

BOOK IX

UGI PNG Exhibits D, D-1 and D-2

Witness: P.R. Herbert

UGI PENN NATURAL GAS, INC.

DOCKET NO. R-2016-2580030

COST OF SERVICE ALLOCATION STUDY AS OF SEPTEMBER 30, 2018



*Excellence Delivered **As Promised***

UGI PNG Exhibit D
Witness: P.R. Herbert

UGI PENN NATURAL GAS, INC.

Docket No. R-2016-2580030

COST OF SERVICE ALLOCATION STUDY

AS OF SEPTEMBER 30, 2018

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC
Harrisburg, Pennsylvania



Gannett Fleming

*Excellence Delivered **As Promised***

January 13, 2017

UGI Penn Natural Gas, Inc.
2525 N. 12th Street
P.O. Box 12677
Reading, PA 19612-2677

Attention: Mr. Paul J. Szykman
Vice President - Rates and Government Relations

Ladies and Gentlemen:

Pursuant to your request, we have prepared a cost of service allocation study based on pro forma revenue requirements for the twelve months ended September 30, 2018.

The attached report presents the results of the study, as well as supporting schedules which set forth the detailed allocation calculations. Schedule A, on page 5, presents a comparison of the cost of service by service classification with the revenues produced by each classification under present and proposed rates.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

PAUL R. HERBERT
President

PRH:mlw

062012.200

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CONTENTS

PART I. INTRODUCTION

Plan of Report	2
Basis of the Study	2
Allocation Procedures	2
Results of Study	4
Schedule A. Comparison of Cost of Service with Revenues Under Present and Proposed Rates by Service Classification for the Twelve Months Ended September 30, 2018 - Without Gas Costs	5

PART II. COST OF SERVICE BY SERVICE CLASSIFICATION

Schedule B. Development of Rate of Return by Service Classification Under Present Rates.....	7
Schedule C. Development of Rate of Return by Service Classification Under Proposed Rates.....	8
Schedule D. Summary of Cost of Service by Service Classification	9
Schedule E. Cost of Service as of September 30, 2018, at Proposed Revenue Level Allocated to Rate R, Rate N, Rate DS, Rate LFD, and Rate XD, and Interruptible Service Classifications	10
Schedule F. Factors for Allocating Cost of Service to Service Classifications	14
Schedule G. Calculation of Customer Costs per Bill by Service Classification	32
Schedule H. Calculation of Costs Related to LFD and XD Demand Charges.....	34

PART I. INTRODUCTION

UGI PENN NATURAL GAS, INC.
COST OF SERVICE ALLOCATION STUDY
AS OF SEPTEMBER 30, 2018

PART I. INTRODUCTION

PLAN OF REPORT

The report sets forth the results of the cost of service allocation study prepared for UGI Penn Natural Gas, Inc., based on the twelve months ended September 30, 2018 (FPFTY). Part I, Introduction, includes statements with respect to the basis of the study, the procedures employed, and a summary of the results of the study. Part II, Cost of Service by Service Classification, presents the detailed schedules of the allocation of costs to service classifications, the bases for the allocations, and the development of certain customer and demand costs.

BASIS OF THE STUDY

The purpose of the study was to allocate costs to the several customer classifications based on considerations of quantity of gas consumed; sales and transportation; demand characteristics; and costs associated with metering, billing, and accounting. The allocation study was based on recognized procedures for allocating costs to customer classifications in proportion to each classification's use of the facilities, commodity, and services which entail the total cost of providing gas service.

ALLOCATION PROCEDURES

The allocation study was based on the Average and Extra Demand Method for allocating costs to service classifications. The method is identified as the "Average and

Excess Demand Method" in "Gas Rate Fundamentals," (published in 1987 by the American Gas Association's Rate Committee) in which it is described. The three basic categories of cost responsibility are commodity, capacity, and customer costs. In the Average and Extra Demand Method, the capacity costs are allocated to service classifications on a combined basis of average use and use above average at peak demands. The following presents a brief discussion of costs and the manner in which they were allocated.

Commodity Costs are the costs that tend to vary with the quantity of gas used. Commodity costs in this study include production plant expenses and associated costs. Commodity costs were allocated to service classifications on the basis of average daily sales volumes.

Capacity Costs are costs associated with meeting the peak demands of the system. Capacity costs attributable to sales and transportation service include Distribution expenses and capital costs not associated with the customer costs category. The capacity costs were allocated to service classifications on a combined basis of average use and extra demand (demand in excess of average use). For presentation purposes, the commodity and capacity costs are combined into the volumetric function for each classification.

Customer Costs are costs associated with serving customers regardless of their usage or demand characteristics. Customer costs include the expenses and capital costs related to meters, regulators, and services and expenses related to meter reading and billing. The customer costs were allocated to service classifications on the bases of the number of meters, services and customers.

The allocation of costs to service classifications and the bases for the allocations are presented in Part II, Cost of Service by Service Classification.

RESULTS OF STUDY

The data summarized in Schedule A, "Comparison of Cost of Service with Revenues Under Present and Proposed Rates by Service Classification for the Twelve Months Ended September 30, 2018," constitute the principal results of the allocation study. Schedules B through F in Part II of the report present the details of the allocation of costs of service, including the return based on the allocated measure of value, by service classification as well as the bases for the allocation factors. Schedule G presents the development of customer costs per bill by service classification. Schedule H presents a cost analysis of the LFD and XD Service demand charges.

