIMONY

OF

MICHAEL W. HARDING

ON

BEHALF OF

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

St. Louis, Missouri
July, 2019

Ameren Exhibit No 24
Date 8-15-19 Reporter CDT
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SURREBUTTAL TESTIMONY

OF

MICHAEL W. HARDING

FILE NO. GR-2019-0077

I. INTRODUCTION

Q. Please state your name and business address.

A. Michael W. Harding, Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company"), One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. Are you the same Michael W. Harding that filed direct and rebuttal testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your surrebuttal testimony in this proceeding?

A. My surrebuttal testimony in this proceeding concerns the following:

1) Responding to the Missouri Public Service Commission Staff ("Staff") and Office of the Public Counsel ("OPC") concerning the eligibility and design of the Company's proposed Weather and Conservation Adjustment Rider ("WCAR");

2) Responding to Staff concerning the addition of language for the Company's service line extension and relocation tariff on Sheet No. 19 and addressing Staff's proposed tracking of the new Daily Usage Information Charge on tariff Sheet No. 20.1; and

3) Addressing OPC's rate design recommendations.

II. ELIGIBILITY OF THE WEATHER AND CONSERVATION ADJUSTMENT RIDER

Q. Please summarize Staff's rebuttal position concerning the eligibility of the WCAR.

A. Staff suggests that energy efficiency may not qualify as conservation under the statute that provides for weather and conservation rate adjustments. They state that it is "… unclear whether the energy efficiency measures in Ameren Missouri's 'various energy efficiency programs' is synonymous with 'conservation' in the authorizing statute."[1] Also, Staff has suggested that the Interruptible and Transportation customers do not qualify for the WCAR per the authorizing statute.

Q. Beginning on page 2 of Staff witness Michael Stahlman's rebuttal testimony he discusses and elaborates on the differences between the terms "energy efficiency" and "conservation." Do you agree these terms are different?

A. Yes, the terms "energy efficiency" and "conservation" are not the same. The fallacy in Mr. Stahlman's rebuttal testimony is attempting to reconcile these terms as synonymous. The term "energy efficiency" is only a single subset of the broader term "conservation." The definition of "conservation" per the Missouri statutes is included in my rebuttal testimony in this case and it includes "energy efficiency" within its scope.

Additionally, given the context of the term "conservation" in the paragraph specifically discussing "rate schedules authorizing periodic rate adjustments" under Section 386.266.3, RSMo., it's difficult to imagine what other interpretation of the term "conservation" the lawmakers could have intended "to account for the impact on utility revenues" other than energy efficiency.

Q. Does the Company agree that Interruptible and Transportation customers do not qualify under Section 386.266.3, RSMo.?

A. Yes. Upon reviewing the language in Section 386.266.3, RSMo., the Company agrees with Staff. The description of the weather and conservation adjustments authorized by the

[1] Rebuttal testimony of Staff witness Michael Stahlman, p. 2

statute for gas corporations only mentions the "residential class and smallest general service class" when defining the "eligible customer classes." This would only qualify the Company's Residential and General Service classes under the WCAR. These changes have been reflected in the updated WCAR tariff sheets included in Schedule MWH-S1 (see highlighted provisions).

III. DESIGN OF THE WCAR

A. Response to Staff

Q. Please summarize Staff's main concerns with the Company's proposed WCAR design.

A. Staff's main concerns appear to be around the potential for over-recovery due to the interaction of the weather and conservation adjustments under the WCAR to potentially incorrectly account for energy efficiency measures in the weather adjustment. Consequently, Staff has proposed an alternative adjustment mechanism for conservation referred to as the VIRN, which would also require the modification of the rate structure for the Residential class to accommodate its design.

Q. Do you agree with Staff's concern that the Company has the potential to over-recover lost sales from energy efficiency measures?

