

**BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

In the Matter of the Application of Atmos)
Energy Corporation for Adjustment of its) Docket No. 19-ATMG-525-RTS
Natural Gas Rates in the State of Kansas.)

**STAFF'S SECOND ERRATA TO THE TESTIMONY OF
STAFF WITNESS ROBERT H. GLASS, Ph.D.**

COMES NOW, the Staff of the State Corporation Commission of the State of Kansas (Staff and Commission, respectively), and makes this errata filing to correct the testimony of Staff Witness Robert H. Glass, Ph.D. (Glass). For the convenience of the parties, this filing is provided instead of corrections provided at hearing, so that necessary clarifications of the testimony and position of Glass can be made available now, in advance of the hearing. The corrected testimony is attached. Following is an explanation of the corrections:

1. A technical glitch when filing Glass's testimony caused Table 10 to be collapsed and mistakenly missing from his testimony. Glass has corrected this mistake, with the corrections being attached to this filing.

WHEREFORE, Staff submits its Notice of Filing of Staff testimony for Commission consideration.

Respectfully Submitted,

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**BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

**In the Matter of the Application of)
Atmos Energy Corporation for) Docket No.
Review and Adjustment of its Natural) 19-ATMG-525-RTS
Gas Rates)**

DIRECT TESTIMONY

PREPARED BY

ROBERT H. GLASS, Ph.D.

UTILITIES DIVISION

KANSAS CORPORATION COMMISSION

October 31, 2019

I. STATEMENT OF QUALIFICATIONS

Q. What is your name?

A. Robert H. Glass.

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

A. I am employed by the Kansas Corporation Commission (KCC or Commission) as the Chief of Economics and Rates Section within the Utilities Division.

Q. What is your business address?

A. 1500 S.W. Arrowhead Road, Topeka, Kansas, 66604-4027.

Q. What is your educational background and professional experience?

A. I have a B.A. from Baker University with a major in history. I also have an M.A. and a Ph.D. in economics from the University of Kansas. For 22 years prior to my employment at the Commission, I was employed at the University of Kansas by the Institute for Business and Economic Research, which later became the Institute for Public Policy and Business Research. My primary duty was performing economic research.

Q. Have you previously submitted testimony before this Commission?

A. Yes. I provided testimony as a Staff consultant for Docket Nos. 91-KPLE-140-SEC and 97-WSRE-676-MER. As an employee of the Commission, I have testified in numerous rate case and non-rate case dockets.

II. INTRODUCTION

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to review Applicant's request, as adjusted by KCC Staff (Staff), sponsor Staff's billing determinants adjustment and recommend a rate design that will provide Atmos an opportunity to recover its approved revenue requirement.

1 **Q. How is your testimony structured?**

2 **A.** First, I discuss how the billing determinants were constructed. After discussing the billing
3 determinants, I discuss how the Class Cost of Service study provides a guide for the
4 allocation of the revenue requirement among customer classes as a starting point for rate
5 design. Then, I use Staff's CCOS study to generate Staff's class allocation of the revenue
6 requirement. Finally, using Staff's class allocation of the revenue requirement, I generate
7 Staff's rate design.

8

9 **III. ANALYSIS**

10 **Essentials for Rate Design**

11 **Q. What are the essentials for developing a rate design?**

12 **A.** Billing determinants provide the data for rate design and the CCOS Study provides a guide
13 to the allocation of revenue requirement among rate classes.

14 ***Billing Determinants***

15 **Q. Please explain what billing determinants are and why they are important in a rate**
16 **case.**

17 **A.** Billing determinants consist of all the data needed to generate existing and proposed
18 revenues. They include the number of customers and annual volumes used by rate block,
19 along with the tariff rates necessary to generate existing and proposed revenues. Billing
20 determinants are essential to constructing a proof of revenue, which (1) demonstrates that
21 the company's revenue requirement can be recovered, and (2) provides a comparison of
22 existing rates and proposed rates.

23 **Q. Did Atmos propose billing determinants?**

24 **A.** Yes, Atmos proposed billing determinants in its Application.

1 **Q. Is there a difference between Staff's billing determinants and Atmos'?**

2 **A.** Yes. Staff accepted Atmos' proration adjustment. But Staff does not accept Atmos'
3 weather normalization adjustment or its customer migration adjustment. Instead Staff has
4 its own weather normalization adjustment which will be substituted for the Atmos weather
5 normalization adjustment. Rather than Atmos' customer migration adjustment, Staff
6 proposes a customer annualization adjustment. I will go through each of these adjustments
7 and show how they affect the calculation of the billing determinants.

8 *Staff Accepts Atmos' Proration Adjustment*

9 **Q. What is Atmos' proration adjustment?**

10 **A.** Atmos argues that the Atmos billing system overstates the bill counts because the bill count
11 is recorded in integers, even if customers are part of the system for only a partial month
12 due to beginning or ending service during the middle of a billing cycle. Atmos estimates
13 the overstatement of bill counts and then makes an adjustment to the bill count based on
14 the estimation. For example, the number of Residential bills is reduced using Atmos'
15 proration adjustment by 23,185.

16 **Q. Why does Staff accept Atmos' proration adjustment?**

17 **A.** Atmos' billing system is unable to count partial monthly bills, and as a result, its bill counts
18 are biased upward. The proration adjustment eliminates the bias.

19 *Staff Substitutes Its Own Weather Normalization Adjustment for Atmos'*

20 **Q. Why is Staff substituting its own weather normalization adjustment for Atmos'**
21 **weather normalization adjustment?**

22 **A.** Staff's weather normalization adjustment is based on more recent data and weather
23 normalizes more rate classes, which provides a more thorough analysis. Staff Witness Dr.
24 Lana Ellis provides a detailed description of Staff's weather normalization process in her

1 testimony. I will only outline the major differences in the results as between Atmos' and
2 Staff's approaches.

3 Atmos' weather normalization adjustment is based upon statistical estimation done in
4 the 14-ATMG-320-RTS (14-320) rate case. Dr. Ellis's statistical estimation is based upon
5 data culminating in the test year for the current docket—April 2018 through March 2019,
6 which is better reflective of today's economy than the 2012-13 test year data utilized in
7 Atmos' 14-320 rate case. In addition, Dr. Ellis was able to estimate the weather sensitivity
8 of several additional rate classes—School sales, Industrial Firm Sales, and Irrigation
9 Sales—beyond the standard three that have been estimated for Atmos—Residential,
10 Commercial, and Public Authority. Prior to the current rate case, only the three standard
11 classes had been weather normed. Staff checked back in previous rate cases and was never
12 able to find why only those three were weather normalized and why the other rate classes
13 were ignored.

14 **Q. What is the difference in the results of Staff's and Atmos' weather normalization**
15 **adjustments?**

16 A. Table 1 below shows the difference between Staff's and Atmos' weather normalization.
17 Column (a) is Staff's weather normalization adjustment and column (b) is Atmos' weather
18 normalization adjustment. The total volumetric weather normalization adjustment for
19 Atmos (9,745,634 ccf.) is about 75% of Staff's total adjustment (12,942,000 ccf.).

Table 1

Customer Class	Volumetric Weather Normalization Adjustment	
	Staff	Atmos
	(a)	(b)
Residential	(10,127,286)	(7,753,771)
Commercial	(2,657,412)	(1,877,724)
Public Authority	(131,803)	(114,139)
School	(21,526)	
Industrial Firm	(32,161)	
Irrigation	28,189	
TOTAL	(12,942,000)	(9,745,634)

Q. What is the reason for the difference between Staff's and Atmos' weather normalization adjustments?

A. The reasons there is a difference between Staff's and Atmos' weather normalization adjustment are first that Staff used significantly more recent data to estimate our weather sensitivity factors and second that Staff weather normalized three additional classes that Atmos did not weather normalize.

Staff's Customer Count Adjustment

Q. How does Staff intend to account for the increase and decrease in the number of customer bills for the different rate classes?

A. Dr. Ellis provides the detailed description of Staff's customer count adjustment in her testimony. I will only provide the results of her analysis.

Q. What are the results of Staff's customer count adjustment?

A. Table 2 below shows Staff's customer count adjustments. Only the Residential class has a positive adjustment to the number of bills. Also note that the increase or decrease in the number of bills affects the expected usage of natural gas—more expected customers leads to more expected usage.

Table 2

Customer Class	Staff's Customer Count Adjustment		
	Number of Bills		Volumetric Adjustment
	(a)		(b)
Residential	502		299,413
Commercial	(14)		(26,855)
Public Authority	0		(901)
School	0		0
Industrial Firm	0		0
Industrial Interruptible	0		0
Small Generator Service	(1)		(14)
Irrigation	(63)		(166,128)
TOTAL	425		105,515

Staff Rejects Atmos' Customer Migration Adjustment

Q. What is Atmos' customer migration adjustment?

A. Two commercial customers changed classes during the test year. They both switched from the Firm Transportation Service Commercial Class to the Commercial Sales Service Class. Because these customers switched in the middle of the test year, an adjustment was made in order for the test year to reflect the billing determinants going forward. The adjustment consists of transferring 9 bills and 70,306 ccf. from the Firm Transportation Service Commercial Class to the Commercial Sales Service Class.¹

Q. Why does Staff reject Atmos' customer migration adjustment?

A. Staff's proposed customer count adjustment subsumes the Atmos customer migration adjustment making it unnecessary.

¹ Atmos workpaper WP 17.3 show the calculation of the transfer of bills and volumes.

Staff's Adjusted Number of Bills and Customer Usage

Q. What are Staff's final calculations of the number of bills and the customer volumetric usage?

A. Staff's calculations of the number of bills and the volumetric usage by customers I provided in Table 3 are on the next page. Columns (a) and (b) show the initial number of bills and customer usage. Column (c) shows the proration adjustment. Column (d) has Staff's weather normalization adjustment. Columns (e) and (f) have Staff's customer count adjustment to the number of bills and customer usage. Finally, columns (g) and (h) have the calculation of the adjusted number of bills and customer usage.

Current Customer Rates

Q. What are the current rates that Atmos customers are paying?

A. Ordinarily this is an easy question to answer—simply go to the tariffs and copy the existing tariff rates. But the current docket is more complex. The calculation of the rates charged during the test year is provided in Table 4 on the page after Table 3. The complicating factor is the adjustment for the passage of tax reform in December 2017. There are two adjustments due to the tax reform: the deferred revenue credit for the period of January 1, 2018 through March 31, 2018 that is amortized over the test year—April 2018 through March 2019; and the tax reform credit for the test year. In addition, it was agreed that both monthly credits would be collected through both the facilities and the commodity charges with 54% of the adjustment subtracted from the facilities charge and 46% subtracted from the commodity charge.²

² Order Granting Joint Motion for Approval of Atmos Tax Reform Plan, Docket No. 18-GIMX-248-GIV.