UGI PENN NATURAL GAS, INC.

COMPARISON OF COST OF SERVICE WITH REVENUES UNDER PRESENT AND PROPOSED RATES
BY SERVICE CLASSIFICATION FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2018
WITHOUT GAS COSTS

Service Classification (1)	Pro Forma Cost of Service		Pro Forma Margin Revenues,				Revenue Increase	
	Amount (2)	Percent (3)	Under Present Rates		Under Proposed Rates		Amount (8)	Percent Increase (9)
			Amount (4)	Percent (5)	Amount (6)	Percent (7)		
Rate R	\$ 105,075,479	63.9%	\$ 88,666,470	62.1%	\$ 103,680,687	62.9%	\$ 15,014,217	16.9%
Rate N	26,875,477	16.3%	21,457,704	15.0%	26,222,989	16.0%	4,765,285	22.2%
Rate DS	9,602,254	5.8%	7,840,832	5.5%	9,464,319	5.8%	1,623,487	20.7%
Rate LFD	7,486,668	4.6%	7,132,566	5.0%	7,553,330	4.6%	420,764	5.9%
Rate XD Firm	14,101,633	8.6%	16,684,990	11.7%	16,550,361	10.1%	(134,629)	-0.8%
Interruptible	<u>1,247,439</u>	<u>0.8%</u>	<u>945,000</u>	<u>0.7%</u>	<u>916,738</u>	<u>0.6%</u>	<u>(28,262)</u>	-3.0%
Total	<u>\$ 164,388,950</u>	<u>100.0%</u>	<u>\$ 142,727,562</u>	<u>100.0%</u>	<u>\$ 164,388,423</u>	<u>100.0%</u>	<u>\$ 21,660,861</u>	15.2%
Other Operating Revenues	<u>2,278,000</u>		<u>2,278,000</u>		<u>2,278,000</u>		<u>0</u>	
Total	<u>\$166,666,950</u>		<u>\$145,005,562</u>		<u>\$166,666,423</u>		<u>\$21,660,861</u>	14.9%

PART II. COST OF SERVICE
BY SERVICE CLASSIFICATION

UGI PENN NATURAL GAS, INC.

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PRESENT RATES

Item (1)	Cost of Service (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD-Firm (7)	Interruptible (8)
1. Revenues From Tariff Sales and Transportation	\$ 142,727,562	\$ 88,666,470	\$ 21,457,704	\$ 7,840,832	\$ 7,132,566	\$ 16,684,990	\$ 945,000
2. Other Revenues	2,277,950	1,563,594	495,857	150,966	21,944	41,872	3,717
3. Total Operating Revenues	145,005,512	90,230,064	21,953,561	7,991,798	7,154,510	16,726,862	948,717
4. Less: Operating Expenses	98,104,734	65,049,976	15,011,284	5,287,545	3,999,495	8,051,558	704,876
5. Return and Income Taxes	46,900,778	25,180,088	6,942,277	2,704,253	3,155,015	8,675,304	243,841
6. Less: Interest Expense	11,953,000	7,223,198	2,164,688	782,922	616,775	1,069,794	95,624
7. Taxable Income	34,947,778	17,956,890	4,777,589	1,921,331	2,538,240	7,605,510	148,217
8. Less: Income Taxes	12,709,193	6,531,254	1,737,347	699,006	922,687	2,765,520	53,379
9. Net Return (Ln 5 - Ln 8)	34,191,584	18,648,834	5,204,930	2,005,247	2,232,328	5,909,784	190,462
10. Original Cost Measure of Value (Factor 15.)	555,982,303	335,931,415	100,701,491	36,439,569	28,680,882	49,758,845	4,470,101
11. Rate of Return, Percent	6.15%	5.55%	5.17%	5.50%	7.78%	11.88%	4.26%
12. Relative Rate of Return	1.00	0.90	0.84	0.89	1.27	1.93	0.69

UGI PENN NATURAL GAS, INC.

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PROPOSED RATES

Item (1)	Cost of Service (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD-Firm (7)	Interruptible (8)
1. Revenues From Tariff Sales and Transportation	164,388,423	\$ 103,680,687	\$ 26,222,989	\$ 9,464,319	\$ 7,553,330	\$ 16,550,361	\$ 916,738
2. Other Revenues	2,278,000	1,561,548	496,931	151,405	22,285	42,114	3,717
3. Total Operating Revenues	166,666,423	105,242,235	26,719,920	9,615,724	7,575,615	16,592,475	920,455
4. Less: Operating Expenses	98,381,949	65,358,744	15,005,995	5,280,991	3,992,276	8,039,067	704,876
5. Return and Income Taxes	68,284,474	39,883,491	11,713,925	4,334,733	3,583,339	8,553,408	215,579
6. Less: Interest Expense	11,953,000	7,223,198	2,164,688	782,922	616,775	1,069,794	95,624
7. Taxable Income	56,331,474	32,660,293	9,549,237	3,551,811	2,966,564	7,483,614	119,955
8. Less: Income Taxes	21,584,000	12,514,403	3,658,488	1,361,950	1,137,477	2,866,355	45,326
9. Net Return (Ln 5 - Ln 8)	46,700,474	27,369,088	8,055,437	2,972,783	2,445,862	5,687,053	170,253
10. Original Cost Measure of Value (Factor 15.)	555,974,811	335,990,016	100,683,018	36,426,584	28,667,894	49,737,198	4,470,101
11. Rate of Return, Percent	8.40%	8.15%	8.00%	8.16%	8.53%	11.43%	3.81%
12. Relative Rate of Return	1.00	0.97	0.95	0.97	1.02	1.36	0.45

UGI PENN NATURAL GAS, INC.

