

Exhibit No.:
Issues: Rate Design
Rider VBA
Witness: Michael L. Stahlman
Sponsoring Party: MO PSC Staff
Type of Exhibit: Rebuttal Testimony
Case No.: GR-2018-0013
Date Testimony Prepared: April 13, 2018

MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

TARIFF/RATE DESIGN

REBUTTAL TESTIMONY

OF

MICHAEL L. STAHLMAN

LIBERTY UTILITIES (MIDSTATES NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

CASE NO. GR-2018-0013

Jefferson City, Missouri
April 2018

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1 **REBUTTAL TESTIMONY**

2 **OF**

3 **MICHAEL L. STAHLMAN**

4 **LIBERTY UTILITIES (MIDSTATES NATURAL GAS) CORP.**

5 **d/b/a LIBERTY UTILITIES**

6 **CASE NO. GR-2018-0013**

7 Q. Please state your name and business address.

8 A. My name is Michael L. Stahlman, and my business address is Missouri Public
9 Service Commission, P.O. Box 360, Jefferson City, Missouri, 65102.

10 Q. By whom are you employed and in what capacity?

11 A. I am employed by the Missouri Public Service Commission (“Commission”)
12 as a Regulatory Economist III in the Energy Rate Design & Tariffs Unit, Economic Analysis
13 Section, of the Tariff, Safety, Economic and Engineering Analysis Department in the
14 Regulatory Review Division.

15 Q. Are you the same Michael L. Stahlman that supported sections in Staff’s Class
16 Cost of Service/Rate Design Report (“CCOS Report”)?

17 A. Yes.

18 Q. What is the purpose of your testimony?

19 A. The purpose of my rebuttal testimony is to respond to Liberty Midstates – MO
20 witnesses Robert B. Hevert and Timothy S. Lyons concerning the proposed revenue
21 decoupling mechanism (the Volume Balancing Adjustment Rider or “Rider VBA”), and
22 Timothy S. Lyons concerning the proposed district consolidation. I also respond to the
23 Division of Energy (“DE”) witness Martin R. Hyman’s proposed Low-Income Energy
24 Assistance Program.

1 **REVENUE DECOUPLING MECHANISM**

2 Q. What is Liberty Midstates – MO’s proposed Revenue Decoupling Mechanism?

3 A. The Revenue Decoupling Mechanism, as discussed by Liberty Midstates – MO
4 witnesses Robert B. Hevert and Timothy S. Lyons, is referred to as the Volume Balancing
5 Adjustment Rider.¹ This rider is designed to “reconcile annually differences between actual
6 and authorized revenues (i.e., revenues reflected in current base rates that were approved by
7 the Commission in the most recent rate case proceeding).”²

8 Q. What legal citation is identified as authorizing this mechanism?

9 A. Liberty Midstates – MO witness Hevert cites RSMo §386.266.3. It reads:

10 Subject to the requirements of this section, any gas corporation may make an
11 application to the commission to approve rate schedules authorizing periodic
12 rate adjustments outside of general rate proceedings to reflect the nongas
13 revenue effects of increases or decreases in residential and commercial
14 customer usage due to variations in either weather, conservation, or both.

15 Q. Does Liberty Midstates – MO’s proposal conform to this statute?

16 A. No. Liberty Midstates – MO’s Rider VBA would adjust for all changes
17 between actual revenue received from the volumetric rate component and authorized revenues
18 from the volumetric rate component determined in Liberty Midstates – MO’s general rate
19 case, not solely due to variations in weather and/or conservation. For example, this
20 mechanism would also make adjustments due to new or terminating customers and due to
21 economic factors.

¹ DE witness Martin R. Hyman also mentions non-opposition to the decoupling mechanism, but will address further in rebuttal testimony.

² Direct Testimony of Timothy S. Lyons, p. 31, ll. 12-15

1 Q. Is “conservation” defined within RSMo §386?

2 A. No. In fact, “conservation” is used only one other time in that chapter; Section
3 §386.266.13 which reads: “The public service commission shall appoint a task force,
4 consisting of all interested parties, to study and make recommendations on the cost
5 recovery and implementation of conservation and weatherization programs for electrical and
6 gas corporations.”