Table 3

Customer Classes	Initial Bills and Volumes		Proration Adjustments Bills	Weather Normalization Adjustment	Customer Count Adjustment		Total Number of Bills	Total Volumes
	Number of Bills	Volumes			Bills	Volumes		
	(a)	(b)	(c)	(d)	(e)	(f)	(g) (a) + (c) + (e)	(h) (b) + (d) + (f)
Residential Sales Service	1,497,541	114,906,002	(23,185)	(10,127,286)	502	299,413	1,474,858	105,078,130
Commercial Sales Service	112,833	36,386,238	(1,696)	(2,657,412)	(14)	(26,855)	111,123	33,701,971
Public Authority Sales Service	5,319	1,932,264	(18)	(131,803)	0	(901)	5,301	1,799,559
School Sales Service	529	297,856	(1)	(21,526)	0	0	528	276,330
Industrial Sales Service	175	461,365	(1)	(32,161)	0	0	174	429,204
Small Generator Sales Service	912	2,521	(1)	-	(1)	(14)	911	2,507
Large Industrial Sales Serv - Interruptible <20,000	0	0		-			0	0
Large Industrial Sales Serv - Interruptible <20,000	0	0		-			0	0
Irrigation Engine Sales Service	3,100	6,000,099		28,189	(63)	(166,128)	3,037	5,862,159
TOTAL Sales	1,620,409	159,986,345	(24,902)	(12,942,000)		105,515	1,595,932	147,149,860
Firm Transportation Serv Commercial	1,596	15,005,360					1,596	15,005,360
School Transportation Service Post '95	2,760	3,395,707					2,760	3,395,707
Firm Transportation Serv - Industrial	408	6,870,763					408	6,870,763
Irrigation Transportation	132	391,944					132	391,944
Interruptible Transportation Serv - Industrial <20,000	396	5,908,165					396	5,908,165
Interruptible Transportation Serv - Industrial >20,000	0	9,325,277					0	9,325,277
TOTAL Transportation	5,292	40,897,216					5,292	40,897,216
TOTAL: Sales and Transportation	1,625,701	200,883,561		(12,942,000)	0	105,515	1,601,224	188,047,076

Table 4

Customer Classes	Deferred				Deferred			
	Facilities Charge	Tax Reform Facilities Credit	Revenue Facilities Credit	Total Facilities Charge	Commodity Charge	Tax Reform Commodity Credit	Revenue Commodity Credit	Total Commodity Charge
SALES	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Residential Sales Service	\$ 18.91	\$ (0.87)	\$ (0.32)	\$ 17.72	\$ 0.154500	\$ (0.010110)	\$ (0.003760)	\$ 0.140630
Commercial Sales Service	\$ 42.62	\$ (2.52)	\$ (0.91)	\$ 39.19	\$ 0.154900	\$ (0.007320)	\$ (0.002740)	\$ 0.144840
Public Authority Sales Service	\$ 42.62	\$ (2.52)	\$ (0.91)	\$ 39.19	\$ 0.154900	\$ (0.007320)	\$ (0.002740)	\$ 0.144840
School Sales Service	\$ 51.94	\$ (4.11)	\$ (1.48)	\$ 46.35	\$ 0.167400	\$ (0.006330)	\$ (0.002370)	\$ 0.158700
Industrial Sales Service	\$ 93.07	\$ (9.94)	\$ (3.67)	\$ 79.46	\$ 0.157000	\$ (0.005090)	\$ (0.001900)	\$ 0.150010
Small Generator Sales Service	\$ 41.00	\$ (1.29)	\$ (0.45)	\$ 39.26	\$ 0.136700	\$ (0.462740)	\$ (0.171670)	\$ (0.497710)
Large Industrial Sales Serv - Interruptible <20,000	\$ 344.31			\$ 344.31	\$ 0.087300			\$ 0.087300
Large Industrial Sales Serv - Interruptible >20,000					\$ 0.082800			\$ 0.082800
Irrigation Engine Sales Service	\$ 75.27	\$ (10.27)	\$ (3.72)	\$ 61.28	\$ 0.111400	\$ (0.003380)	\$ (0.001260)	\$ 0.106760
TRANSPORTATION								
Firm Transportation Serv Commercial	\$ 86.93	\$ (39.36)	\$ (14.27)	\$ 33.30	\$ 0.146600	\$ (0.003730)	\$ (0.001390)	\$ 0.141480
School Transportation Service Post '95	\$ 88.85	\$ (7.76)	\$ (2.81)	\$ 78.28	\$ 0.159000	\$ (0.005700)	\$ (0.002130)	\$ 0.151170
Firm Transportation Serv - Industrial	\$ 86.93	\$ (39.36)	\$ (14.27)	\$ 33.30	\$ 0.146600	\$ (0.003730)	\$ (0.001390)	\$ 0.141480
Irrigation Transportation	\$ 86.93	\$ (39.36)	\$ (14.27)	\$ 33.30	\$ 0.098200	\$ (0.003730)	\$ (0.001390)	\$ 0.093080
Interruptible Transportation Serv - Industrial <20,000	\$ 351.36	\$ (91.62)	\$ (33.19)	\$ 226.55	\$ 0.089200	\$ (0.002220)	\$ (0.000830)	\$ 0.086150
Interruptible Transportation Serv - Industrial >20,000					\$ 0.078000	\$ (0.002220)	\$ (0.000830)	\$ 0.074950

1 Column (a) has the tariffed facilities charge. Column (b) has the adjustment to the
2 facilities charge for the test year and column (c) has the amortized adjustment to the
3 facilities charge during the test year. Column (d) combines all three to provide facilities
4 charge paid by customers during the test year. Columns (e) through (h) have the same type
5 of adjustments for the commodity charge.

6 Although customers paid the facilities charge in column (d) and the commodity charge
7 in column (h) during the test year, those are not the appropriate rates for the proof of
8 revenue because they include the deferred revenue credit which is a one-time credit that
9 will not have an impact going forward. However, the tax reform credit will be subsumed
10 into basic rates going forward. The appropriate facilities charge and commodity charge for
11 the proof of revenue is the tariffed rate minus the tax reform credit with the deferred
12 revenue credit ignored.

13 There is one strange number to comment on in Table 5—the commodity rate for the
14 Small Generation Service (SGS) Class in column (h), it is highlighted in red. The
15 commodity rate for the SGS Class is negative, and that negative rate was a line item on the
16 customer bill.³ With about 5 seconds of thought, most customers would realize if they
17 used more electricity, then their bill would decline. This problem was corrected in both
18 Atmos' proposed rate design and Staff's proposed rate design.

³ The negative rate on the customer bill was confirmed during a phone call with Atmos on October 30, 2019.

The Test Year Revenue with Existing Rates

Q. Please provide the proof of revenue for existing rates.

A. Table 5 has the proof of revenue for existing rates in column (g). Columns (a) and (b) have the adjusted number of bills and volumetric usage which are multiplied by the rates in columns (c) and (d). Columns (e) and (f) have the total revenue from the facilities and commodity charges. Table 5 has the complete billing determinants for the calculation of existing revenue and represents the first part of Staff's proof of revenue.

Class Cost of Service

Q. What is a Class Cost of Service study?

A. A Class Cost of Service (CCOS) study is a detailed analysis of the utility's cost to provide service to each of its different customer classes.

Q. What is the purpose of a Class Cost of Service study?

A. The purpose of a CCOS study is to provide a causal link between a utility's costs of service and its customers' consumption of natural gas. The starting point for rate design is the cost causation principle: the cost causer should be the cost payer.

Q. How does a CCOS study facilitate the implementation of the cost causation principle?

A. By assigning costs to specific customer classes, a CCOS study broadly informs the rate analyst how much it costs the utility to serve each customer class. By using a CCOS study as a starting point and guide for class allocation of the revenue requirement, the rate analyst begins the rate design by employing the cost causation principle.

Table 5

Customer Classes	Number of Bills	Total Volumes	Test Year		Facilities Charge Revenue	Commodity Charge Revenue	Total Revenue
			Facilities Charge	Commodity Charge			
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Residential Sales Service	1,474,858	105,078,130	18.04	0.14439	\$ 26,606,437	\$ 15,172,231	\$ 41,778,668
Commercial Sales Service	111,123	33,701,971	40.10	0.14758	\$ 4,456,047	4,973,737	9,429,784
Public Authority Sales Service	5,301	1,799,559	40.10	0.14758	\$ 212,567	265,579	478,146
School Sales Service	528	276,330	47.83	0.16107	\$ 25,257	44,508	69,765
Industrial Sales Service	174	429,204	83.13	0.15191	\$ 14,437	65,200	79,637
Small Generator Sales Service	911	2,507	39.71	(0.32604)	\$ 36,173	(817)	35,356
Large Industrial Sales Serv - Interruptible <20,000	0	0	344.31	0.08730	\$ -	-	-
Large Industrial Sales Serv - Interruptible <20,000	0	0	344.31	0.08280	\$ -	-	-
Irrigation Engine Sales Service	3,037	5,862,159	65.00	0.10802	\$ 197,405	633,230	830,635
TOTAL Sales	1,595,932	147,149,860			\$ 31,548,323	\$ 21,153,668	\$ 52,701,991
Firm Transportation Serv Commercial	1,596	15,005,360	47.57	0.14287	\$ 75,922	\$ 2,143,816	\$ 2,219,738
School Transportation Service Post '95	2,760	3,395,707	81.09	0.15330	\$ 223,808	\$ 520,562	\$ 744,370
Firm Transportation Serv - Industrial	408	6,870,763	47.57	0.14287	\$ 19,409	\$ 981,626	\$ 1,001,035
Irrigation Transportation	132	391,944	47.57	0.09447	\$ 6,279	\$ 37,027	\$ 43,306
Interruptible Transportation Serv - Industrial <20,000	396	5,908,165	259.74	0.08698	\$ 102,857	\$ 513,892	\$ 616,749
Interruptible Transportation Serv - Industrial >20,000	0	9,325,277	0.00	0.07578	\$ -	\$ 706,669	\$ 706,669
TOTAL Transportation	5,292	40,897,216			\$ 428,275	\$ 4,903,592	\$ 5,331,867
TOTAL: Sales and Transportation	1,601,224	188,047,076			31,976,598	26,057,260	58,033,858

1 **Q. Do CCOS studies have any limitations?**

2 A. Yes. First, CCOS studies are an art, they are not a science. A substantial number of
3 subjective judgments must go into the production of any CCOS study. Second, because all
4 CCOS studies are based on allocation mechanisms that are approximations of structural
5 relationships, the CCOS studies must themselves be viewed as approximations. Third, the
6 approximations of the structural relationships are not based on statistical theory for the
7 most part, so determining a confidence interval using statistic techniques is not
8 possible. Further, because of the size and complexity, only crude sensitivity analysis is
9 possible. Therefore, it is difficult to get a handle on the accuracy of the approximation
10 using sensitivity analysis. Thus we are left knowing that the cost allocation from a CCOS
11 study is an approximation, but we cannot know precisely the numerical bounds of the
12 approximation. Fourth, a CCOS is a static snapshot of a dynamic process. Over time the
13 structural cost relationships have changed and are expected to change in the future.