SUMMARY OF COST OF SERVICE BY SERVICE CLASSIFICATION

Cost Function (1)	Cost of Service (Schedule E) (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD Firm (7)	Interruptible (8)
<u>Volumetric Costs</u>							
Rate R	\$ 43,761,493	\$ 43,761,493					
Rate N	17,375,881		\$17,375,881				
Rate DS	7,376,825			\$ 7,376,825			
Rate LFD	5,473,397				\$ 5,473,397		
Rate XD Firm	13,623,673					\$ 13,623,673	
Rate IS/IL	688,657						\$ 688,657
Total Volumetric Costs	88,299,926	43,761,493	17,375,881	7,376,825	5,473,397	13,623,673	688,657
<u>Customer Costs</u>							
Rate R	\$ 61,313,986	\$ 61,313,986					
Rate N	9,499,596		\$ 9,499,596				
Rate DS	2,225,429			\$ 2,225,429			
Rate LFD	2,013,271				\$ 2,013,271		
Rate XD Firm	477,960					\$ 477,960	
Rate IS/IL	558,782						\$ 558,782
Total Customer Costs	76,089,024	61,313,986	9,499,596	2,225,429	2,013,271	477,960	558,782
Total Excluding Gas Costs	\$164,388,950	\$ 105,075,479	\$26,875,477	\$ 9,602,254	\$ 7,486,668	\$ 14,101,633	\$ 1,247,439

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
OPERATION AND MAINTENANCE EXPENSES														
NATURAL GAS PRODUCTION EXPENSES														
<u>Manufactured Gas Production Expenses</u>														
710		0	-	-	-	-	-	-	-	-	-	-	-	-
717	1	0	-	-	-	-	-	-	-	-	-	-	-	-
725-736	1	0	-	-	-	-	-	-	-	-	-	-	-	-
740-742	1	1,442,000	1,153,023	288,977	-	-	-	-	-	-	-	-	-	-
		1,442,000	1,153,023	288,977	-	-	-	-	-	-	-	-	-	-
<u>Production and Gathering</u>														
750 - 760	1	-	-	-	-	-	-	-	-	-	-	-	-	-
761 - 769	1	-	-	-	-	-	-	-	-	-	-	-	-	-
770 - 783	1	-	-	-	-	-	-	-	-	-	-	-	-	-
784 - 791	1	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-
<u>Other Gas Supply Expenses</u>														
800 - 803	1	-	-	-	-	-	-	-	-	-	-	-	-	-
804	1	-	-	-	-	-	-	-	-	-	-	-	-	-
805.1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
808.1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
808.2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
812	1	-	-	-	-	-	-	-	-	-	-	-	-	-
813	1	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Natural Gas Production Expenses		1,442,000	1,153,023	288,977	-	-	-	-	-	-	-	-	-	-
OTHER STORAGE EXPENSE														
840	1A	34,000	24,137	9,863	-	-	-	-	-	-	-	-	-	-
841	4	-	-	-	-	-	-	-	-	-	-	-	-	-
842 - 842.3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Natural Gas Storage Expense		34,000	24,137	9,863	-	-	-	-	-	-	-	-	-	-
TRANSMISSION EXPENSE														
850 - 860	4	-	-	-	-	-	-	-	-	-	-	-	-	-
861 - 867	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Transmission Expense		-	-	-	-	-	-	-	-	-	-	-	-	-
DISTRIBUTION EXPENSES														
<u>Operation</u>														
870	10	2,077,000	419,139	174,260	76,434	56,702	255,471	7,062	758,105	209,154	67,918	37,801	5,193	9,762
871	4a	657,000	154,395	64,189	28,120	20,893	386,776	2,628	-	-	-	-	-	-
872		-	-	-	-	-	-	-	-	-	-	-	-	-
873	2	-	-	-	-	-	-	-	-	-	-	-	-	-
874		-	-	-	-	-	-	-	-	-	-	-	-	-
	5	991,577	566,290	235,599	103,322	76,748	-	9,618	-	-	-	-	-	-
	17	2,467,308	1,154,947	480,632	210,708	156,427	444,856	19,738	-	-	-	-	-	-
	6C	3,372,115	-	-	-	-	-	-	2,915,868	416,119	23,942	11,128	2,360	2,698
875	4a	680,000	159,800	66,436	29,104	21,624	400,316	2,720	-	-	-	-	-	-
876	6B	82,000	-	-	-	-	-	-	-	-	-	49,233	17,761	15,006
877	4a	20,000	4,700	1,954	856	636	11,774	80	-	-	-	-	-	-
878	6	1,272,000	-	-	-	-	-	-	535,003	416,071	211,915	85,097	3,562	20,352
879	6	570,000	-	-	-	-	-	-	239,742	186,447	94,962	38,133	1,596	9,120
880	10	1,041,000	210,074	87,340	38,309	28,419	128,043	3,539	379,965	104,829	34,041	18,946	2,603	4,893
881	10	99,000	19,978	8,306	3,643	2,703	12,177	337	36,135	9,969	3,237	1,802	248	465
Total Operation		13,329,000	2,689,323	1,118,716	490,496	364,152	1,639,413	45,722	4,864,818	1,342,589	436,015	242,140	33,323	62,296