7 Typically energy conservation is distinguished from energy efficiency. The U.S.
8 Energy Information Administration states:

9 The terms energy efficiency and energy conservation have distinct meanings:

- 10 • Energy efficiency is using technology that requires less energy to perform
11 the same function. Using a compact fluorescent light bulb that requires less
12 energy instead of using an incandescent bulb to produce the same amount
13 of light is an example of energy efficiency.
- 14 • Energy conservation is any behavior that results in the use of less energy.
15 Turning the lights off when leaving the room and recycling aluminum cans
16 are both ways of conserving energy.³

17 Q. Does Staff recommend the Commission order the implementation of a
18 “Revenue Decoupling Mechanism” in this case?

19 A. No. Staff does not recommend any rider be implemented in this case since
20 Mr. Hevert has not demonstrated that a rider is needed.

21 Q. Has Liberty Midstates – MO stated a need for the Rider VBA?

³ U.S. Energy Information Administration (2016). “Energy Efficiency and Conservation.”
https://www.eia.gov/energyexplained/index.cfm?page=about_energy_efficiency. (22SEP17).

1 A. Not specifically for the Rider VBA alone, but Mr. Hevert discusses the need
2 for alternative ratemaking mechanisms which include the Rider VBA. He cites⁴ the
3 traditional regulatory framework that uses historical costs in a period of declining per unit
4 sales as the primary reason for these mechanisms.

5 Q. Does Mr. Hevert state why sales are declining?

6 A. On page 9 of his direct testimony, Mr. Hevert states that the decline in sales is
7 “primarily due to warmer weather” and increased conservation.

8 Q. Does Mr. Hevert demonstrate that sales are declining due to weather?

9 A. No. Mr. Hevert provides Chart 1 which shows that natural gas sales are
10 correlated with weather, but does not have any comparison to the billing determinates set in
11 rate cases.⁵ In fact, four rate cases during the fourteen year period (2003 – 2016) were
12 identified in Chart 1, in which the billing determinates would have been recalculated and
13 reset.⁶ Weather naturally varies from year to year, and Staff’s climatic normals, as calculated
14 by Staff witness Dr. Won, are the average weather of thirty years ending in 2016 in each rate
15 district. Mr. Hevert has not provided any evidence that changes in sales due to conservation
16 or weather in-between the approximate four-year rate case cycle are of any significance
17 warranting a rider.

18 Q. Do you agree that Liberty Midstates – MO’s “proposed mechanisms would
19 mitigate the need for increasingly frequent rate proceedings”?⁷

⁴ Direct Testimony of Robert B. Hevert, p. 5, l. 1 – p. 6, l. 17.

⁵ The heating degree days identified on the right side of the chart is approximately three times the amount found by Staff witness Dr. Won. Staff Data Request 0353 is still pending on this issue, but Staff assumes that Mr. Hevert summed the heating degree days for all three rate districts. That data request also seeks to clarify whether or not the volumes used were for all classes and what the basis is for correlation displayed on the chart.

⁶ File Nos. GR-2006-0387, GR-2010-0192, GR-2014-0152, and this case, GR-2018-0013.

⁷ Direct Testimony of Robert B. Hevert, p. 4, ll. 20 – 21.

1 A. No. RSMo § 393.1012(2), the statute authorizing an Infrastructure System
2 Replacement Surcharge (“ISRS”) states:

3 The commission shall not approve an ISRS for any gas corporation that
4 has not had a general rate proceeding decided or dismissed by issuance
5 of a commission order within the past three years, unless the gas
6 corporation has filed for or is the subject of a new general rate
7 proceeding.

8 RSMo § 393.1012(3) states:

9 In no event shall a gas corporation collect an ISRS for a period
10 exceeding three years unless the gas corporation has filed for or is the
11 subject of a new general rate proceeding; provided that the ISRS may
12 be collected until the effective date of new rate schedules established as
13 a result of the new general rate proceeding, or until the subject general
14 rate proceeding is otherwise decided or dismissed by issuance of a
15 commission order without new rates being established.