14 Thus, a rate analyst should be cautious when using a CCOS study to help determine
15 class revenue allocations. The limitations of CCOS studies are important factors to
16 consider when using a CCOS study to allocate the revenue requirement to the rate classes.⁴

17

⁴ Usually in the testimony accompanying a CCOS, analysts add a few cautions about what their CCOS shows. Richard Macke, who has done the CCOS for the Mid-Kansas Electric Company, states that “the results should be treated as providing an indication of the general range of class cost responsibility; not as precise values.” Richard J. Macke, Direct Testimony, Docket No. 12-MKEE-380-RTS, p. 46. Macke lists further problems with CCOS studies and then concludes with “a [C]COS study may be used as a general guide for assigning cost responsibility[.]”, p. 47. Paul Normand, who has done the CCOS for Kansas City Power and Light in its last two rate cases, stated that “these point estimates as I just said are a snapshot in time and my recommendation to the Company is that they are just information for a direction.” Paul Normand, Cross-Examination, Evidentiary Hearing Transcript, Docket No. 10-KCPE-415-RTS, p. 2889. Paul Raab makes a similar point that CCOS “should be used as a ‘guide’ rather than as an absolute prescription for rate design” in his direct testimony in Docket No. 13-WSEE-629-RTS on pp. 11-12.

1 **Q. Has Staff prepared a CCOS analysis in this docket?**

2 A. Yes. Staff Witness Justin Prentiss has included a fully-allocated CCOS using an embedded
3 cost methodology showing class rates of return (ROR) based on test year adjusted revenues
4 with Staff's proposed \$2,697,655 increase for Atmos' customers. For more details in the
5 development of Staff's CCOS consult Mr. Prentiss' Direct Testimony.

6 ***Class Allocation of the Change in Revenue Requirement***

7 **Q. How did Staff allocate its increase in Revenue Requirement?**

8 A. Table 6 below has Staff's recommended revenue requirement class allocations. The table
9 shows the revenue generated by the present rates in column (a), the percentage of total
10 revenue each class contributes in column (b), the class rate of return in column (c), the
11 class relative rate of return (d), the class revenue allocation in column (e), the percentage
12 increase in revenue requirement that Staff's class allocation creates in column (f), and the
13 expected class revenue, because of the proposed revenue increase, in column (g).

14 **Q. How did Staff develop its class allocation?**

15 A. Staff began with its CCOS study. The CCOS study allocated revenue, expenses, and rate
16 base among customer classes so that the rate of return for each class could be calculated.
17 The system-wide and class rates of return for the current Atmos rates are in column (c) in
18 Table 6 on the previous page, and the class rate of return index numbers for current rates
19 are in column (d) in the same table.

20

Table 6

Customer Classes	Current Revenue	% of Total Revenue	Class Rate of Return	Relative Rate of Return	Class Revenue Allocation \$ 2,697,655	Class % Increase	Proposed Revenue Allocation
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Residential Sales Service	\$ 41,778,668	72.0%	5.77%	0.93	\$ 1,950,000	4.67%	\$ 43,728,668
Commercial Sales Service	\$ 9,429,784	16.2%	8.46%	1.36	\$ 417,000	4.42%	\$ 9,846,784
Public Authority Sales Service	\$ 478,146	0.8%	8.46%	1.36	\$ 21,145	4.42%	\$ 499,291
School Sales Service	\$ 69,765	0.1%	6.93%	1.12	\$ 3,100	4.44%	\$ 72,865
Industrial Sales Service	\$ 79,637	0.1%	4.43%	0.71	\$ 3,954	4.97%	\$ 83,591
Small Generator Sales Service	\$ 35,356	0.1%	1.39%	0.22	\$ 2,300	6.51%	\$ 37,656
Large Industrial Sales Serv - Interruptible <20,000	\$ -			-	\$ -		\$ -
Large Industrial Sales Serv - Interruptible >20,000	\$ -				\$ -		\$ -
Irrigation Engine Sales Service	\$ 830,635	1.4%	0.58%	0.09	\$ 55,000	6.62%	\$ 885,635
							\$ -
TOTAL Sales	\$ 52,701,991	90.8%			\$ 2,452,499	4.65%	\$ 55,154,490
Firm Transportation Serv Commercial	\$ 2,219,738	3.8%	10.02%	1.62	\$ 97,801	4.41%	\$ 2,317,539
School Transportation Service Post '95	\$ 744,370	1.3%	6.11%	0.99	\$ 34,313	4.61%	\$ 778,683
Firm Transportation Serv - Industrial	\$ 1,001,035	1.7%	10.02%	1.62	\$ 44,170	4.41%	\$ 1,045,205
Irrigation Transportation	\$ 43,306	0.1%	1.09%	0.18	\$ 2,867	6.62%	\$ 46,173
	\$ -						
Interruptible Transportation Serv - Industrial <20,000	\$ 616,749	1.1%	3.90%	0.63	\$ 30,760	4.99%	\$ 647,509
Interruptible Transportation Serv - Industrial >20,000	\$ 706,669	1.2%	3.90%	0.63	\$ 35,245	4.99%	\$ 741,914
	\$ -						\$ -
TOTAL Transportation	\$ 5,331,867	9.2%			\$ 245,156	4.61%	\$ 5,577,023
TOTAL: Sales and Transportation	\$ 58,033,858	100.0%			\$ 2,697,655	4.61%	\$ 60,731,513

1 **Q. How do the class rates of return help allocate the change in the revenue requirement**
2 **to the rate classes?**

3 A. The class rates of return indicate the amount of operating revenue generated by each rate
4 class relative to the amount of rate base allocated to it. These class rates of return can be
5 compared to the system-wide rate of return to get a general idea of whether a particular
6 class is allocated an appropriate amount of operating revenue. A class with a rate of return
7 less than the system-wide rate of return is generating less operating revenue given the
8 amount of rate base allocated to it and is said to be underearning. A class with a rate of
9 return higher than the system-wide rate of return is earning more than its allocated rate base
10 indicates it should and is overearning.

11 By changing the allocation of revenue requirement to a particular class, the rate analyst
12 can either increase or decrease the class rate of return. Thus, the rate analyst, in general,
13 allocates relatively less of the change in revenue requirement to classes that are overearning
14 and gives relatively more to the classes that are underearning. The relative rate of return
15 index helps to determine the size of an increase or decrease.

16 **Q. What is a relative rate of return index?**

17 A. The relative rate of return index normalizes the class rates of return to help analyze the
18 class rates of return. For a particular class, the index is calculated by dividing that class'
19 rate of return by the system-wide rate of return as shown in the following formula:

$$20 \quad \text{Relative Rate of Return Index} = \frac{\text{Class Rate of Return}}{\text{System Average Rate of Return}}$$

21 For example, assume that the system average rate of return is 8% and one class has a
22 rate of return of 7% and another class has a rate of return of 9%. The class with the 7%
23 rate of return would have a relative rate of return of $0.875 \left(\frac{7\%}{8\%} \right)$ and the class with the 9%

1 rate of return would have a relative rate of return of $1.125 \left(\frac{9\%}{8\%} \right)$. A class with the same rate
2 of return as the system average would have a relative rate of return index of 1.0. Thus, a
3 class with an index above 1.0 is overearning while a class with an index below 1.0 is
4 underearning. Like all good indexes, the relative rate of return index compresses the data
5 for easier analysis and a more transparent explanation.

6 **Q. Did Staff only use the relative rate of return index to develop its class allocations?**

7 A. No. Staff also used the principle of gradualism. The natural result of using only the relative
8 rate of return index to allocate revenue is that all class rates of return are forced to the
9 system-wide rate of return. In other words, all class indexes are forced to 1.0. The opposite
10 extreme is to use the system wide percentage increase for all classes so that every class's
11 base rates increase the same percentage and the relative rates of return remain unchanged.
12 Somewhere in between these two extremes lies an approach that moves classes closer to
13 the system-wide rate of return but does not cause near the disruption of a sudden change in
14 rates. The principle of gradualism moderates changes in class revenue allocation without
15 preventing movement toward the system-wide rate of return.

16 For this rate case, Staff chose a revenue allocation similar to the constant percentage
17 increase in rates rather than the equalized rates of return approach.⁵

18 **Q. Why is Staff proposing a revenue allocation similar to a constant percentage revenue**
19 **increase for each class?**

20 A. Staff has two reasons for its moderate revenue allocation. First, the Residential Class is
21 about 72% of total base rate revenue collected. As a result, any dramatic change in the

⁵ Lowell E. Alt, Jr. *Energy Utility Rate Setting*, pp. 72-74. Alt lists three principles of rate design—"cost causation, equalized rates of return and gradualism." p. 72.

1 revenue allocation away from a constant percentage revenue increase for each class would
2 necessarily require a significant increase in the revenue allocation for the Residential Class
3 because it comprises 72% of the total base rate revenue. But the Residential Class' relative
4 rate of return index is already at 0.93 which suggest either no change or a small change in
5 class revenue allocation away from using the system-wide percentage revenue increase.
6 The second reason for the moderate revenue allocation is because the relative rates of return
7 indexes are bunched together. I will discuss each of these reasons in more detail.

8 Column (b) in Table 6 shows the percentage of total revenue collected from each class.
9 The Residential and Commercial Sales Classes are dominant—these two classes generate
10 over 88% of base revenue for Atmos, and the Residential Class dominates the Commercial
11 Class 72.0% to 16.2%. Then moving over to Column (d) in the same table, the class
12 relative rates of return indexes for these two classes are 0.93 for Residential and 1.36 for
13 Commercial. The Residential Class is already near 1.00, and given the limitations of a
14 CCOS, gradualism would suggest no change or only a slight change to using the system-
15 wide percentage increase in proposed revenue for the Residential Class. The Commercial
16 Class is already overearning, but not an extreme amount. And given the negligible size of
17 the remaining classes, any significant reduction in the Commercial Class' overearning
18 would require a similarly sized but opposite directional move in the earnings of the
19 Residential Class.

20 Which leads to the second reason for moderation: there are no big outliers—there are
21 no classes with indexes above 2 or less than 0. The relative bunching of the relative rates
22 of return indexes suggests that only moderate changes in the relative class revenue
23 allocation should be made. The only other classes significantly overearning are the Firm

1 Transportation Commercial and Industrial Classes with relative rates of return indexes at
2 1.62. Again, a significant reduction in overearning for these two classes would require
3 allocation of additional revenue to the Residential Class which as noted above is
4 unwarranted.

5 **Staff's Rate Design**

6 **Q. What is the next step in the rate design process?**

7 **A.** The final step is to use the class revenue allocations to develop rates that will allow Atmos
8 the opportunity to collect its approved revenue requirement. Specifically, how much of the
9 revenue allocated to each customer class is collected through the facilities charges and how
10 much is collected by the commodity charges must be determined.

11 **Q. How did Staff determine how much revenue would be collected in the facilities**
12 **charges and how much would be collected in the commodity charges?**

13 **A.** In the last rate case, Staff moderated the Atmos trend of collecting increasing percentages
14 of revenue from the facilities charge. Atmos had five rate cases in eight years. The rate
15 design in those cases has consistently increased the facilities or fixed charge far more than
16 the commodity charge. The reason for the emphasis on increasing the facilities charge was
17 because most of the costs that Atmos incurs in providing service to customers is fixed in
18 nature. A rate design tenet is that fixed costs should be recovered from fixed charges.
19 During the period 2008 to 2015, the facilities charge for Residential Customers increased
20 127%, while the commodity charge declined 11%. Or put another way, in 2008, 34.2% of
21 the base rate revenue and 40.2% of the Residential base rate revenue came from the
22 facilities charge. By 2015, 55.6% of the base rate revenue and 62.8% of the Residential
23 base rate revenue came from the facilities charge. The increasing reliance on the facilities

1 charge was stopped for the most part in the last rate case. As can be seen from the test year
2 data in this current rate case, 55.1% of overall base rate revenues were derived from
3 facilities charges with 63.7% of the Residential base rate revenue derived from the facilities
4 charge.