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs						
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)	
Maintenance															
885	Supervision - Engineering and Labor	11	512,000	199,117	82,842	36,301	26,982	67,891	3,379	56,934	15,309	4,864	11,469	3,533	3,379
886	Structures & Improvements	18	4,000	1,969	819	359	267	552	34	-	-	-	-	-	-
887	Mains - Small	5	2,961,355	1,691,230	703,618	308,573	229,209	-	28,725	-	-	-	-	-	-
	Mains - Large	17	7,368,645	3,449,263	1,435,412	629,282	467,172	1,328,567	58,949	-	-	-	-	-	-
888	Maintenance of Compressor Station Equipment	4	-	-	-	-	-	-	-	-	-	-	-	-	-
889	M & R Equip - General	4a	405,000	95,175	39,569	17,334	12,879	238,424	1,620	-	-	-	-	-	-
890	M & R Equip - Industrial	6B	423,000	-	-	-	-	-	-	-	-	-	253,969	91,622	77,409
891	M & R Equip - City Gate	4a	431,000	101,285	42,109	18,447	13,706	253,730	1,724	-	-	-	-	-	-
892	Services	6C	1,414,000	-	-	-	-	-	-	1,222,686	174,488	10,039	4,666	990	1,131
893	Meters & House Regulators	6	723,000	-	-	-	-	-	-	304,094	236,493	120,452	48,369	2,024	11,568
894	Other Expenses	11	149,000	57,946	24,108	10,564	7,852	19,757	983	16,569	4,455	1,416	3,338	1,028	983
895	Construction and Maintenance	11	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total Maintenance		14,391,000	5,595,985	2,328,477	1,020,860	758,067	1,908,921	95,414	1,600,283	430,745	136,771	321,811	99,197	94,470
	Total Distribution Expenses		27,720,000	8,285,308	3,447,193	1,511,356	1,122,219	3,548,334	141,136	6,465,101	1,773,334	572,786	563,951	132,520	156,766
CUSTOMER ACCOUNTING EXPENSES															
<u>Operation</u>															
901	Supervision	7	132,000	-	-	-	-	-	-	118,826	12,685	343	106	13	26
902	Meter Reading Expenses	7	444,000	-	-	-	-	-	-	399,689	42,668	1,154	355	44	89
903	Customer Records & Coll Expenses	7	4,435,000	-	-	-	-	-	-	3,992,387	426,204	11,531	3,548	444	887
903.1	Universal Service Program	DA	3,732,000	-	-	-	-	-	-	3,732,000	-	-	-	-	-
904	Uncollectible Accounts	19	2,904,000	907,787	31,078	-	-	-	-	1,880,053	81,016	4,066	-	-	-
905	Miscellaneous Cust Accts Expenses	7	671,000	-	-	-	-	-	-	604,034	64,483	1,745	537	67	134
	Total Customer Accounting Expenses		12,318,000	907,787	31,078	-	-	-	-	10,726,989	627,056	18,839	4,546	568	1,136
CUSTOMER SERVICE AND INFORMATION EXPENSES															
<u>Operation</u>															
907	Supervision	7	-	-	-	-	-	-	-	-	-	-	-	-	-
908	Customer Assistance Expenses	9	431,000	-	-	-	-	-	-	431,000	-	-	-	-	-
909	Informational and Instructional Advertising	7	294,000	-	-	-	-	-	-	264,659	28,253	764	235	29	59
910	Miscellaneous Customer Service & Informational Expenses	7	44,000	-	-	-	-	-	-	39,609	4,228	114	35	4	9
	Total Customer Service & Info Expenses		769,000	-	-	-	-	-	-	735,268	32,481	878	270	33	68
SALES EXPENSES															
<u>Operation</u>															
911	Supervision	8	-	-	-	-	-	-	-	-	-	-	-	-	-
912	Demonstrating and Selling Expenses	8	251,000	-	-	-	-	-	-	226,804	24,196	-	-	-	-
912.1	Energy Efficiency and Conservation Programs	DA	1,730,000	-	-	-	-	-	-	1,337,128	223,175	169,697	-	-	-
913	Advertising Expenses	8	232,000	-	-	-	-	-	-	209,635	22,365	-	-	-	-
916	Miscellaneous	8	61,000	-	-	-	-	-	-	55,120	5,880	-	-	-	-
	Total Sales Expenses		2,274,000	-	-	-	-	-	-	1,828,687	275,616	169,697	-	-	-
ADMINISTRATIVE AND GENERAL EXPENSES															
<u>Operation</u>															
920	Administrative & General Salaries	12	7,246,000	1,549,195	586,201	254,335	188,396	596,346	23,912	3,319,393	455,049	128,254	95,647	22,463	26,810
921	Office Supplies and Expenses	12	5,145,000	1,100,001	416,231	180,590	133,770	423,434	16,979	2,356,925	323,106	91,067	67,914	15,950	19,037
923	Outside Services Employed - Other	12	5,384,000	1,151,099	435,566	188,978	139,984	443,103	17,767	2,466,410	338,115	95,297	71,069	16,690	19,921
924	Property Damage Insurance	12	35,000	7,483	2,832	1,229	910	2,881	116	16,034	2,198	620	462	109	130
925	Injuries and Damages	12	3,410,000	729,058	275,869	119,691	88,660	280,643	11,253	1,562,121	214,148	60,357	45,012	10,571	12,617
926	Employee Pensions and Benefits	13	4,700,000	905,220	366,130	159,330	117,970	382,110	15,040	2,078,340	390,570	111,860	113,740	27,730	31,960
928	Regulatory Commission Expenses	16	274,000	72,172	28,660	12,166	9,015	22,468	1,123	103,134	16,358	3,863	3,315	795	932
930	Miscellaneous General Expenses	12	137,000	29,291	11,083	4,809	3,562	11,275	452	62,760	8,604	2,425	1,808	425	507
930	Miscellaneous Company Charges	12	596,000	127,425	48,216	20,920	15,496	49,051	1,967	273,028	37,429	10,549	7,867	1,848	2,205
931	Other	12	549,000	117,376	44,414	19,270	14,274	45,183	1,812	251,497	34,477	9,717	7,247	1,702	2,031
	Total Operation		27,476,000	5,788,320	2,215,202	961,318	712,037	2,256,494	90,421	12,489,642	1,820,054	514,009	414,081	98,283	116,150