A. I agree that, while both the weather and conservation adjustments proposed by the Company in the WACR are important and appropriate tools on a stand-alone basis, there is some interaction between certain energy efficiency measures and the magnitude of the appropriate weather adjustment. These interactive effects have the potential to create situations where a modest over- or under-recovery occurs through the WCAR under the design initially presented by the Company. For example, if, subsequent to the historical period of analysis used to develop the weather coefficient in the tariff, the Company provides incentives to some customers to increase

the efficiency of their furnaces, the relationship of those customers' usage to weather is likely to be different from the historical relationship reflected in the tariff (i.e., the incremental usage per degree day should be lower). However, an entirely new and very complex model and rate structure, as proposed in rebuttal testimony by Staff, is not necessary to adjust for this. A very simple modification to the WCAR can account for interactive effects created by customers that have implemented weather sensitive measures in the energy efficiency program. Using the savings from the Technical Resource Manual ("TRM"), an efficiency percentage can be used to develop a separate weather coefficient to be applied to only those customers that have participated in the program by implementing weather sensitive measures (e.g., a furnace, insulation, thermostats, etc.), in order to account for the interactive effect of those measures on weather-related gas usage throughout the year. This adjustment, which I propose to call the Weather Efficiency Adjustment ("WEA"), would be based on a weighted average percentage of the Ccf savings for weather responsive measures applied to those customers who had implemented such measures in the period. I have developed a percentage that represents an illustration of the calculation of the WEA based on recent program history for this purpose. Based on the mix of measures that customers installed over a recent historical period, and the TRM based savings for those measures provided by Company witness Laureen Welikson, I estimate that the typical weather sensitive measure reduces annual gas consumption per customer by 163 ccf for the residential class and 133 for the general service class. The implicit annual weather sensitive gas use per customer from the regression equation that developed the weather coefficient for the WCAR is 477.5 Therms for residential customers and 1,766 Therms for general service customers. Dividing the savings associated with these typical measures by the annual weather sensitive usage suggests that annual gas consumption, and therefore the weather coefficient in the WCAR that should apply to program

participants that have implemented these measures, should be reduced by 35.5% for Residential and 7.8% for General Service customers. To that end, the coefficient in the WCAR applicable to the original coefficient in the proposed tariff would be multiplied by 1-35.5%, or 64.5%; and 1-7.8, or 92.2%, respectively. All other customers would receive the weather adjustment based on the original coefficient in the filed WCAR that reflects the existing mix of weather sensitive appliances. The Weather Normalization Adjustment in the proposed WCAR would function exactly the same, only with one group of customers receiving the WEA adjustment prior to summing the weather adjustments of both groups for the final Weather Normalization Adjustment. Schedule MWH-S1 provides an updated tariff sheet incorporating the above detailed modifications related to implementation of the WEA. A simple illustration follows. Let's assume a total Residential customer base of 1,000 customers, 10 of whom have implemented weather responsive energy efficiency measures, and a year that was 20 HDD warmer than normal. Using the derivation of the WEA factor I discussed above, these measures are expected to reduce the effects of weather on gas usage by 35.5%. The WEA would be (1 - 0.355) or 64.5%. This 64.5% would be applied against the weather coefficients[2] for the customers with weather responsive energy efficiency measures operating in the period as shown in the table below:

	Customers		
	No Conservation Measures	Conservation Measures	Totals
Weather Coefficients (ccf/customer/HDD)	.1	.1*.645	
HDD (actual-normal)	20	20	
# of customers	990	10	1000
WNA Adjustment (ccf)	1980	12.9	1992.9

[2] For ease of calculations in this illustration, I have used a hypothetical weather coefficient of 0.1.

Under the above scenario, had there been no adjustment applied to customers who had installed weather responsive energy efficiency measures, the total adjustment would have been 2,000 Ccf (0.1*20*1000). Applying the WEA first to this group of customers should effectively eliminate concerns with over-recovery due to accounting for efficiency adjustments in the WCAR.