5 Staff believes that the proportion of base rate revenue allocated between the facilities
6 and commodity charges is appropriate and should remain about the same. In order to
7 ensure the proportions remained the same, Staff allocated each classes' revenue increase
8 to the facilities and commodity charges based on the existing rates proportion for that class.
9 For example, using the existing rates, the current Residential facilities charge collects
10 63.7% of the base rate revenue and the commodity charge collects 36.3% of the base rate
11 revenue. This same proportion was maintained for the Residential Class in Staff proposed
12 rate design.⁶

13 Table 7 on the next page has Staff's Proof of Revenue based upon Staff's proposed rate
14 design. Staff rate design collects \$197 dollars more than Staff's proposed increase in
15 Revenue Requirement because of rounding. The first part of Staff's Proof of Revenue is
16 in Table 5 above which has revenue collection based on the current rates minus the deferred
17 revenue credit for both the facilities and commodity charge.

18 Table 8 on the page after Table 7 shows how close the proportion of facilities and
19 commodity revenue is using the test year rates and Staff's proposed rate design.

⁶ Because of rounding to two digits for the facilities charge and 5 digits for the commodity charge, they changed slightly. See Table 9 for the slight differences.

Table 7

Customer Classes	Number of Bills	Total Volumes	Proposed Rates		Facilities Charge Revenue	Commodity Charge Revenue	Total Revenue	Proposed Revenue Allocation
			Facilities Charge	Commodity Charge				
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(g)
Residential Sales Service	1,474,858	105,078,130	\$ 18.89	\$ 0.15102	\$ 27,860,066	\$ 15,868,899	\$ 43,728,965	\$ 43,728,668
Commercial Sales Service	111,123	33,701,971	\$ 41.86	\$ 0.15415	\$ 4,651,624	5,195,159	9,846,783	\$ 9,846,784
Public Authority Sales Service	5,301	1,799,559	\$ 41.86	\$ 0.15415	\$ 221,897	277,402	499,299	\$ 499,291
School Sales Service	528	276,330	\$ 49.95	\$ 0.16822	\$ 26,376	46,484	72,860	\$ 72,865
Industrial Sales Service	174	429,204	\$ 87.25	\$ 0.15944	\$ 15,152	68,432	83,584	\$ 83,591
Small Generator Sales Service	911	2,507	\$ 41.34	\$ -	\$ 37,658	-	37,658	\$ 37,656
Large Industrial Sales Serv - Interruptible <20,000	0	0						\$ -
Large Industrial Sales Serv - Interruptible >20,000	0	0						\$ -
Irrigation Engine Sales Service	3,037	5,862,159	\$ 69.30	\$ 0.11517	\$ 210,464	675,145	885,609	\$ 885,635
								\$ -
TOTAL Sales	1,595,932	147,149,860			\$ 33,023,237	\$ 22,131,521	\$ 55,154,758	\$ 55,154,490
								\$ -
Firm Transportation Serv Commercial	1,596	15,005,360	\$ 49.70	\$ 0.14916	\$ 79,321	\$ 2,238,199	\$ 2,317,520	\$ 2,317,539
School Transportation Service Post '95	2,760	3,395,707	\$ 84.83	\$ 0.16037	\$ 234,131	\$ 544,570	\$ 778,701	\$ 778,683
Firm Transportation Serv - Industrial	408	6,870,763	\$ 49.70	\$ 0.14916	\$ 20,278	\$ 1,024,843	\$ 1,045,121	\$ 1,045,205
Irrigation Transportation	132	391,944	\$ 50.72	\$ 0.10072	\$ 6,695	\$ 39,477	\$ 46,172	\$ 46,173
								\$ -
Interruptible Transportation Serv - Industrial <20,000	396	5,908,165	\$ 272.69	\$ 0.09132	\$ 107,985	\$ 539,534	\$ 647,519	\$ 647,509
Interruptible Transportation Serv - Industrial >20,000	0	9,325,277	\$ -	\$ 0.07956	\$ -	\$ 741,919	\$ 741,919	\$ 741,914
								\$ -
TOTAL Transportation	5,292	40,897,216			\$ 448,410	\$ 5,128,542	\$ 5,576,952	\$ 5,577,023
								\$ -
TOTAL: Sales and Transportation	1,601,224	188,047,076			33,471,647	27,260,063	60,731,710	\$ 60,731,513

1

Table 8

Customer Classes	Proportion of Facilities & Commodity Revenue			
	Test Year Rates		Proposed Rates	
	Facilities	Commodity	Facilities	Commodity
Residential Sales Service	63.68%	36.32%	63.71%	36.29%
Commercial Sales Service	47.26%	52.74%	47.24%	52.76%
Public Authority Sales Service	44.46%	55.54%	44.44%	55.56%
School Sales Service	36.20%	63.80%	36.20%	63.80%
Industrial Sales Service	18.13%	81.87%	18.13%	81.87%
Small Generator Sales Service	102.31%	-2.31%	100.00%	0.00%
Irrigation Engine Sales Service	23.77%	76.23%	23.76%	76.24%
TOTAL Sales	59.86%	40.14%	59.87%	40.13%
Firm Transportation Serv Commercial	3.42%	96.58%	3.42%	96.58%
School Transportation Service Post '95	30.07%	69.93%	30.07%	69.93%
Firm Transportation Serv - Industrial	1.94%	98.06%	1.94%	98.06%
Irrigation Transportation	14.50%	85.50%	14.50%	85.50%
Interruptible Transportation Serv - Industrial <20,000	16.68%	83.32%	16.68%	83.32%
Interruptible Transportation Serv - Industrial >20,000	0.00%	100.00%	0.00%	100.00%
TOTAL Transportation	8.04%	91.96%	8.04%	91.96%
TOTAL: Sales and Transportation	55.10%	44.90%	55.11%	44.89%

2

3 **Q. Have you prepared a table comparing Staff's proposed rates with the existing**
4 **rates?**

5 A. Yes. Table 9 below has the test year rates, Staff's proposed rates, and the percentage
6 increase that the proposed rates would create.

Table 9

Customer Classes	Comparison of Current (Test Year) Rates & Staff Proposed Rates					
	Test Year Rates		Proposed Rates		Percentage Increase	
	Facilities	Commodity	Facilities	Commodity	Facilities	Commodity
Residential Sales Service	\$ 18.04	0.14439	\$ 18.89	\$ 0.15102	4.71%	4.59%
Commercial Sales Service	\$ 40.10	0.14758	\$ 41.86	\$ 0.15415	4.39%	4.45%
Public Authority Sales Service	\$ 40.10	0.14758	\$ 41.86	\$ 0.15415	4.39%	4.45%
School Sales Service	\$ 47.83	0.16107	\$ 49.95	\$ 0.16822	4.43%	4.44%
Industrial Sales Service	\$ 83.13	0.15191	\$ 87.25	\$ 0.15944	4.96%	4.96%
Small Generator Sales Service	\$ 39.71	(0.32604)	\$ 41.34	\$ -	4.10%	
Irrigation Engine Sales Service	\$ 65.00	0.10802	\$ 69.30	\$ 0.11517	6.62%	6.62%
Firm Transportation Serv Commercial	\$ 49.70	0.14916	\$ 49.70	\$ 0.14920	0.00%	0.03%
School Transportation Service Post '95	\$ 84.83	0.16037	\$ 84.83	\$ 0.16037	0.00%	0.00%
Firm Transportation Serv - Industrial	\$ 49.70	0.14916	\$ 49.70	\$ 0.14920	0.00%	0.03%
Irrigation Transportation	\$ 50.72	0.10072	\$ 50.72	\$ 0.10072	0.00%	0.00%
Interruptible Transportation Serv - Industrial <20,000	\$ 272.69	0.09132	\$ 272.69	\$ 0.09132	0.00%	0.00%
Interruptible Transportation Serv - Industrial >20,000	\$ -	0.07956	\$ -	\$ 0.07956		0.00%

Q. What would be the impact on Residential consumer bills of Staff's proposed rate increase?

The bill impact of the proposed rates is illustrated in Table 10 below. In addition to the proposed facilities and commodity charge, Table 10 shows the different riders: Gas System Reliability Surcharge (GSRS), Purchased Gas Adjustment (PGA), Gas Hedge Program Charge, and Ad Valorem Tax Surcharge. Column (a) shows the amount of the rates while columns (b) through (g) have the cost to Residential customers of each of the charges for six different consumption levels running from 100 Ccf per month to 400 Ccf per month.

Table 10

Impact of Proposed Rate Increase on Residential Customers							
	Rate	Monthly Commodity Consumption (Ccf)					
		100	150	200	250	300	400
CURRENT RATES	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Facilities Charge	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04
GSRS ¹	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80
Total Fixed Charge		\$ 18.84	\$ 18.84	\$ 18.84	\$ 18.84	\$ 18.84	\$ 18.84
Commodity Charge	\$ 0.14439	\$ 14.44	\$ 21.66	\$ 28.88	\$ 36.10	\$ 43.32	\$ 57.76
Purchased Gas Adjustment	\$ 0.48013	\$ 48.01	\$ 72.02	\$ 96.03	\$ 120.03	\$ 144.04	\$ 192.05
Gas Hedge Program Charge	\$ 0.06207	\$ 6.21	\$ 9.31	\$ 12.41	\$ 15.52	\$ 18.62	\$ 24.83
Ad Valorem	\$ 0.00710	\$ 0.71	\$ 1.07	\$ 1.42	\$ 1.78	\$ 2.13	\$ 2.84
Total Variable Charge		\$ 69.37	\$ 104.05	\$ 138.74	\$ 173.42	\$ 208.11	\$ 277.48
TOTAL BILL		\$ 88.21	\$ 122.89	\$ 157.58	\$ 192.26	\$ 226.95	\$ 296.32
PROPOSED RATES							
Facilities Charge	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89
GSRS Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Fixed Charge		\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89
Commodity Charge	\$ 0.15102	\$ 15.10	\$ 22.65	\$ 30.20	\$ 37.76	\$ 45.31	\$ 60.41
Purchased Gas Adjustment	\$ 0.48013	\$ 48.01	\$ 72.02	\$ 96.03	\$ 120.03	\$ 144.04	\$ 192.05
Gas Hedge Program Charge	\$ 0.06207	\$ 6.21	\$ 9.31	\$ 12.41	\$ 15.52	\$ 18.62	\$ 24.83
Ad Valorem ²		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Variable Charge		\$ 69.32	\$ 103.98	\$ 138.64	\$ 173.31	\$ 207.97	\$ 277.29
TOTAL BILL		\$ 88.21	\$ 122.87	\$ 157.53	\$ 192.20	\$ 226.86	\$ 296.18
Notes: ¹ Gas System Reliability Surcharge; ² The GSRS and the Ad Valorem were incorporated in base rates and the charges are reset to zero.							

Table 10 shows that the facilities charge and the commodity charge are relatively small compared to the PGA because the cost of natural gas is the dominant cost for Atmos customers. In addition, because the Gas System Reliability Surcharge and the Ad Valorem Tax Surcharge return to zero, the effect of the rate increase is a small bill reduction.