11

Schedule E

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
Maintenance														
932		889,000	190,068	71,920	31,204	23,114	73,165	2,934	407,251	55,829	15,735	11,735	2,756	3,289
935		5,000	1,069	405	176	130	412	17	2,291	314	89	66	16	19
		<u>894,000</u>	<u>191,137</u>	<u>72,325</u>	<u>31,380</u>	<u>23,244</u>	<u>73,577</u>	<u>2,951</u>	<u>409,542</u>	<u>56,143</u>	<u>15,824</u>	<u>11,801</u>	<u>2,772</u>	<u>3,308</u>
Total Administrative & General Expenses		28,370,000	5,979,457	2,287,527	992,698	735,281	2,330,071	93,372	12,899,184	1,876,197	529,833	425,882	101,055	119,458
Total Operation and Maintenance Expenses		72,927,000	16,349,712	6,064,638	2,504,054	1,857,500	5,878,405	234,508	32,655,229	4,584,684	1,292,033	994,649	234,176	277,428
DEPRECIATION AND AMORTIZATION EXPENSE														
DISTRIBUTION PLANT														
305		-	-	-	-	-	-	-	-	-	-	-	-	-
375		55,165	27,152	11,298	4,954	3,680	7,618	463	-	-	-	-	-	-
376		1,948,657	1,112,878	463,001	203,050	150,826	-	18,902	-	-	-	-	-	-
		5,680,783	3,244,295	1,349,754	591,938	439,693	-	55,104	-	-	-	-	-	-
		1,299,069	-	-	-	-	1,299,069	-	-	-	-	-	-	-
378		744,919	366,649	152,559	66,894	49,686	102,873	6,257	-	-	-	-	-	-
379		573,426	282,240	117,438	51,494	38,248	79,190	4,817	-	-	-	-	-	-
380		7,196,184	-	-	-	-	-	-	6,222,540	888,009	51,093	23,747	5,037	5,757
381		1,284,252	-	-	-	-	-	-	540,156	420,079	213,956	85,916	3,596	20,548
381.2		282,998	-	-	-	-	-	-	119,029	92,569	47,147	18,933	792	4,528
382		-	-	-	-	-	-	-	-	-	-	-	-	-
383		38,337	-	-	-	-	-	-	33,541	4,796	-	-	-	-
384		47,345	-	-	-	-	-	-	41,422	5,923	-	-	-	-
385		216,773	-	-	-	-	-	-	-	-	130,151	46,953	39,669	57
386		3,569	-	-	-	-	-	-	1,501	1,167	595	239	10	-
387		-	-	-	-	-	-	-	-	-	-	-	-	-
387.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		<u>19,371,477</u>	<u>5,033,214</u>	<u>2,094,050</u>	<u>918,330</u>	<u>682,133</u>	<u>1,488,750</u>	<u>85,543</u>	<u>6,958,189</u>	<u>1,412,543</u>	<u>312,791</u>	<u>258,986</u>	<u>56,388</u>	<u>70,559</u>
GENERAL PLANT														
390		777,092	166,142	62,867	27,276	20,204	63,955	2,564	355,986	48,801	13,755	10,258	2,409	2,875
391		132,410	28,309	10,712	4,648	3,443	10,897	437	60,657	8,315	2,344	1,748	410	490
392		622,605	133,113	50,369	21,853	16,188	51,240	2,055	285,215	39,100	11,020	8,218	1,930	2,304
394		367,316	78,532	29,716	12,893	9,550	30,230	1,212	168,267	23,067	6,501	4,849	1,139	1,359
396		12,895	2,757	1,043	453	335	1,061	43	5,907	810	228	170	40	48
397		7,821	1,671	633	275	203	644	26	3,583	491	138	103	24	29
398		58,147	12,431	4,704	2,041	1,512	4,785	192	26,637	3,652	1,029	768	180	215
399		-	-	-	-	-	-	-	-	-	-	-	-	-
		<u>1,978,286</u>	<u>422,955</u>	<u>160,044</u>	<u>69,439</u>	<u>51,435</u>	<u>162,812</u>	<u>6,529</u>	<u>906,252</u>	<u>124,236</u>	<u>35,015</u>	<u>26,114</u>	<u>6,132</u>	<u>7,320</u>
COMMON PLANT ALLOCATED @ 14.89%														
390.2		153,298	32,775	12,402	5,381	3,986	12,616	506	70,226	9,627	2,713	2,024	475	567
391		25,843	5,525	2,091	907	672	2,127	85	11,839	1,623	457	341	80	96
392.1		352	75	28	12	9	29	1	161	22	6	5	1	1
		<u>179,493</u>	<u>38,375</u>	<u>14,521</u>	<u>6,300</u>	<u>4,667</u>	<u>14,772</u>	<u>592</u>	<u>82,226</u>	<u>11,272</u>	<u>3,176</u>	<u>2,370</u>	<u>556</u>	<u>664</u>
INFORMATION SERVICES (IS) ALLOCATED @ 28.17%														
391		640,508	136,941	51,817	22,482	16,653	52,714	2,114	293,417	40,224	11,337	8,455	1,986	2,370
391.1		1,653,951	-	-	-	-	-	-	1,488,887	158,945	4,300	1,323	165	331
		<u>2,294,459</u>	<u>136,941</u>	<u>51,817</u>	<u>22,482</u>	<u>16,653</u>	<u>52,714</u>	<u>2,114</u>	<u>1,782,304</u>	<u>199,169</u>	<u>15,637</u>	<u>9,778</u>	<u>2,151</u>	<u>2,701</u>
READING SERVICE CENTER ALLOCATED @ 27.49%														
390.1		18,908	4,043	1,530	664	492	1,556	62	8,662	1,187	335	250	59	70
Less:														
390.1		(1,141,000)	(243,946)	(92,307)	(40,049)	(29,666)	(93,904)	(3,765)	(522,692)	(71,655)	(20,196)	(15,061)	(3,537)	(4,222)
		<u>(48,691)</u>	<u>(10,410)</u>	<u>(3,939)</u>	<u>(1,709)</u>	<u>(1,266)</u>	<u>(4,007)</u>	<u>(161)</u>	<u>(22,305)</u>	<u>(3,058)</u>	<u>(862)</u>	<u>(643)</u>	<u>(151)</u>	<u>(180)</u>
Total Depreciation & Amortization Expense		22,652,932	5,381,172	2,225,716	975,457	724,448	1,622,693	90,914	9,192,636	1,673,694	345,896	281,794	61,598	76,912