16 Liberty Midstates – MO’s predecessor company, Atmos Energy Corporation, first received an
17 ISRS on January 23, 2008, and the filing of rate case has been a reasonably consistent four-
18 year cycle since then (GR-2010-0192 filed December 28, 2009, GR-2014-0152 filed February
19 6, 2014, and this case, GR-2018-0013 filed September 29, 2017). Although Staff cannot
20 divine when Liberty Midstates – MO will file rate cases in the future, the current evidence is
21 that the current rate schedule pattern is based on the requirements of ISRS.

22 Q. While Staff is not recommending a rider be implemented in this case, can Staff
23 offer an alternative to Liberty Midstates – MO proposal, that in Staff’s opinion would meet
24 the statutory requirements of Section §386.266.13?

25 A. Yes. , the Weather Normalization Adjustment Rider, modeled after the rider
26 implemented in Spire Missouri’s most recent rate cases, GR-2017-0215 and GR-2017-0216,
27 is attached as Schedule MLS-1. This rider will adjust revenues on the basis of weather only,

1 which can be relatively easily compared to normal weather. Conservation is excluded since it
2 can be difficult to define or quantify.

3 Q. Why did Staff limit the alternative Weather Normalization Adjustment Rider
4 to the residential class?

5 A. As discussed in greater detail in Staff's CCOS Report, the Small General
6 Service ("SGS") Class is currently under-contributing to the Liberty Midstates – MO's
7 revenue by a large amount. Additionally, Staff noted a large rate continuity concern with
8 regard to the rates between the SGS and the Medium General Service Class. Thus Staff's rate
9 design recommends a near 50% rate increase on the SGS class. These factors, combined with
10 the fact that Staff is unaware of the exact impact a Weather Normalization Adjustment Rider
11 will have on future rates, are the foundation of Staff's recommendation to limit the alternative
12 rider to the Residential class at this time.

13 Q. What is Staff's recommendation regarding the Rider VBA?

14 A. Staff recommends rejection of the Rider VBA as the proposed mechanism goes
15 beyond the statute. Should the Commission decide to authorize a weather mitigation tariff,
16 Staff recommends that the Commission limit the mechanism to the residential classes only,
17 and limit the adjustment to variations due to weather alone. Staff's recommendation to limit
18 the mechanism to variances in weather is two-fold: first, based on the weather normalization
19 regressions performed by Staff for the Cost of Service Report filed in this case, a mechanism
20 based solely on weather could account for over 96% of usage variation within a given year;
21 secondly, evaluating which usage changes are due solely to conservation or other factors can
22 be an expensive and litigious process. Schedule MLS-1 is specimen tariff sheets for a
23 Weather Normalization Adjustment Rider for Liberty Midstates – MO. These tariff sheets

1 can provide guidance on how a rider could be structured if the Commission does not agree
2 with Staff's primary recommendation of not authorizing a Rider VBA.

3 Q. If the Commission grants a Rider VBA or a Weather Normalization
4 Adjustment Rider, are there other factors the Commission should consider?

5 A. Yes. RSMo §386.266.7 states:

6 The commission may take into account any change in business risk to
7 the corporation resulting from implementation of the adjustment
8 mechanism in setting the corporation's allowed return in any rate
9 proceeding, in addition to any other changes in business risk
10 experienced by the corporation.

11 Staff witness David Murray discusses the effect of risk reduction in his rebuttal testimony,
12 starting on page 23 line 6; specifically, the effect of a reduction in business risk to a utility's
13 required return on equity ("ROE"). Staff's Direct Cost of Service Report in this case
14 recommended an ROE of 10.00%; the high-end of Staff's recommended equity cost rate
15 range of 9.50% to 10.0%, with no Rider VBA or a Weather Normalization Adjustment
16 Rider. To the extent the Commission approves a rider that accounts for the effect of weather
17 or conservation on the Company's revenues, the Commission should take into consideration
18 the effect such a mechanism will have on the Company's investment risk when determining
19 Liberty Midstates – MO's ROE for this case.