1. CONCLUSION

1

2 **Q. Should the Commission accept your rate design?**

3 **A.** Yes. I recommend the Commission accept Staff's billing determinants
4 adjustments, CCOS study, and rate design.

5 **Q. Does this conclude testimony?**

6 **A.** Yes. Thank you.

7

**BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

**In the Matter of the Application of)
Atmos Energy Corporation for) Docket No.
Review and Adjustment of its Natural) 19-ATMG-525-RTS
Gas Rates)**

DIRECT TESTIMONY

PREPARED BY

ROBERT H. GLASS, Ph.D.

UTILITIES DIVISION

KANSAS CORPORATION COMMISSION

October 31, 2019

I. STATEMENT OF QUALIFICATIONS

Q. What is your name?

A. Robert H. Glass.

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

A. I am employed by the Kansas Corporation Commission (KCC or Commission) as the Chief of Economics and Rates Section within the Utilities Division.

Q. What is your business address?

A. 1500 S.W. Arrowhead Road, Topeka, Kansas, 66604-4027.

Q. What is your educational background and professional experience?

A. I have a B.A. from Baker University with a major in history. I also have an M.A. and a Ph.D. in economics from the University of Kansas. For 22 years prior to my employment at the Commission, I was employed at the University of Kansas by the Institute for Business and Economic Research, which later became the Institute for Public Policy and Business Research. My primary duty was performing economic research.

Q. Have you previously submitted testimony before this Commission?

A. Yes. I provided testimony as a Staff consultant for Docket Nos. 91-KPLE-140-SEC and 97-WSRE-676-MER. As an employee of the Commission, I have testified in numerous rate case and non-rate case dockets.

II. INTRODUCTION

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to review Applicant's request, as adjusted by KCC Staff (Staff), sponsor Staff's billing determinants adjustment and recommend a rate design that will provide Atmos an opportunity to recover its approved revenue requirement.

1 **Q. How is your testimony structured?**

2 **A.** First, I discuss how the billing determinants were constructed. After discussing the billing
3 determinants, I discuss how the Class Cost of Service study provides a guide for the
4 allocation of the revenue requirement among customer classes as a starting point for rate
5 design. Then, I use Staff's CCOS study to generate Staff's class allocation of the revenue
6 requirement. Finally, using Staff's class allocation of the revenue requirement, I generate
7 Staff's rate design.

III. ANALYSIS

Essentials for Rate Design

11 Q. What are the essentials for developing a rate design?

2 **A.** Billing determinants provide the data for rate design and the CCOS Study provides a guide
3 to the allocation of revenue requirement among rate classes.

Billing Determinants

5 **Q. Please explain what billing determinants are and why they are important in a rate**
6 **case.**

7 **A.** Billing determinants consist of all the data needed to generate existing and proposed
8 revenues. They include the number of customers and annual volumes used by rate block,
9 along with the tariff rates necessary to generate existing and proposed revenues. Billing
10 determinants are essential to constructing a proof of revenue, which (1) demonstrates that
11 the company's revenue requirement can be recovered, and (2) provides a comparison of
12 existing rates and proposed rates.

23 **Q. Did Atmos propose billing determinants?**

24 A. Yes, Atmos proposed billing determinants in its Application.

1 **Q. Is there a difference between Staff's billing determinants and Atmos'?**

2 **A.** Yes. Staff accepted Atmos' proration adjustment. But Staff does not accept Atmos'
3 weather normalization adjustment or its customer migration adjustment. Instead Staff has
4 its own weather normalization adjustment which will be substituted for the Atmos weather
5 normalization adjustment. Rather than Atmos' customer migration adjustment, Staff
6 proposes a customer annualization adjustment. I will go through each of these adjustments
7 and show how they affect the calculation of the billing determinants.

8 *Staff Accepts Atmos' Proration Adjustment*

9 **Q. What is Atmos' proration adjustment?**

10 **A.** Atmos argues that the Atmos billing system overstates the bill counts because the bill count
11 is recorded in integers, even if customers are part of the system for only a partial month
12 due to beginning or ending service during the middle of a billing cycle. Atmos estimates
13 the overstatement of bill counts and then makes an adjustment to the bill count based on
14 the estimation. For example, the number of Residential bills is reduced using Atmos'
15 proration adjustment by 23,185.

16 **Q. Why does Staff accept Atmos' proration adjustment?**

17 **A.** Atmos' billing system is unable to count partial monthly bills, and as a result, its bill counts
18 are biased upward. The proration adjustment eliminates the bias.

19 *Staff Substitutes Its Own Weather Normalization Adjustment for Atmos'*

20 **Q. Why is Staff substituting its own weather normalization adjustment for Atmos'**
21 **weather normalization adjustment?**

22 **A.** Staff's weather normalization adjustment is based on more recent data and weather
23 normalizes more rate classes, which provides a more thorough analysis. Staff Witness Dr.
24 Lana Ellis provides a detailed description of Staff's weather normalization process in her

1 testimony. I will only outline the major differences in the results as between Atmos' and
2 Staff's approaches.

3 Atmos' weather normalization adjustment is based upon statistical estimation done in
4 the 14-ATMG-320-RTS (14-320) rate case. Dr. Ellis's statistical estimation is based upon
5 data culminating in the test year for the current docket—April 2018 through March 2019,
6 which is better reflective of today's economy than the 2012-13 test year data utilized in
7 Atmos' 14-320 rate case. In addition, Dr. Ellis was able to estimate the weather sensitivity
8 of several additional rate classes—School sales, Industrial Firm Sales, and Irrigation
9 Sales—beyond the standard three that have been estimated for Atmos—Residential,
10 Commercial, and Public Authority. Prior to the current rate case, only the three standard
11 classes had been weather normed. Staff checked back in previous rate cases and was never
12 able to find why only those three were weather normalized and why the other rate classes
13 were ignored.

14 **Q. What is the difference in the results of Staff's and Atmos' weather normalization**
15 **adjustments?**

16 A. Table 1 below shows the difference between Staff's and Atmos' weather normalization.
17 Column (a) is Staff's weather normalization adjustment and column (b) is Atmos' weather
18 normalization adjustment. The total volumetric weather normalization adjustment for
19 Atmos (9,745,634 ccf.) is about 75% of Staff's total adjustment (12,942,000 ccf.).

Table 1

Customer Class	Volumetric Weather Normalization Adjustment	
	Staff	Atmos
	(a)	(b)
Residential	(10,127,286)	(7,753,771)
Commercial	(2,657,412)	(1,877,724)
Public Authority	(131,803)	(114,139)
School	(21,526)	
Industrial Firm	(32,161)	
Irrigation	28,189	
TOTAL	(12,942,000)	(9,745,634)

Q. What is the reason for the difference between Staff's and Atmos' weather normalization adjustments?

A. The reasons there is a difference between Staff's and Atmos' weather normalization adjustment are first that Staff used significantly more recent data to estimate our weather sensitivity factors and second that Staff weather normalized three additional classes that Atmos did not weather normalize.

Staff's Customer Count Adjustment

Q. How does Staff intend to account for the increase and decrease in the number of customer bills for the different rate classes?

A. Dr. Ellis provides the detailed description of Staff's customer count adjustment in her testimony. I will only provide the results of her analysis.

Q. What are the results of Staff's customer count adjustment?

A. Table 2 below shows Staff's customer count adjustments. Only the Residential class has a positive adjustment to the number of bills. Also note that the increase or decrease in the number of bills affects the expected usage of natural gas—more expected customers leads to more expected usage.

Table 2

Customer Class	Staff's Customer Count Adjustment		
	Number of Bills		Volumetric Adjustment
	(a)		(b)
Residential	502		299,413
Commercial	(14)		(26,855)
Public Authority	0		(901)
School	0		0
Industrial Firm	0		0
Industrial Interruptible	0		0
Small Generator Service	(1)		(14)
Irrigation	(63)		(166,128)
TOTAL	425		105,515

Staff Rejects Atmos' Customer Migration Adjustment

Q. What is Atmos' customer migration adjustment?

A. Two commercial customers changed classes during the test year. They both switched from the Firm Transportation Service Commercial Class to the Commercial Sales Service Class. Because these customers switched in the middle of the test year, an adjustment was made in order for the test year to reflect the billing determinants going forward. The adjustment consists of transferring 9 bills and 70,306 ccf. from the Firm Transportation Service Commercial Class to the Commercial Sales Service Class.¹

Q. Why does Staff reject Atmos' customer migration adjustment?

A. Staff's proposed customer count adjustment subsumes the Atmos customer migration adjustment making it unnecessary.

¹ Atmos workpaper WP 17.3 show the calculation of the transfer of bills and volumes.

Staff's Adjusted Number of Bills and Customer Usage

Q. What are Staff's final calculations of the number of bills and the customer volumetric usage?

A. Staff's calculations of the number of bills and the volumetric usage by customers I provided in Table 3 are on the next page. Columns (a) and (b) show the initial number of bills and customer usage. Column (c) shows the proration adjustment. Column (d) has Staff's weather normalization adjustment. Columns (e) and (f) have Staff's customer count adjustment to the number of bills and customer usage. Finally, columns (g) and (h) have the calculation of the adjusted number of bills and customer usage.

Current Customer Rates

Q. What are the current rates that Atmos customers are paying?

A. Ordinarily this is an easy question to answer—simply go to the tariffs and copy the existing tariff rates. But the current docket is more complex. The calculation of the rates charged during the test year is provided in Table 4 on the page after Table 3. The complicating factor is the adjustment for the passage of tax reform in December 2017. There are two adjustments due to the tax reform: the deferred revenue credit for the period of January 1, 2018 through March 31, 2018 that is amortized over the test year—April 2018 through March 2019; and the tax reform credit for the test year. In addition, it was agreed that both monthly credits would be collected through both the facilities and the commodity charges with 54% of the adjustment subtracted from the facilities charge and 46% subtracted from the commodity charge.²

² Order Granting Joint Motion for Approval of Atmos Tax Reform Plan, Docket No. 18-GIMX-248-GIV.