Q. Can the conservation portion of the adjustment simply be left out of the WCAR?

A. No. Staff's testimony correctly points out that if the WCAR is not adjusted to account for weather responsive energy efficiency measures, the Company could potentially see an over-recovery of revenue. On the other hand, completely omitting the conservation portion of the adjustment would have the opposite effect, resulting in an almost certain under-recovery of revenue. The Company's solution provided in response to the previous question would eliminate the potential over-recovery while still ensuring the Company has the opportunity to earn its authorized return even while it promotes conservation programs.

Q. Does the Company agree with Staff's proposal of the VIRN as an alternative means to adjust for weather and conservation?

A. No. The WCAR as proposed by the Company will more effectively capture the same variations in weather and conservation without the complications of Staff's proposed split block rate. The block rate developed by Staff for the VIRN featured costs being allocated to blocks based on differing treatments of debt and equity returns. Staff witness Robin Kliethermes states in her testimony that, "… the VIRN insulates the company from fluctuations in the volumetric recovery associated with the portion of the residential revenue requirement associated with expense and debt, while retaining company risk in the recovery of the volumetric portion of the

residential revenue requirement associated with equity recovery."[3] However, there is no rationale given, based on cost of service considerations, nor statutory language authorizing weather and conservation adjustments, regarding why it is appropriate to ensure volumetric risk remains with respect to the recovery of equity returns. In fact, the statute authorizing such rate adjustments does not qualify the rate adjustment mechanism in any way with respect to the cost categories covered by the revenues that are subject to adjustment. There is simply no reason to employ such a complicated mechanism when the WCAR is highly effective and relatively straightforward. But beyond that, the VIRN is not reasonably designed to achieve the outcomes enabled by the statute related to the impact of weather and conservation on gas revenues.

Q. Is the VIRN permitted by Missouri statutes?

A. Under the interpretation of the statute offered by Staff in Spire's last rate case (File No. GR-2017-0216), it doesn't appear so.[4] It is the Company's understanding that Staff's position was that full decoupling was not permitted under the current Missouri statutes due to the language only permitting weather and conservation adjustments, which despite accounting for over 99% of variation in the revenue requirement, would include a small fraction of revenue variation not attributable to these factors. The proposed VIRN appears to make adjustments based on any variations to residential revenue derived from second block sales, regardless of the source of variation – the exact same issue Staff took with Spire's proposal. Ms. Lange states that "… the second block will be reasonably expected to contain the usage most likely to be impacted by conservation and weather"[5] While that may be true, it is also true that, however small it may be, there is likely some variation in second block sales arising from other factors. That suggests that

[3] Combined surrebuttal of Kliethermes, Stahlman, and Lange, p. 5, lines 11-14.
[4] I am not endorsing Staff's argument from that case.
[5] Lange rebuttal, p. 7.

Staff's concern in the Spire case is equally applicable to their VIRN proposal. If an adjustment is permitted to cover variations arising from sources beyond weather and conservation in each class' targeted revenue requirements, full revenue per customer decoupling would be a much preferred and cleaner mechanism than any of the options presented in this case.

B. Response to OPC

Q. Please summarize OPC's main concerns with the Company's proposed WCAR design.

A. In OPC witness Geoff Marke's rebuttal testimony, on page 8, he recommends that the Commission reject the WCAR and characterizes the weather adjustment portion of the Company's proposal as a "decoupling mechanism."

Q. Do you agree with OPC that the Company proposed WCAR is a "decoupling mechanism" that mitigates revenue risk related to weather?

A. No. The proposed WCAR will mitigate short-term revenue variations related to weather, but it will do nothing to insulate the Company from the risk associated with the loss of customers or an economic recession. The proposed weather adjustment will only minimize the impact of fluctuations in weather, something which is a short-term consideration as weather tends to revert toward the mean over a longer timeframe, providing both periods of over- and under-recovery that offset each other. The weather adjustment doesn't remove any long-term systemic risk from the Company, it merely provides a mechanism that can avoid unnecessary volatility by automatically smoothing the impacts of these short-term weather fluctuations and associated cash flows, to both the benefit of the Company and customers. This is an appropriate mechanism in dealing with these short-term fluctuations.