20 **RATE CONSOLIDATION**

21 Q. What are the major differences between Mr. Lyons' and Staff's proposed
22 rate designs?

1 A. Mr. Lyons and Staff start with different revenue requirements⁸ and with slight
2 differences in billing determinates⁹ which will naturally result in differing rate
3 recommendations. However, the main difference in rate design is Liberty Midstates – MO’s
4 decision to fully consolidate its rate districts.

5 Q. Why did Staff not recommend full consolidation?

6 A. Staff could not develop reasonable consolidated rates that did not result in
7 revenues for the residential and SGS classes of Southeast district (“SEMO”) exceeding the
8 cost to serve SEMO. This means that any consolidated rate design would put more rate
9 recovery onto the SEMO district than what Staff’s CCOS recommends. This is combined
10 with Staff’s concern about the impact on customers in the SEMO district for the SGS and
11 Residential classes in particular. As discussed in Staff’s CCOS Report, SEMO’s current rates
12 for the Residential and SGS classes are lower than the Northeastern district’s (“NEMO”)
13 current customer charge and volumetric rates. As can be seen in Table 1, Staff’s rate design
14 generally attempted to spread the rate increase evenly across three representative levels of
15 usage with a slightly higher increase on customers with higher usage.

16 Table 1: Rate Impact of Staff’s Proposed Rate Design across Representative Levels of Usage

District	Residential Usage (ccf)			SGS Usage (ccf)		
	20	50	150	50	150	500
NEMO	4.0%	-1.3%	-8.6%	9.4%	14.2%	22.4%
SEMO	18.0%	19.5%	21.6%	46.7%	51.4%	58.7%
WEMO	11.4%	12.9%	15.2%	20.5%	24.4%	30.7%

⁸ Staff’s recommended total revenue requirement is approximately \$26.7 million. Liberty Midstates – Mo’s revenue requirement is approximately \$33.3 million.

⁹ Staff’s initial billing determinants are 53,298 customers annually and 65,834,349 ccf consumed, Liberty Midstates – MO has 53,394 customers annually and 65,834,557 ccf consumed.

1 As can be seen, Staff's proposed rates already cause a large increase on customers in the
2 SEMO district. Table 2 provides the rate impact of Liberty Midstates – MO's proposed rates
3 on the same level of usage.

4 Table 2: Rate Impact of Liberty Midstates – MO's Proposed Rates

District	Residential Usage (ccf)			SGS Usage (ccf)		
	20	50	150	50	150	500
NEMO	11.2%	10.0%	8.3%	25.1%	32.1%	44.2%
SEMO	62.9%	62.3%	61.4%	95.9%	97.4%	99.7%
WEMO	19.1%	25.7%	36.6%	46.1%	50.7%	58.1%

5
6 The rate impact levels selected were based on cumulative frequency data to estimate the rate
7 impact on a range of customer bills.¹⁰

8 Q. Could changes in the level of the overall revenue requirement or changes in
9 specific cost categories change Staff's recommendation?

10 A. Yes. As stated in Staff's CCOS Report, Staff's specific rate recommendations
11 are highly dependent on the overall revenue requirement and on mitigation of customer
12 impact. If there are significant changes in cost drivers across rate classes and rate districts,
13 Staff will adjust its recommendation accordingly. Currently, Staff is unaware of any changes
14 to its direct-filed recommendation.

15 **LOW-INCOME ASSISTANCE PROGRAM**

16 Q. Which witness discusses a Low-Income Assistance Program?

17 A. The program is proposed by the DE witness Martin R. Hyman.

18 Q. Do other Staff witnesses address this program?

19 A. Yes. Staff witness Dana Parish will address the program in more detail; my
20 testimony will address the proposed program's rate design.

¹⁰ As already noted above, Mr. Lyons is using a revenue requirement that is approximately \$6.6 million higher than Staff's and slightly different billing determinants.