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
TAXES OTHER THAN INCOME TAXES														
408.10	15	-	-	-	-	-	-	-	-	-	-	-	-	-
408.10	16	122,000	32,134	12,761	5,417	4,014	10,004	500	45,921	7,283	1,720	1,476	354	415
408.10	13	1,613,000	310,664	125,653	54,681	40,486	131,137	5,162	713,269	134,040	38,389	39,035	9,517	10,968
408.10	16	935,000	246,279	97,801	41,514	30,762	76,670	3,834	351,934	55,820	13,184	11,314	2,712	3,179
408.10	15	132,000	41,620	17,173	7,366	5,465	11,471	686	38,174	6,732	1,280	1,333	330	370
408.10	16	-	-	-	-	-	-	-	-	-	-	-	-	-
		Total Taxes Other Than Income	2,802,000	630,697	253,388	108,978	80,727	229,282	1,149,298	203,875	54,573	53,158	12,913	14,932
		Total Operating Expenses	98,381,932	22,361,581	8,543,742	3,588,489	2,662,675	7,730,380	42,997,163	6,462,253	1,692,502	1,329,601	308,687	369,272
INCOME TAXES														
	15	21,584,000	6,805,436	2,808,078	1,204,387	893,578	1,875,650	112,237	6,242,093	1,100,784	209,365	217,998	53,960	60,435
OPERATING INCOME AVAILABLE FOR RETURN														
	15	46,701,000	14,724,825	6,075,800	2,605,916	1,933,421	4,058,317	242,845	13,505,929	2,381,751	453,000	471,680	116,753	130,763
TOTAL COST OF SERVICE														
		166,666,932	43,891,842	17,427,620	7,398,792	5,489,674	13,664,347	690,686	62,745,185	9,944,788	2,354,867	2,019,279	479,400	560,470
Less: Other Revenues														
	6C	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	6,000	1,283	485	211	156	494	20	2,749	377	106	79	19	22
	20	1,782,000	-	-	-	-	-	-	1,244,014	415,562	122,423	-	-	-
	16	490,000	129,066	51,254	21,756	16,121	40,180	2,009	184,436	29,253	6,909	5,929	1,421	1,666
		Subtotal	2,278,000	130,349	51,739	21,967	16,277	40,674	1,431,199	445,192	129,438	6,008	1,440	1,688
TOTAL COST OF SERVICE RELATED TO TARIFF SALES AND TRANSPORTATION														
		\$ 164,388,932	\$ 43,761,493	\$ 17,375,881	\$ 7,376,825	\$ 5,473,397	\$ 13,623,673	\$ 688,657	\$ 61,313,986	\$ 9,499,596	\$ 2,225,429	\$ 2,013,271	\$ 477,960	\$ 558,782

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 1 and 1A. ALLOCATION OF COSTS WHICH VARY DIRECTLY WITH PGC AND CHOICE SALES.

Factors are based on the pro forma average daily PGC sales volumes for each service classification.

Service Classification	Pro Forma Average Daily PGC Volumes (Mcf)	Allocation Factor 1	PGC and Choice Volumes (Mcf)	Allocation Factor 1A
(1)	(2)	(3)		
<u>Volumetric Costs</u>				
Rate R	43,082	0.7996	44,134	0.7099
Rate N	10,796	0.2004	18,037	0.2901
Rate DS		-		
Rate LFD		-		
Rate XD	-	-		
Interruptible	-	-		
	-----	-----	-----	-----
Total	<u>53,878</u>	<u>1.0000</u>	<u>62,171</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 2 . ALLOCATION OF COMPRESSOR STATION FUEL.