IV. STAFF'S PROPOSED ADDITION OF TARIFF LANGUAGE ON SHEET NO. 19 AND TRACKING OF THE NEW "DAILY USAGE INFORMATION CHARGE" ON SHEET NO. 20.1

Q. Please summarize Staff's rebuttal position concerning the Company's proposed addition of language on page 19 of the tariffs.

A. Staff witness Kim Cox does not oppose the Company's proposed service line extension and relocation changes to tariff Sheet No. 19. However, she proposes adding the following language: "All customer payments received under this section will be applied as an offset to rate base."[6]

Q. Does the Company agree with Staff's proposed additional language on Sheet No. 19?

A. No. While the Company agrees with Ms. Cox that "all customer payments received under this section will be applied as an offset to rate base," the Company does not believe it is appropriate to include ratemaking issues, such as this, in the tariffs.

Q. Please summarize Staff's rebuttal position concerning the Company's "Daily Usage Information Charge" for Transportation customers at Sheet No. 20.1.

A. Ms. Cox does not oppose the Company's proposed new Daily Usage Information Charge at Sheet No. 20.1, which states the following:

> Daily Usage Information Charge
>
> Applicable to Customers who enter into contracts with the Company for transportation service to be provided under the Company's Natural Gas Transportation Service tariff:
>
> In order to facilitate remote interrogation of interval metering by the Company and provide daily usage information to Customer, the Company will install a remote monitoring device at each meter location where Customer receives Transportation Service. For each remote monitoring device, the Customer, at Customer's expense, shall provide access to a commercial telephone line and 120 volt AC electric power at a location designated by the Company. The telephone line shall be dedicated for Company's use. If a Customer does not provide access to a commercial

[6] Cox rebuttal, p. 2.

> telephone line and 120 volt AC electric power at a location designated by the Company, or, if interrogation is not possible due to a telephone service outage, Company will dispatch technicians each month with specialized equipment to capture the daily usage information necessary to bill Customer.
>
> The charge to the Customer will be $170.00 for each occurrence.
>
> If phone line is installed and Company is unable to retrieve daily usage information it will be the Customer's responsibility to verify that the Customer's phone line is in working condition. In addition, Company reserves the right to charge Customers for each service call to investigate the remote monitoring device if such service call is the sole result of telephone service outage.

She recommends that the Company track each occurrence of the new charge and such information be retained and made available to Staff for review.[7]

Q. Does the Company agree with Staff's recommendation to track each occurrence of the new charge and make such information available for future Staff review?

A. The Company would not recommend tracking each occurrence of the Daily Usage Information Charge as the charge will likely be infrequent, and will soon be non-existent as advanced meters are installed over the next few years. Once the advanced meters are in place, applicability of the Daily Usage Information Charge would likely only apply to those who had refused AMI metering – still requiring the commercial telephone line and potential service call from the Company. It is anticipated that the Daily Usage Information Charge language will eventually be removed once the last interval meter is replaced with advanced metering technology, which renders the applicability of the language obsolete.

V. OPC'S RESIDENTIAL RATE DESIGN

Q. Please summarize OPC's Residential rate design recommendations.

[7] Cox rebuttal, pg. 4.

A. OPC's Dr. Marke recommends maintaining the current $15.00 per month Customer Charge instead of raising the monthly Customer Charge to $17.00 per month. OPC also does not support Staff's alternative inclining block rate.[8]

Q. What is the Company's response?

A. In my rebuttal testimony, I responded to National Housing Trust's comments regarding the slight increase to the monthly Customer Charge, and explained why Staff's alternative inclining block rate design proposal should be rejected. The Company continues to support the slight increase in the monthly Customer Charge from $15.00 to $17.00, and continues to oppose Staff's alternative inclining block rate design.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

[8] Marke rebuttal, pp. 2 & 6.

-BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Natural Gas Service.	)))	File No. GR-2019-0077

AFFIDAVIT OF MICHAEL W. HARDING

STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Michael W. Harding, being first duly sworn on his oath, states:

1. My name is Michael W. Harding. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as the Manager of Rates & Analysis.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Union Electric Company d/b/a Ameren Missouri consisting of 11 pages and Schedule(s) MWH-S1, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Michael W. Harding

Subscribed and sworn to before me this 8th day of July, 2019.

Notary Public

My commission expires:

GERI A. BEST
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: February 15, 2022
Commission Number: 14839611

WEATHER & CONSERVATION ADJUSTMENT RIDER (WCAR)

APPLICABILITY

The Weather and Conservation Adjustment Rider (WCAR) is applicable to all Ccf of gas delivered to customers served under the Company's Residential and General Service classifications. The Rider will be applied as a separate line item on a customer's bill.

FILING

The Company shall make a WCAR filing each calendar year to be effective for the November billing month at least thirty (30) days prior to the effective date.

WEATHER & CONSERVATION ADJUSTMENT RATE

$$WCR = TWA + CR + OA$$

Where:

WCR = Weather and Conservation Rate to be calculated independently for each of the Company's service classes, including both the Conservation and Weather adjustment where applicable

TWA = Total Weather Adjustment rate equaling the sum of the effective AWNA and ARR from the Weather Adjustment Calculation

CR = Conservation Rate equaling the Net Conservation divided by the expected retail sales for each Service Classification

OA = Ordered Adjustment is the amount of any adjustment to the WCAR ordered by the Commission as a result of prudence reviews and/or corrections under this Rider. Such amounts shall include monthly interest at the Company's monthly short-term borrowing rate.

WEATHER ADJUSTMENT CALCULATION

$$TWA = AWNA + ARR$$

Where:

Annual WNA ("AWNA") = the sum of the Monthly WNA_i for the billing months in the applicable twelve month period, divided by the expected retail sales in the twelve month recovery period for each applicable service classification.

Annual Reconciliation Rate ("ARR") = Prior to the end of the twelve months of billing of each AWNA, the over- or under-billing of the numerator of the AWNA shall be calculated based on twelve months of actual sales, consisting of the last two months of the recovery period related to the prior AWNA and the first 10 months of the recovery period related to the currently effective AWNA. The amount of over- or under-billing shall be adjusted as ordered by the Commission. The resulting amount shall be divided by the expected retail sales in the twelve month recovery period for each applicable service classification.

WEATHER & CONSERVATION ADJUSTMENT RIDER (WCAR)

The WNA Factor will be calculated for each billing month as follows:

$$\mathrm{WNA}_i = \sum_{j=1}^{21}\left[\left((CWA * C\beta) + (MWA * M\beta)\right) * C_{ij}\right] + \left[\left((CWA * C\beta * WEA) + (MWA * M\beta * WEA)\right) * EEC_{ij}\right]$$

Where:

WNA_i = Weather Normalization Adjustment

i = the applicable billing month

j = billing cycle

CWA = the cold weather adjustment is the difference between actual HDD's and Normal HDD's that occur equal to or over 200 HDD's, calculated as NDD_{ij}–ADD_{ij}, except when either or both of these is below 200 HDD. Where only ADD_{ij} are less than 200, CWA shall be NDD_{ij}-200. Where only NDD_{ij} are less than 200, CWA shall be 200-ADD_{ij}. Where both ADD_{ij} and NDD_{ij} are less than 200, CWA is zero.