Rebuttal Testimony of
Michael L. Stahlman

1 Q. What is Mr. Hyman’s proposed structure?

2 A. Mr. Hyman proposes the following:

3 . . . a program structure whereby customers at or below 185 percent of
4 the federal poverty level can receive a monthly bill credit of either \$20
5 or their current bill (whichever is less), and customers at or below 135
6 percent of the federal poverty level can also receive a monthly bill
7 credit of \$30 during the winter months.¹¹

8 This is the same structure agreed to in Spire Missouri’s most recent rate case.

9 Q. Do you recommend that same rate structure in this case?

10 A. No. In that case, Spire Missouri’s residential customer charges are \$20 for
11 Spire West and \$22 for Spire East. In this case, Staff’s recommended customer charges are
12 \$22 for WEMO and NEMO and \$16 for SEMO. If the Commission approves a Low-Income
13 Assistance Program, Staff would recommend a credit equal to the applicable customer charge
14 during the summer months. This proposal would be in-line with Mr. Hyman’s concerns of
15 NEMO having “potential greater need due to climatological conditions.”¹² Staff does not
16 oppose the rate design for the winter months.

17 Q. Does this conclude your rebuttal testimony?

18 A. Yes it does.

¹¹ Direct Testimony of Martin R. Hyman, p. 4 ll. 8-12.

¹² Direct Testimony of Martin R. Hyman, p. 3 ll. 13-15.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Liberty Utilities)
(Midstates Natural Gas) Corp. d/b/a) Case No. GR-2018-0013
Liberty Utilities' Tariff Revisions)
Designed to Implement a General Rate)
Increase for Natural Gas Service in the)
Missouri Service Areas of the Company)

AFFIDAVIT OF MICHAEL L. STAHLMAN

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW MICHAEL L. STAHLMAN and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Rebuttal Testimony and that the same is true and correct according to his best knowledge and belief.

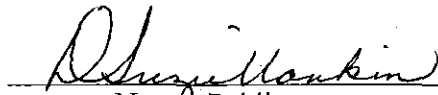
Further the Affiant sayeth not.


MICHAEL L. STAHLMAN

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 11th day of April 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070


Notary Public

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

FOR – All Areas

Name of Issuing Corporation

Community, Town or City

WEATHER NORMALIZATION ADJUSTMENT RIDER

APPLICABILITY

The Weather Normalization Adjustment (“WNA”) Rider is applicable to each ccf of gas delivered under the terms of the residential rate schedule of Liberty Utilities (Midstates Natural Gas) Corp’s d/b/a Liberty Utilities (“Liberty”) until such time as it may be discontinued or modified by order of the Commission in a general rate case. Each district will have an independent rider rate and will be applied as a separate line item on a customer’s bill.

CALCULATION OF ADJUSTMENT

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

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

Where:

i = the applicable billing cycle month

WNA_i = Weather Normalization Adjustment

j = the billing cycle

NDD_{ij} = the total normal heating degree days based upon Staff’s daily normal weather as determined in the most recent rate case.

ADD_{ij} = the total actual heating degree days, base 65° at the applicable weather station; Kirksville, MO for the Northeast district, Kansas City International Airport for the West district, and Cape Girardeau, MO for the Southeast district.

C_{ij} = the total number of customer charges charged in billing cycle j and billing month i

β = the applicable coefficient; 0.1142597 for the Northeast district, 0.1181620 for the West district, and 0.1108690 for the Southeast district.

1. Monthly WNA_i = WNA_i × Weighted Residential Volumetric Rate (“WRVR”)_i
2. The WRVR applicable to each month shall be derived using the billing determinants and residential volumetric rates from the Company’s then most-recent rate case. The WRVR shall be equal to the Residential Distribution Commodity Rate, \$TBD.
3. The Current Semiannual WNA (“CSWNA”) shall be the sum of the billing cycle WNA for each of the six Monthly WNA_i for the billing months in the applicable six month period divided by the annual volumetric billing determinates set for the residential rate class in the most recent rate case.

DATE OF ISSUE

DATE EFFECTIVE

month day year

month day year

ISSUED BY: _

Name of Officer Title

Address

WEATHER NORMALIZATION ADJUSTMENT RIDER (Cont'd)

4. Semiannual Reconciliation Rate ("SRR"): Three (3) months prior to the end of the twelve (12) months of billing of each CSWNA, the over- or under-billing of the numerator of the CSWNA shall be calculated based on nine (9) months actual sales and three (3) months projected sales. The amount of over- or under-billing shall be adjusted as ordered by the Commission, if applicable. The resulting amount shall be divided by the annual volumetric billing determinates set for the residential rate class in the most recent rate case. Three (3) months prior to the end of the twelve (12) months of billing of each SRR, the over- or under-billing of the SRR shall be calculated based on nine (9) months actual sales and three (3) months projected sales. Any remaining over- or under-billing from the SRR shall be applied to the next SRR. The three (3) months projected sales associated with each CSWNA and SSR shall be trued-up with actuals upon calculation of the next applicable SSR.