Table 3

Customer Classes	Initial Bills and Volumes		Proration Adjustments Bills	Weather Normalization Adjustment	Customer Count Adjustment		Total Number of Bills	Total Volumes
	Number of Bills	Volumes			Bills	Volumes		
	(a)	(b)	(c)	(d)	(e)	(f)	(g) (a) + (c) + (e)	(h) (b) + (d) + (f)
Residential Sales Service	1,497,541	114,906,002	(23,185)	(10,127,286)	502	299,413	1,474,858	105,078,130
Commercial Sales Service	112,833	36,386,238	(1,696)	(2,657,412)	(14)	(26,855)	111,123	33,701,971
Public Authority Sales Service	5,319	1,932,264	(18)	(131,803)	0	(901)	5,301	1,799,559
School Sales Service	529	297,856	(1)	(21,526)	0	0	528	276,330
Industrial Sales Service	175	461,365	(1)	(32,161)	0	0	174	429,204
Small Generator Sales Service	912	2,521	(1)	-	(1)	(14)	911	2,507
Large Industrial Sales Serv - Interruptible <20,000	0	0		-			0	0
Large Industrial Sales Serv - Interruptible <20,000	0	0		-			0	0
Irrigation Engine Sales Service	3,100	6,000,099		28,189	(63)	(166,128)	3,037	5,862,159
TOTAL Sales	1,620,409	159,986,345	(24,902)	(12,942,000)		105,515	1,595,932	147,149,860
Firm Transportation Serv Commercial	1,596	15,005,360					1,596	15,005,360
School Transportation Service Post '95	2,760	3,395,707					2,760	3,395,707
Firm Transportation Serv - Industrial	408	6,870,763					408	6,870,763
Irrigation Transportation	132	391,944					132	391,944
Interruptible Transportation Serv - Industrial <20,000	396	5,908,165					396	5,908,165
Interruptible Transportation Serv - Industrial >20,000	0	9,325,277					0	9,325,277
TOTAL Transportation	5,292	40,897,216					5,292	40,897,216
TOTAL: Sales and Transportation	1,625,701	200,883,561		(12,942,000)	0	105,515	1,601,224	188,047,076

Table 4

Customer Classes	Deferred				Deferred			
	Facilities Charge	Tax Reform Facilities Credit	Revenue Facilities Credit	Total Facilities Charge	Commodity Charge	Tax Reform Commodity Credit	Revenue Commodity Credit	Total Commodity Charge
SALES	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Residential Sales Service	\$ 18.91	\$ (0.87)	\$ (0.32)	\$ 17.72	\$ 0.154500	\$ (0.010110)	\$ (0.003760)	\$ 0.140630
Commercial Sales Service	\$ 42.62	\$ (2.52)	\$ (0.91)	\$ 39.19	\$ 0.154900	\$ (0.007320)	\$ (0.002740)	\$ 0.144840
Public Authority Sales Service	\$ 42.62	\$ (2.52)	\$ (0.91)	\$ 39.19	\$ 0.154900	\$ (0.007320)	\$ (0.002740)	\$ 0.144840
School Sales Service	\$ 51.94	\$ (4.11)	\$ (1.48)	\$ 46.35	\$ 0.167400	\$ (0.006330)	\$ (0.002370)	\$ 0.158700
Industrial Sales Service	\$ 93.07	\$ (9.94)	\$ (3.67)	\$ 79.46	\$ 0.157000	\$ (0.005090)	\$ (0.001900)	\$ 0.150010
Small Generator Sales Service	\$ 41.00	\$ (1.29)	\$ (0.45)	\$ 39.26	\$ 0.136700	\$ (0.462740)	\$ (0.171670)	\$ (0.497710)
Large Industrial Sales Serv - Interruptible <20,000	\$ 344.31			\$ 344.31	\$ 0.087300			\$ 0.087300
Large Industrial Sales Serv - Interruptible >20,000					\$ 0.082800			\$ 0.082800
Irrigation Engine Sales Service	\$ 75.27	\$ (10.27)	\$ (3.72)	\$ 61.28	\$ 0.111400	\$ (0.003380)	\$ (0.001260)	\$ 0.106760
TRANSPORTATION								
Firm Transportation Serv Commercial	\$ 86.93	\$ (39.36)	\$ (14.27)	\$ 33.30	\$ 0.146600	\$ (0.003730)	\$ (0.001390)	\$ 0.141480
School Transportation Service Post '95	\$ 88.85	\$ (7.76)	\$ (2.81)	\$ 78.28	\$ 0.159000	\$ (0.005700)	\$ (0.002130)	\$ 0.151170
Firm Transportation Serv - Industrial	\$ 86.93	\$ (39.36)	\$ (14.27)	\$ 33.30	\$ 0.146600	\$ (0.003730)	\$ (0.001390)	\$ 0.141480
Irrigation Transportation	\$ 86.93	\$ (39.36)	\$ (14.27)	\$ 33.30	\$ 0.098200	\$ (0.003730)	\$ (0.001390)	\$ 0.093080
Interruptible Transportation Serv - Industrial <20,000	\$ 351.36	\$ (91.62)	\$ (33.19)	\$ 226.55	\$ 0.089200	\$ (0.002220)	\$ (0.000830)	\$ 0.086150
Interruptible Transportation Serv - Industrial >20,000					\$ 0.078000	\$ (0.002220)	\$ (0.000830)	\$ 0.074950

1 Column (a) has the tariffed facilities charge. Column (b) has the adjustment to the
2 facilities charge for the test year and column (c) has the amortized adjustment to the
3 facilities charge during the test year. Column (d) combines all three to provide facilities
4 charge paid by customers during the test year. Columns (e) through (h) have the same type
5 of adjustments for the commodity charge.

6 Although customers paid the facilities charge in column (d) and the commodity charge
7 in column (h) during the test year, those are not the appropriate rates for the proof of
8 revenue because they include the deferred revenue credit which is a one-time credit that
9 will not have an impact going forward. However, the tax reform credit will be subsumed
10 into basic rates going forward. The appropriate facilities charge and commodity charge for
11 the proof of revenue is the tariffed rate minus the tax reform credit with the deferred
12 revenue credit ignored.

13 There is one strange number to comment on in Table 5—the commodity rate for the
14 Small Generation Service (SGS) Class in column (h), it is highlighted in red. The
15 commodity rate for the SGS Class is negative, and that negative rate was a line item on the
16 customer bill.³ With about 5 seconds of thought, most customers would realize if they
17 used more electricity, then their bill would decline. This problem was corrected in both
18 Atmos' proposed rate design and Staff's proposed rate design.

³ The negative rate on the customer bill was confirmed during a phone call with Atmos on October 30, 2019.

1 *The Test Year Revenue with Existing Rates*

2 **Q. Please provide the proof of revenue for existing rates.**

3 A. Table 5 has the proof of revenue for existing rates in column (g). Columns (a) and (b) have
4 the adjusted number of bills and volumetric usage which are multiplied by the rates in
5 columns (c) and (d). Columns (e) and (f) have the total revenue from the facilities and
6 commodity charges. Table 5 has the complete billing determinants for the calculation of
7 existing revenue and represents the first part of Staff's proof of revenue.

8 *Class Cost of Service*

9 **Q. What is a Class Cost of Service study?**

10 A. A Class Cost of Service (CCOS) study is a detailed analysis of the utility's cost to provide
11 service to each of its different customer classes.

12 **Q. What is the purpose of a Class Cost of Service study?**

13 A. The purpose of a CCOS study is to provide a causal link between a utility's costs of service
14 and its customers' consumption of natural gas. The starting point for rate design is the cost
15 causation principle: the cost causer should be the cost payer.

16 **Q. How does a CCOS study facilitate the implementation of the cost causation principle?**

17 A. By assigning costs to specific customer classes, a CCOS study broadly informs the rate
18 analyst how much it costs the utility to serve each customer class. By using a CCOS study
19 as a starting point and guide for class allocation of the revenue requirement, the rate analyst
20 begins the rate design by employing the cost causation principle.

21

22

Table 5

Customer Classes	Number of Bills	Total Volumes	Test Year		Facilities Charge Revenue	Commodity Charge Revenue	Total Revenue
			Facilities Charge	Commodity Charge			
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Residential Sales Service	1,474,858	105,078,130	18.04	0.14439	\$ 26,606,437	\$ 15,172,231	\$ 41,778,668
Commercial Sales Service	111,123	33,701,971	40.10	0.14758	\$ 4,456,047	4,973,737	9,429,784
Public Authority Sales Service	5,301	1,799,559	40.10	0.14758	\$ 212,567	265,579	478,146
School Sales Service	528	276,330	47.83	0.16107	\$ 25,257	44,508	69,765
Industrial Sales Service	174	429,204	83.13	0.15191	\$ 14,437	65,200	79,637
Small Generator Sales Service	911	2,507	39.71	(0.32604)	\$ 36,173	(817)	35,356
Large Industrial Sales Serv - Interruptible <20,000	0	0	344.31	0.08730	\$ -	-	-
Large Industrial Sales Serv - Interruptible <20,000	0	0	344.31	0.08280	\$ -	-	-
Irrigation Engine Sales Service	3,037	5,862,159	65.00	0.10802	\$ 197,405	633,230	830,635
TOTAL Sales	1,595,932	147,149,860			\$ 31,548,323	\$ 21,153,668	\$ 52,701,991
Firm Transportation Serv Commercial	1,596	15,005,360	47.57	0.14287	\$ 75,922	\$ 2,143,816	\$ 2,219,738
School Transportation Service Post '95	2,760	3,395,707	81.09	0.15330	\$ 223,808	\$ 520,562	\$ 744,370
Firm Transportation Serv - Industrial	408	6,870,763	47.57	0.14287	\$ 19,409	\$ 981,626	\$ 1,001,035
Irrigation Transportation	132	391,944	47.57	0.09447	\$ 6,279	\$ 37,027	\$ 43,306
Interruptible Transportation Serv - Industrial <20,000	396	5,908,165	259.74	0.08698	\$ 102,857	\$ 513,892	\$ 616,749
Interruptible Transportation Serv - Industrial >20,000	0	9,325,277	0.00	0.07578	\$ -	\$ 706,669	\$ 706,669
TOTAL Transportation	5,292	40,897,216			\$ 428,275	\$ 4,903,592	\$ 5,331,867
TOTAL: Sales and Transportation	1,601,224	188,047,076			31,976,598	26,057,260	58,033,858

1 **Q. Do CCOS studies have any limitations?**

2 A. Yes. First, CCOS studies are an art, they are not a science. A substantial number of
3 subjective judgments must go into the production of any CCOS study. Second, because all
4 CCOS studies are based on allocation mechanisms that are approximations of structural
5 relationships, the CCOS studies must themselves be viewed as approximations. Third, the
6 approximations of the structural relationships are not based on statistical theory for the
7 most part, so determining a confidence interval using statistic techniques is not
8 possible. Further, because of the size and complexity, only crude sensitivity analysis is
9 possible. Therefore, it is difficult to get a handle on the accuracy of the approximation
10 using sensitivity analysis. Thus we are left knowing that the cost allocation from a CCOS
11 study is an approximation, but we cannot know precisely the numerical bounds of the
12 approximation. Fourth, a CCOS is a static snapshot of a dynamic process. Over time the
13 structural cost relationships have changed and are expected to change in the future.

14 Thus, a rate analyst should be cautious when using a CCOS study to help determine
15 class revenue allocations. The limitations of CCOS studies are important factors to
16 consider when using a CCOS study to allocate the revenue requirement to the rate classes.⁴

17

⁴ Usually in the testimony accompanying a CCOS, analysts add a few cautions about what their CCOS shows. Richard Macke, who has done the CCOS for the Mid-Kansas Electric Company, states that “the results should be treated as providing an indication of the general range of class cost responsibility; not as precise values.” Richard J. Macke, Direct Testimony, Docket No. 12-MKEE-380-RTS, p. 46. Macke lists further problems with CCOS studies and then concludes with “a [C]COS study may be used as a general guide for assigning cost responsibility[.]”, p. 47. Paul Normand, who has done the CCOS for Kansas City Power and Light in its last two rate cases, stated that “these point estimates as I just said are a snapshot in time and my recommendation to the Company is that they are just information for a direction.” Paul Normand, Cross-Examination, Evidentiary Hearing Transcript, Docket No. 10-KCPE-415-RTS, p. 2889. Paul Raab makes a similar point that CCOS “should be used as a ‘guide’ rather than as an absolute prescription for rate design” in his direct testimony in Docket No. 13-WSEE-629-RTS on pp. 11-12.