MWA = the mild weather adjustment is NDD_{ij}-ADD_{ij}-CWA

Cβ = applicable coefficient:

Residential >=200 HDD	0.110762135
General Service >=200 HDD	0.452443315

Mβ = applicable coefficient:

Residential <200 HDD	0.068751507
General Service <200 HDD	0.178076149

C_{ij} = the total number of customer charges in billing cycle j and billing month i excluding those reflected in EEC_{ij}

WEA = one minus the weighted average percentage of Ccf savings for weather responsive measures calculated for the class.

EEC_{ij} = the total number of customer charges of customers that have implemented weather sensitive energy efficient measures through a Company program since the conclusion of the most recent general rate proceeding charged in billing cycle j and billing month i

NDD_{ij} = the total normal heating degree days for the days in the applicable billing month and billing cycle. A weighted average was calculated based on 85.5% of heating degree days observed at the Columbia, MO Airport weather station and 14.5% of the heating degree days observed at the Cape Girardeau, MO Airport weather station for the Residential class. The weightings for the General Service class are 79.3% for the Columbia, MO Airport weather station and 20.7% for the Cape Girardeau, MO Airport weather station.

ADD_{ij} = the total actual heating degree days for the days in the applicable billing month and billing cycle. A weighted average was calculated based on 85.5% of heating degree days observed at the Columbia, MO Airport weather station and 14.5% of the heating degree days observed at the Cape Girardeau, MO Airport weather station for the Residential class. The weightings for the General Service class are 79.3% for the Columbia, MO Airport weather station and 20.7% for the Cape Girardeau, MO Airport weather station.

WEATHER & CONSERVATION ADJUSTMENT RIDER (WCAR)

$$\text{Monthly WNA}_i = \text{WNA}_i * \text{Weighted Volumetric Rate ("WVR")}$$

Where:

WVR(Residential) = the WVR will be equal to the Residential Distribution Delivery Rate established at the conclusion of each gas general rate case. For Case No. GR-2019-0077, the amount is $0.3173.

WVR(General Service) = the WVR will be equal to the General Service Distribution Delivery Rate established at the conclusion of each gas general rate case. For Case No. GR-2019-0077, the amount is $0.3265.

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

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

CONSERVATION ADJUSTMENT CALCULATION

DEFINITIONS

As used in this Rider WCA, the following definitions shall apply:

Deemed Savings Table

A list of Measures derived from the Company's Technical Resource Manual that characterizes associated gross energy and demand savings with Company-specific Measure parameters where available.

End Use Category

The unique summary category of end-use load shapes. The list of End Use Categories is included in this Rider.

Measure

An end-use measure, energy-efficiency measure, and energy-management measure as defined in 4 CSR 240-22.020(18), (20), and (21).

Programs

Programs listed in tariff sheet nos. 81.1 and 81.2.

WEATHER & CONSERVATION ADJUSTMENT RIDER (WCAR)

CR DETERMINATION

The CR during each applicable recovery period is a dollar amount per Ccf rate for each applicable Service Classification calculated as follows:

$$CR = NC/PRS$$

Where:

NC = Net Conservation for the applicable recovery period as defined below,

$$NC = PC + CCR$$

PC = Projected Conservation is the Company's C projected by the Company to be incurred during the applicable recovery period. For the detailed method for calculating the C, reference the C Determination section below.

CCR = Cumulative Conservation Reconciliation is equal to the cumulative difference, if any, between the PC revenues billed during the previous recovery period resulting from the application of the NC component of the CR and the Company's C through the end of the previous recovery period (which will reflect projections through the end of the previous recovery period due to timing of adjustments). Such amounts shall include monthly interest charged at the Company's monthly short-term borrowing rate.

PRS = Projected Retail Sales in Ccf expected for the recovery period for each applicable Service Classification

C DETERMINATION

The C for each End Use Category shall be determined by the following formula:

$$C = [MS * NMR]$$

Where:

C = Conservation, in dollars, to be collected for a given month, for a given Service Classification.