Factors are based on the pro forma average daily throughput volumes for each service classification.

<u>Service Classification</u> (1)	<u>Pro Forma Average Daily Throughput Volumes (Mcf)</u> (2)	<u>Allocation Factor 2</u> (3)
<u>Volumetric Costs</u>		
Rate R	44,134	0.0970
Rate N	18,037	0.0396
Rate DS	10,837	0.0238
Rate LFD	14,858	0.0326
Rate XD Firm	364,093	0.7997
Interruptible	<u>3,328</u>	<u>0.0073</u>
Total	<u><u>455,287</u></u>	<u><u>1.0000</u></u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 3 and 3A. CALCULATION OF MAXIMUM DAY EXTRA DEMAND FACTORS.

Factors are based on the maximum day extra demand throughput for each classification.

Service Classification	Pro Forma Average Daily Throughput Volumes (Mcf)	Peak Day Capacity (Mcf)	Extra Capacity (Mcf)	Allocation Factor 3	Allocation Factor 3A
(1)	(2)	(3)	(4)=(3)-(2)	(5)	(5)
<u>Volumetric Costs</u>					
Rate R	44,134	198,310	154,176	0.3989	0.6026
Rate N	18,037	82,486	64,449	0.1668	0.2519
Rate DS	10,837	36,157	25,320	0.0655	0.0990
Rate LFD	14,858	26,746	11,888	0.0308	0.0465
Subtotal	87,866	343,699	255,833	0.6620	1.0000
Rate XD Firm	364,093	494,708	130,615	0.3380	-
Total	451,959	838,407	386,448	1.0000	1.0000

FACTOR 3B. CALCULATION OF MAXIMUM DAY EXTRA DEMAND FACTORS FOR SMALL MAINS ALLOCATION.

Factors are based on the maximum day extra demand throughput for each classification, excluding XD and Interruptible classifications.

Service Classification	Pro Forma Average Daily Throughput Volumes (Mcf)	Peak Day Capacity (Mcf)	Extra Capacity (Mcf)	Allocation Factor 3B
(1)	(2)	(3)	(4)=(3)-(2)	(5)
<u>Volumetric Costs</u>				
Rate R	44,134	198,310	154,176	0.6026
Rate N	18,037	82,486	64,449	0.2519
Rate DS	10,837	36,157	25,320	0.0990
Rate LFD	14,858	26,746	11,888	0.0465
Total	87,866	343,699	255,833	1.0000

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH LARGE DISTRIBUTION MAINS.

Factors are based on the weighting of the factors derived from average daily throughput volumes and from maximum day extra capacity demand for each service classification, as follows:

Service Classification	Average Daily Throughput			Maximum Day Extra Demand		Allocation Factor 4 (7)=(4)+(6)
	MCF/Day (2)	Allocation Factor (3)	Weighted Factor* (4)=(3)x 0.2653	Allocation Factor 3A (5)	Weighted Factor (6)=(5)x 0.7347	
<u>Volumetric Costs</u>						
Rate R	44,134	0.4840	0.1284	0.6026	0.4427	0.5711
Rate N	18,037	0.1978	0.0525	0.2519	0.1851	0.2376
Rate DS	10,837	0.1188	0.0315	0.0990	0.0727	0.1042
Rate LFD	14,858	0.1629	0.0432	0.0465	0.0342	0.0774
Rate XD Firm Interruptible	3,328	0.0365	0.0097	-	-	0.0097
Total	91,194	1.0000	0.2653	1.0000	0.7347	1.0000

* The weighting of the factors is based on the percentage of average daily throughput excluding XD of 91,194 mcf divided by peak day demand excluding XD of 343,699 mcf. $(91,194 / 343,699 = 26.53\%)$

FACTOR 4A. ALLOCATION OF COSTS ASSOCIATED WITH LOAD DISPATCHING AND M&R STATION EQUIPMENT.

Factors are based on the weighting of the factors derived from average daily throughput volumes and from maximum day extra capacity demand for each service classification, as follows:

Service Classification	Throughput (2)	Average Daily Throughput		Maximum Day Extra Demand		Allocation Factor (7)=(4)+(6)
		Allocation Factor 2 (3)	Weighted Factor (4)=(3)x 0.5430	Allocation Factor 3 (5)	Weighted Factor (6)=(5)x 0.4570	
<u>Volumetric</u>						
Rate R	44,134	0.0970	0.0527	0.3989	0.1823	0.2350
Rate N	18,037	0.0396	0.0215	0.1668	0.0762	0.0977
Rate DS	10,837	0.0238	0.0129	0.0655	0.0299	0.0428
Rate LFD	14,858	0.0326	0.0177	0.0308	0.0141	0.0318
Rate XD-Firm Interruptible	364,093	0.7997	0.4342	0.3380	0.1545	0.5887
	3,328	0.0073	0.0040	-	-	0.0040
Total	455,287	1.0000	0.5430	1.0000	0.4570	1.0000

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH SMALL DISTRIBUTION MAINS.