1 **Q. Has Staff prepared a CCOS analysis in this docket?**

2 A. Yes. Staff Witness Justin Prentiss has included a fully-allocated CCOS using an embedded
3 cost methodology showing class rates of return (ROR) based on test year adjusted revenues
4 with Staff's proposed \$2,697,655 increase for Atmos' customers. For more details in the
5 development of Staff's CCOS consult Mr. Prentiss' Direct Testimony.

6 ***Class Allocation of the Change in Revenue Requirement***

7 **Q. How did Staff allocate its increase in Revenue Requirement?**

8 A. Table 6 below has Staff's recommended revenue requirement class allocations. The table
9 shows the revenue generated by the present rates in column (a), the percentage of total
10 revenue each class contributes in column (b), the class rate of return in column (c), the
11 class relative rate of return (d), the class revenue allocation in column (e), the percentage
12 increase in revenue requirement that Staff's class allocation creates in column (f), and the
13 expected class revenue, because of the proposed revenue increase, in column (g).

14 **Q. How did Staff develop its class allocation?**

15 A. Staff began with its CCOS study. The CCOS study allocated revenue, expenses, and rate
16 base among customer classes so that the rate of return for each class could be calculated.
17 The system-wide and class rates of return for the current Atmos rates are in column (c) in
18 Table 6 on the previous page, and the class rate of return index numbers for current rates
19 are in column (d) in the same table.

Table 6

Customer Classes	Current Revenue	% of Total Revenue	Class Rate of Return	Relative Rate of Return	Class Revenue Allocation \$ 2,697,655	Class % Increase	Proposed Revenue Allocation
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Residential Sales Service	\$ 41,778,668	72.0%	5.77%	0.93	\$ 1,950,000	4.67%	\$ 43,728,668
Commercial Sales Service	\$ 9,429,784	16.2%	8.46%	1.36	\$ 417,000	4.42%	\$ 9,846,784
Public Authority Sales Service	\$ 478,146	0.8%	8.46%	1.36	\$ 21,145	4.42%	\$ 499,291
School Sales Service	\$ 69,765	0.1%	6.93%	1.12	\$ 3,100	4.44%	\$ 72,865
Industrial Sales Service	\$ 79,637	0.1%	4.43%	0.71	\$ 3,954	4.97%	\$ 83,591
Small Generator Sales Service	\$ 35,356	0.1%	1.39%	0.22	\$ 2,300	6.51%	\$ 37,656
Large Industrial Sales Serv - Interruptible <20,000	\$ -			-	\$ -		\$ -
Large Industrial Sales Serv - Interruptible >20,000	\$ -				\$ -		\$ -
Irrigation Engine Sales Service	\$ 830,635	1.4%	0.58%	0.09	\$ 55,000	6.62%	\$ 885,635
							\$ -
TOTAL Sales	\$ 52,701,991	90.8%			\$ 2,452,499	4.65%	\$ 55,154,490
Firm Transportation Serv Commercial	\$ 2,219,738	3.8%	10.02%	1.62	\$ 97,801	4.41%	\$ 2,317,539
School Transportation Service Post '95	\$ 744,370	1.3%	6.11%	0.99	\$ 34,313	4.61%	\$ 778,683
Firm Transportation Serv - Industrial	\$ 1,001,035	1.7%	10.02%	1.62	\$ 44,170	4.41%	\$ 1,045,205
Irrigation Transportation	\$ 43,306	0.1%	1.09%	0.18	\$ 2,867	6.62%	\$ 46,173
	\$ -						
Interruptible Transportation Serv - Industrial <20,000	\$ 616,749	1.1%	3.90%	0.63	\$ 30,760	4.99%	\$ 647,509
Interruptible Transportation Serv - Industrial >20,000	\$ 706,669	1.2%	3.90%	0.63	\$ 35,245	4.99%	\$ 741,914
	\$ -						\$ -
TOTAL Transportation	\$ 5,331,867	9.2%			\$ 245,156	4.61%	\$ 5,577,023
TOTAL: Sales and Transportation	\$ 58,033,858	100.0%			\$ 2,697,655	4.61%	\$ 60,731,513

1 **Q. How do the class rates of return help allocate the change in the revenue requirement**
2 **to the rate classes?**

3 A. The class rates of return indicate the amount of operating revenue generated by each rate
4 class relative to the amount of rate base allocated to it. These class rates of return can be
5 compared to the system-wide rate of return to get a general idea of whether a particular
6 class is allocated an appropriate amount of operating revenue. A class with a rate of return
7 less than the system-wide rate of return is generating less operating revenue given the
8 amount of rate base allocated to it and is said to be underearning. A class with a rate of
9 return higher than the system-wide rate of return is earning more than its allocated rate base
10 indicates it should and is overearning.

11 By changing the allocation of revenue requirement to a particular class, the rate analyst
12 can either increase or decrease the class rate of return. Thus, the rate analyst, in general,
13 allocates relatively less of the change in revenue requirement to classes that are overearning
14 and gives relatively more to the classes that are underearning. The relative rate of return
15 index helps to determine the size of an increase or decrease.

16 **Q. What is a relative rate of return index?**

17 A. The relative rate of return index normalizes the class rates of return to help analyze the
18 class rates of return. For a particular class, the index is calculated by dividing that class'
19 rate of return by the system-wide rate of return as shown in the following formula:

$$20 \quad \text{Relative Rate of Return Index} = \frac{\text{Class Rate of Return}}{\text{System Average Rate of Return}}$$

21 For example, assume that the system average rate of return is 8% and one class has a
22 rate of return of 7% and another class has a rate of return of 9%. The class with the 7%
23 rate of return would have a relative rate of return of $0.875 \left(\frac{7\%}{8\%} \right)$ and the class with the 9%

1 rate of return would have a relative rate of return of $1.125 \left(\frac{9\%}{8\%} \right)$. A class with the same rate
2 of return as the system average would have a relative rate of return index of 1.0. Thus, a
3 class with an index above 1.0 is overearning while a class with an index below 1.0 is
4 underearning. Like all good indexes, the relative rate of return index compresses the data
5 for easier analysis and a more transparent explanation.

6 **Q. Did Staff only use the relative rate of return index to develop its class allocations?**

7 A. No. Staff also used the principle of gradualism. The natural result of using only the relative
8 rate of return index to allocate revenue is that all class rates of return are forced to the
9 system-wide rate of return. In other words, all class indexes are forced to 1.0. The opposite
10 extreme is to use the system wide percentage increase for all classes so that every class's
11 base rates increase the same percentage and the relative rates of return remain unchanged.
12 Somewhere in between these two extremes lies an approach that moves classes closer to
13 the system-wide rate of return but does not cause near the disruption of a sudden change in
14 rates. The principle of gradualism moderates changes in class revenue allocation without
15 preventing movement toward the system-wide rate of return.

16 For this rate case, Staff chose a revenue allocation similar to the constant percentage
17 increase in rates rather than the equalized rates of return approach.⁵

18 **Q. Why is Staff proposing a revenue allocation similar to a constant percentage revenue**
19 **increase for each class?**

20 A. Staff has two reasons for its moderate revenue allocation. First, the Residential Class is
21 about 72% of total base rate revenue collected. As a result, any dramatic change in the

⁵ Lowell E. Alt, Jr. *Energy Utility Rate Setting*, pp. 72-74. Alt lists three principles of rate design—"cost causation, equalized rates of return and gradualism." p. 72.

1 revenue allocation away from a constant percentage revenue increase for each class would
2 necessarily require a significant increase in the revenue allocation for the Residential Class
3 because it comprises 72% of the total base rate revenue. But the Residential Class' relative
4 rate of return index is already at 0.93 which suggest either no change or a small change in
5 class revenue allocation away from using the system-wide percentage revenue increase.
6 The second reason for the moderate revenue allocation is because the relative rates of return
7 indexes are bunched together. I will discuss each of these reasons in more detail.

8 Column (b) in Table 6 shows the percentage of total revenue collected from each class.
9 The Residential and Commercial Sales Classes are dominant—these two classes generate
10 over 88% of base revenue for Atmos, and the Residential Class dominates the Commercial
11 Class 72.0% to 16.2%. Then moving over to Column (d) in the same table, the class
12 relative rates of return indexes for these two classes are 0.93 for Residential and 1.36 for
13 Commercial. The Residential Class is already near 1.00, and given the limitations of a
14 CCOS, gradualism would suggest no change or only a slight change to using the system-
15 wide percentage increase in proposed revenue for the Residential Class. The Commercial
16 Class is already overearning, but not an extreme amount. And given the negligible size of
17 the remaining classes, any significant reduction in the Commercial Class' overearning
18 would require a similarly sized but opposite directional move in the earnings of the
19 Residential Class.

20 Which leads to the second reason for moderation: there are no big outliers—there are
21 no classes with indexes above 2 or less than 0. The relative bunching of the relative rates
22 of return indexes suggests that only moderate changes in the relative class revenue
23 allocation should be made. The only other classes significantly overearning are the Firm

1 Transportation Commercial and Industrial Classes with relative rates of return indexes at
2 1.62. Again, a significant reduction in overearning for these two classes would require
3 allocation of additional revenue to the Residential Class which as noted above is
4 unwarranted.

5 **Staff's Rate Design**

6 **Q. What is the next step in the rate design process?**

7 **A.** The final step is to use the class revenue allocations to develop rates that will allow Atmos
8 the opportunity to collect its approved revenue requirement. Specifically, how much of the
9 revenue allocated to each customer class is collected through the facilities charges and how
10 much is collected by the commodity charges must be determined.

11 **Q. How did Staff determine how much revenue would be collected in the facilities**
12 **charges and how much would be collected in the commodity charges?**

13 **A.** In the last rate case, Staff moderated the Atmos trend of collecting increasing percentages
14 of revenue from the facilities charge. Atmos had five rate cases in eight years. The rate
15 design in those cases has consistently increased the facilities or fixed charge far more than
16 the commodity charge. The reason for the emphasis on increasing the facilities charge was
17 because most of the costs that Atmos incurs in providing service to customers is fixed in
18 nature. A rate design tenet is that fixed costs should be recovered from fixed charges.
19 During the period 2008 to 2015, the facilities charge for Residential Customers increased
20 127%, while the commodity charge declined 11%. Or put another way, in 2008, 34.2% of
21 the base rate revenue and 40.2% of the Residential base rate revenue came from the
22 facilities charge. By 2015, 55.6% of the base rate revenue and 62.8% of the Residential
23 base rate revenue came from the facilities charge. The increasing reliance on the facilities

1 charge was stopped for the most part in the last rate case. As can be seen from the test year
2 data in this current rate case, 55.1% of overall base rate revenues were derived from
3 facilities charges with 63.7% of the Residential base rate revenue derived from the facilities
4 charge.