5. The Company will make a semiannual rate filing with the Commission 30 days prior to the first effective day referenced in the CSWNA table to adjust the WNA Rider. Each CSWNA and SRR will remain in effect for twelve (12) months. The total WNA Rider rate shall be the sum of all effective CSWNAs and SRRs.

6. There shall be a limit of \$0.05 per ccf on upward adjustments for the WNA and no limit on downward adjustment. 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.

DATE OF ISSUE

month day year

DATE EFFECTIVE

month day year

ISSUED BY:

Name of Officer

Title

Address

Rates for Northeast District:				
CSWNA Table:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>CSWNA (Semiannual)</u>
2019 S1	4/1/2019	12	3/31/2020	TBD
2018 S2	10/1/2018	12	9/30/2019	TBD
2018 S1	Effective Date of this Sheet		3/31/2019	0.0000
2017 S2	Effective Date of this Sheet		9/30/2018	0.0000
SRR Table:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>SRR (Semiannual)</u>
2019 S1	4/1/2019	12	3/31/2020	TBD
2018 S2	10/1/2018	12	9/30/2019	TBD
2018 S1	Effective Date of this Sheet		3/31/2019	0.0000
2017 S2	Effective Date of this Sheet		9/30/2018	0.0000
WNA Rider Rate:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>Monthly WNA Rider Rate</u>
2018 S1	Effective Date of this Sheet		9/30/2018	0.0000

DATE OF ISSUE month day year

DATE EFFECTIVE _____ month day year

ISSUED BY:

Name of Officer

Title

Address

Rates for Southeast District:				
CSWNA Table:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>CSWNA (Semiannual)</u>
2019 S1	4/1/2019	12	3/31/2020	TBD
2018 S2	10/1/2018	12	9/30/2019	TBD
2018 S1	Effective Date of this Sheet		3/31/2019	0.0000
2017 S2	Effective Date of this Sheet		9/30/2018	0.0000
SRR Table:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>SRR (Semiannual)</u>
2019 S1	4/1/2019	12	3/31/2020	TBD
2018 S2	10/1/2018	12	9/30/2019	TBD
2018 S1	Effective Date of this Sheet		3/31/2019	0.0000
2017 S2	Effective Date of this Sheet		9/30/2018	0.0000
WNA Rider Rate:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>Monthly WNA Rider Rate</u>
2018 S1	Effective Date of this Sheet		9/30/2018	0.0000

DATE OF ISSUE month day year

DATE EFFECTIVE _____ month day year

ISSUED BY:

Name of Officer

Title

Address

Rates for West District:				
CSWNA Table:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>CSWNA (Semiannual)</u>
2019 S1	4/1/2019	12	3/31/2020	TBD
2018 S2	10/1/2018	12	9/30/2019	TBD
2018 S1	Effective Date of this Sheet		3/31/2019	0.0000
2017 S2	Effective Date of this Sheet		9/30/2018	0.0000
SRR Table:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>SRR (Semiannual)</u>
2019 S1	4/1/2019	12	3/31/2020	TBD
2018 S2	10/1/2018	12	9/30/2019	TBD
2018 S1	Effective Date of this Sheet		3/31/2019	0.0000
2017 S2	Effective Date of this Sheet		9/30/2018	0.0000
WNA Rider Rate:				
<u>Period</u>	<u>Rate First Effective</u>	<u>Months</u>	<u>Rate Ending Effective</u>	<u>Monthly WNA Rider Rate</u>
2018 S1	Effective Date of this Sheet		9/30/2018	0.0000

DATE OF ISSUE month day year

DATE EFFECTIVE _____ month day year

ISSUED BY:

Name of Officer

Title

Address