MS = Monthly Savings, is the sum of all Programs' monthly savings, in Ccf, for a given month, for a given Service Classification. The MS for each End Use Category shall be determined by the following formula:

$$MS = ((\left(\frac{MAS_{CM}}{2}\right) + CAS - RB) * LS * UCF_{CM}$$

Where:

MAS_{CM} = The sum of (MC x ME) for all Measures in a Program in the current calendar month.

MC = Measure Count. MC for a given month, for a given Service Classification, for each Measure, is the number of each Measure installed in the current calendar month.

WEATHER & CONSERVATION ADJUSTMENT RIDER (WCAR)

ME = Measure Energy. ME will be determined as follows, for each Measure:

a. For Measures in the Statewide Deemed Savings Table, the ME is the annual total of normalized savings for each Measure at customer meter per Measure defined in the current Statewide Deemed Savings Table.

b. For Measures not in the Statewide Deemed Savings Table, the ME will be the annual value attributable to the installations following the Statewide Technical Resource Manual.

CM = Current calendar month.

CAS = Cumulative sum of MAS of all prior calendar months for each End Use Category beginning with the effective date rates are set in case GR-2019-0077

RB = Rebasing Adjustment. The RB shall equal the CAS applicable as of the date used for billing determinants when base rates are adjusted in any general gas rate case or otherwise resulting in new retail gas rates. The RB is cumulative and therefore shall include each and every prior RB calculation.

LS = Load Shape. The LS is the monthly load shape percent (%) for each End-Use Category. (See below)

UCF = Unit Conversion Factor. The UCF is the conversion factor to convert the Measure Energy from therms to Ccf. The source for the UCF will be the Company's general accounting system.

NMR = Net Margin Revenue. NMR values for each applicable Service Classification are defined in the Margin Rates Table within this Rider

WEATHER & CONSERVATION ADJUSTMENT RIDER (WCAR)

Margin Rates by Customer Class		
Month	Res $/Ccf	GS $/Ccf
January	0.317300	0.314552
February	0.317300	0.315242
March	0.317300	0.319994
April	0.317300	0.319379
May	0.317300	0.321755
June	0.317300	0.317024
July	0.317300	0.315998
August	0.317300	0.316751
September	0.317300	0.313833
October	0.317300	0.316863
November	0.317300	0.318937
December	0.317300	0.318987

End-Use Category Energy Load Shapes

	Residential			**Business**		
Month	Heating	Water Heating	Misc.	Heating	Water Heating	Misc.
January	21.7905%	10.3527%	8.4893%	21.0397%	10.8255%	8.5109%
February	18.2135%	9.0720%	7.7366%	17.7436%	9.1078%	7.7715%
March	13.4833%	9.5543%	8.4863%	13.1924%	8.5240%	8.6136%
April	5.8486%	8.4799%	8.2144%	5.9718%	7.2980%	7.9796%
May	1.7144%	8.3600%	8.4847%	2.6769%	7.9849%	8.5335%
June	0.0510%	7.7065%	8.2122%	0.4295%	7.2721%	8.1995%
July	0.0006%	6.7712%	8.4883%	0.2895%	7.4930%	8.4099%
August	0.0009%	6.3688%	8.4840%	0.3432%	7.5862%	8.4199%
September	0.8809%	6.9373%	8.2136%	0.9402%	7.5734%	8.2512%
October	5.4962%	7.9644%	8.4869%	5.5497%	8.2808%	8.5277%
November	11.5899%	8.4752%	8.2122%	11.5452%	8.6345%	8.2589%
December	20.9301%	9.9577%	8.4915%	20.2781%	9.4200%	8.5238%

WEATHER & CONSERVATION ADJUSTMENT RIDER (WCAR)

The WCR (in $/Ccf) to be applied to the Company's rate schedules for the November 2019 through October 2020 billing months for gas sold or delivered to customers in the Company's service area.

	Weather Adjustment		Conservation Adjustment			
	WNA	ARR	PC	CCR	OA	WCR
Residential	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Service	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000