5 Staff believes that the proportion of base rate revenue allocated between the facilities
6 and commodity charges is appropriate and should remain about the same. In order to
7 ensure the proportions remained the same, Staff allocated each classes' revenue increase
8 to the facilities and commodity charges based on the existing rates proportion for that class.
9 For example, using the existing rates, the current Residential facilities charge collects
10 63.7% of the base rate revenue and the commodity charge collects 36.3% of the base rate
11 revenue. This same proportion was maintained for the Residential Class in Staff proposed
12 rate design.⁶

13 Table 7 on the next page has Staff's Proof of Revenue based upon Staff's proposed rate
14 design. Staff rate design collects \$197 dollars more than Staff's proposed increase in
15 Revenue Requirement because of rounding. The first part of Staff's Proof of Revenue is
16 in Table 5 above which has revenue collection based on the current rates minus the deferred
17 revenue credit for both the facilities and commodity charge.

18 Table 8 on the page after Table 7 shows how close the proportion of facilities and
19 commodity revenue is using the test year rates and Staff's proposed rate design.

⁶ Because of rounding to two digits for the facilities charge and 5 digits for the commodity charge, they changed slightly. See Table 9 for the slight differences.

Table 7

Customer Classes	Number of Bills	Total Volumes	Proposed Rates		Facilities Charge Revenue	Commodity Charge Revenue	Total Revenue	Proposed Revenue Allocation
			Facilities Charge	Commodity Charge				
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(g)
Residential Sales Service	1,474,858	105,078,130	\$ 18.89	\$ 0.15102	\$ 27,860,066	\$ 15,868,899	\$ 43,728,965	\$ 43,728,668
Commercial Sales Service	111,123	33,701,971	\$ 41.86	\$ 0.15415	\$ 4,651,624	5,195,159	9,846,783	\$ 9,846,784
Public Authority Sales Service	5,301	1,799,559	\$ 41.86	\$ 0.15415	\$ 221,897	277,402	499,299	\$ 499,291
School Sales Service	528	276,330	\$ 49.95	\$ 0.16822	\$ 26,376	46,484	72,860	\$ 72,865
Industrial Sales Service	174	429,204	\$ 87.25	\$ 0.15944	\$ 15,152	68,432	83,584	\$ 83,591
Small Generator Sales Service	911	2,507	\$ 41.34	\$ -	\$ 37,658	-	37,658	\$ 37,656
Large Industrial Sales Serv - Interruptible <20,000	0	0						\$ -
Large Industrial Sales Serv - Interruptible >20,000	0	0						\$ -
Irrigation Engine Sales Service	3,037	5,862,159	\$ 69.30	\$ 0.11517	\$ 210,464	675,145	885,609	\$ 885,635
								\$ -
TOTAL Sales	1,595,932	147,149,860			\$ 33,023,237	\$ 22,131,521	\$ 55,154,758	\$ 55,154,490
								\$ -
Firm Transportation Serv Commercial	1,596	15,005,360	\$ 49.70	\$ 0.14916	\$ 79,321	\$ 2,238,199	\$ 2,317,520	\$ 2,317,539
School Transportation Service Post '95	2,760	3,395,707	\$ 84.83	\$ 0.16037	\$ 234,131	\$ 544,570	\$ 778,701	\$ 778,683
Firm Transportation Serv - Industrial	408	6,870,763	\$ 49.70	\$ 0.14916	\$ 20,278	\$ 1,024,843	\$ 1,045,121	\$ 1,045,205
Irrigation Transportation	132	391,944	\$ 50.72	\$ 0.10072	\$ 6,695	\$ 39,477	\$ 46,172	\$ 46,173
								\$ -
Interruptible Transportation Serv - Industrial <20,000	396	5,908,165	\$ 272.69	\$ 0.09132	\$ 107,985	\$ 539,534	\$ 647,519	\$ 647,509
Interruptible Transportation Serv - Industrial >20,000	0	9,325,277	\$ -	\$ 0.07956	\$ -	\$ 741,919	\$ 741,919	\$ 741,914
								\$ -
TOTAL Transportation	5,292	40,897,216			\$ 448,410	\$ 5,128,542	\$ 5,576,952	\$ 5,577,023
								\$ -
TOTAL: Sales and Transportation	1,601,224	188,047,076			33,471,647	27,260,063	60,731,710	\$ 60,731,513

1

Table 8

Customer Classes	Proportion of Facilities & Commodity Revenue			
	Test Year Rates		Proposed Rates	
	Facilities	Commodity	Facilities	Commodity
Residential Sales Service	63.68%	36.32%	63.71%	36.29%
Commercial Sales Service	47.26%	52.74%	47.24%	52.76%
Public Authority Sales Service	44.46%	55.54%	44.44%	55.56%
School Sales Service	36.20%	63.80%	36.20%	63.80%
Industrial Sales Service	18.13%	81.87%	18.13%	81.87%
Small Generator Sales Service	102.31%	-2.31%	100.00%	0.00%
Irrigation Engine Sales Service	23.77%	76.23%	23.76%	76.24%
TOTAL Sales	59.86%	40.14%	59.87%	40.13%
Firm Transportation Serv Commercial	3.42%	96.58%	3.42%	96.58%
School Transportation Service Post '95	30.07%	69.93%	30.07%	69.93%
Firm Transportation Serv - Industrial	1.94%	98.06%	1.94%	98.06%
Irrigation Transportation	14.50%	85.50%	14.50%	85.50%
Interruptible Transportation Serv - Industrial <20,000	16.68%	83.32%	16.68%	83.32%
Interruptible Transportation Serv - Industrial >20,000	0.00%	100.00%	0.00%	100.00%
TOTAL Transportation	8.04%	91.96%	8.04%	91.96%
TOTAL: Sales and Transportation	55.10%	44.90%	55.11%	44.89%

2

3 **Q. Have you prepared a table comparing Staff's proposed rates with the existing**
 4 **rates?**

5 A. Yes. Table 9 below has the test year rates, Staff's proposed rates, and the percentage
 6 increase that the proposed rates would create.

Table 9

Customer Classes	Comparison of Current (Test Year) Rates & Staff Proposed Rates					
	Test Year Rates		Proposed Rates		Percentage Increase	
	Facilities	Commodity	Facilities	Commodity	Facilities	Commodity
Residential Sales Service	\$ 18.04	0.14439	\$ 18.89	\$ 0.15102	4.71%	4.59%
Commercial Sales Service	\$ 40.10	0.14758	\$ 41.86	\$ 0.15415	4.39%	4.45%
Public Authority Sales Service	\$ 40.10	0.14758	\$ 41.86	\$ 0.15415	4.39%	4.45%
School Sales Service	\$ 47.83	0.16107	\$ 49.95	\$ 0.16822	4.43%	4.44%
Industrial Sales Service	\$ 83.13	0.15191	\$ 87.25	\$ 0.15944	4.96%	4.96%
Small Generator Sales Service	\$ 39.71	(0.32604)	\$ 41.34	\$ -	4.10%	
Irrigation Engine Sales Service	\$ 65.00	0.10802	\$ 69.30	\$ 0.11517	6.62%	6.62%
Firm Transportation Serv Commercial	\$ 49.70	0.14916	\$ 49.70	\$ 0.14920	0.00%	0.03%
School Transportation Service Post '95	\$ 84.83	0.16037	\$ 84.83	\$ 0.16037	0.00%	0.00%
Firm Transportation Serv - Industrial	\$ 49.70	0.14916	\$ 49.70	\$ 0.14920	0.00%	0.03%
Irrigation Transportation	\$ 50.72	0.10072	\$ 50.72	\$ 0.10072	0.00%	0.00%
Interruptible Transportation Serv - Industrial <20,000	\$ 272.69	0.09132	\$ 272.69	\$ 0.09132	0.00%	0.00%
Interruptible Transportation Serv - Industrial >20,000	\$ -	0.07956	\$ -	\$ 0.07956		0.00%

Q. What would be the impact on Residential consumer bills of Staff's proposed rate increase?

A. The bill impact of the proposed rates is illustrated in Table 10 below. In addition to the proposed facilities and commodity charge, Table 10 shows the different riders: Gas System Reliability Surcharge (GSRS), Purchased Gas Adjustment (PGA), Gas Hedge Program Charge, and Ad Valorem Tax Surcharge. Column (a) shows the amount of the rates while columns (b) through (g) have the cost to Residential customers of each of the charges for six different consumption levels running from 100 Ccf per month to 400 Ccf per month.

Table 10

Impact of Proposed Rate Increase on Residential Customers							
CURRENT RATES	Rate	Monthly Commodity Consumption (Ccf)					
	(a)	100	150	200	250	300	400
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Facilities Charge	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04	\$ 18.04
GSRS ¹	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80	\$ 0.80
Total Fixed Charge		\$ 18.84	\$ 18.84	\$ 18.84	\$ 18.84	\$ 18.84	\$ 18.84
Commodity Charge	\$ 0.14439	\$ 14.44	\$ 21.66	\$ 28.88	\$ 36.10	\$ 43.32	\$ 57.76
Purchased Gas Adjustment	\$ 0.48013	\$ 48.01	\$ 72.02	\$ 96.03	\$ 120.03	\$ 144.04	\$ 192.05
Gas Hedge Program Charge	\$ 0.06207	\$ 6.21	\$ 9.31	\$ 12.41	\$ 15.52	\$ 18.62	\$ 24.83
Ad Valorem	\$ 0.00710	\$ 0.71	\$ 1.07	\$ 1.42	\$ 1.78	\$ 2.13	\$ 2.84
Total Variable Charge		\$ 69.37	\$ 104.05	\$ 138.74	\$ 173.42	\$ 208.11	\$ 277.48
TOTAL BILL		\$ 88.21	\$ 122.89	\$ 157.58	\$ 192.26	\$ 226.95	\$ 296.32
PROPOSED RATES							
Facilities Charge	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89
GSRS Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Fixed Charge		\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89	\$ 18.89
Commodity Charge	\$ 0.15102	\$ 15.10	\$ 22.65	\$ 30.20	\$ 37.76	\$ 45.31	\$ 60.41
Purchased Gas Adjustment	\$ 0.48013	\$ 48.01	\$ 72.02	\$ 96.03	\$ 120.03	\$ 144.04	\$ 192.05
Gas Hedge Program Charge	\$ 0.06207	\$ 6.21	\$ 9.31	\$ 12.41	\$ 15.52	\$ 18.62	\$ 24.83
Ad Valorem ²		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Variable Charge		\$ 69.32	\$ 103.98	\$ 138.64	\$ 173.31	\$ 207.97	\$ 277.29
TOTAL BILL		\$ 88.21	\$ 122.87	\$ 157.53	\$ 192.20	\$ 226.86	\$ 296.18
Notes: ¹ Gas System Reliability Surcharge; ² The GSRS and the Ad Valorem were incorporated in base rates and the charges are reset to zero.							

Table 10 shows that the facilities charge and the commodity charge are relatively small compared to the PGA because the cost of natural gas is the dominant cost for Atmos customers. In addition, because the Gas System Reliability Surcharge and the Ad Valorem Tax Surcharge return to zero, the effect of the rate increase is a small bill reduction.

1. CONCLUSION

Q. Should the Commission accept your rate design?

A. Yes. I recommend the Commission accept Staff's billing determinants adjustments, CCOS study, and rate design.

Q. Does this conclude testimony?

A. Yes. Thank you.

CERTIFICATE OF SERVICE

19-ATMG-525-RTS

I, the undersigned, certify that a true and correct copy of the above and foregoing Staff's Second Errata to Direct Testimony of Robert H. Glass, Ph.D. was served via electronic service this 6th day of December, 2019, to the following:

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