Factors are based on the weighting of the factors derived from average daily throughput volumes and from maximum day extra capacity demand for each service classification, as follows:

Service Classification	Average Daily Throughput			Maximum Day Extra Demand		Allocation Factor 5
	Volumes (Mcf)	Allocation Factor	Weighted Factor	Allocation Factor 3B	Weighted Factor	
(1)	(2)	(3)	(4)=(3)x 0.2653	(5)	(6)=(5)x 0.7347	(7)
<u>Volumetric Costs</u>						
Rate R	44,134	0.4840	0.1284	0.6026	0.4427	0.5711
Rate N	18,037	0.1978	0.0525	0.2519	0.1851	0.2376
Rate DS	10,837	0.1188	0.0315	0.0990	0.0727	0.1042
Rate LFD	14,858	0.1629	0.0432	0.0465	0.0342	0.0774
Rate XD - Firm		-	-	-	-	-
Interruptible	3,328	0.0365	0.0097	-	-	0.0097
Total	91,194	1.0000	0.2653	1.0000	0.7347	1.0000

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 6. ALLOCATION OF COSTS ASSOCIATED WITH ACCOUNT 381, METERS.

Factors are based on the cost of meters by class included in Account 381, Meters.

<u>Service Classification</u> (1)	<u>Cost of Meters</u>	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	\$ 20,138,244	0.4206
Rate N	15,662,761	0.3271
Rate DS	7,976,921	0.1666
Rate LFD	3,200,616	0.0669
Rate XD-Firm	132,705	0.0028
Interruptible	<u>765,366</u>	<u>0.0160</u>
Total	<u>\$ 47,876,613</u>	<u>1.0000</u>

FACTOR 6A. ALLOCATION OF COSTS ASSOCIATED WITH HOUSE REGULATORS

Factors are based on the number of weighted house Regulators for customers served.

<u>Service Classification</u> (1)	<u>Number of Regulators</u> (2)	<u>Factor</u> (3)	<u>Weighted Regulators</u> (4)	<u>Allocation Factor</u> (5)
<u>Customer</u>				
Rate R	152,184	1.00	152,184	0.8749
Rate N	<u>16,243</u>	1.34	<u>21,766</u>	<u>0.1251</u>
Total	<u>168,427</u>		<u>173,950</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 6B. ALLOCATION OF COSTS ASSOCIATED WITH INDUSTRIAL MEASURING AND REGULATING EQUIPMENT, ACCOUNT 385.

Factors are based on the cost of M&R equipment by class included in Account 385, Industrial Measuring and Regulating Equipment.

<u>Service Classification</u> (1)	<u>Cost of M&R Equipment</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate N	\$ -	-
Rate LFD	6,565,770	0.6004
Rate XD - Firm	2,369,141	0.2166
Interruptible	<u>2,000,997</u>	<u>0.1830</u>
Total	<u>\$ 10,935,908</u>	<u>1.0000</u>

FACTOR 6C. ALLOCATION OF COSTS ASSOCIATED WITH SERVICES.

Factors are based on the cost of services by class included in Account 380, Service Lines.

<u>Service Classification</u> (1)	<u>Cost of Services</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	\$ 209,900,494	0.8647
Rate N	29,957,720	0.1234
Rate DS	1,723,028	0.0071
Rate LFD	793,222	0.0033
Rate XD - Firm	174,993	0.0007
Interruptible	<u>189,684</u>	<u>0.0008</u>
Total	<u>\$ 242,739,142</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 7. ALLOCATION OF COSTS ASSOCIATED WITH CUSTOMER ACCOUNTING.
AND METER READING

Factors are based on the number of customers for each classification, as follows.

<u>Service Classification</u> (1)	<u>Number of Customers</u> (2)	<u>Allocation Factor 7</u> (3)
<u>Customer Costs</u>		
Rate R	152,184	0.9002
Rate N	16,243	0.0961
Rate DS	439	0.0026
Rate LFD	138	0.0008
Rate XD Firm	15	0.0001
Interruptible	<u>33</u>	<u>0.0002</u>
Total	<u><u>169,052</u></u>	<u><u>1.0000</u></u>

FACTOR 8. ALLOCATION OF COSTS ASSOCIATED WITH SALES EXPENSES.

Factors are based on the number of Rate R and Rate N customers.

<u>Service Classification</u> (1)	<u>Number of Customers</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	152,184	0.9036
Rate N	<u>16,243</u>	<u>0.0964</u>
Total	<u><u>168,427</u></u>	<u><u>1.0000</u></u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 9 (DA). ALLOCATION OF CUSTOMER ASSISTANCE EXPENSES.

These costs are directly assigned to the Residential Classification.

<u>Service Classification</u>	<u>Allocation Factor</u>
(1)	(3)
<u>Customer Costs</u>	
Rate R	<u><u>1.0000</u></u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 10. ALLOCATION OF DISTRIBUTION OPERATION OTHER EXPENSES AND RENT.

Factors are based on distribution operation expenses other than those being allocated.

Service Classification	Operation Expenses	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 2,040,132	0.2018
Rate N	848,810	0.0839
Rate DS	372,110	0.0368
Rate LFD	276,328	0.0273
Rate XD Firm	1,243,722	0.1230
Interruptible	34,784	0.0034
<u>Customer Costs</u>		
Rate R	3,690,613	0.3650
Rate N	1,018,637	0.1007
Rate DS	330,819	0.0327
Rate LFD	183,591	0.0182
Rate XD Firm	25,279	0.0025
Interruptible	47,176	0.0047
Total	<u>\$ 10,112,001</u>	<u>1.0000</u>

FACTOR 11. ALLOCATION OF DISTRIBUTION MAINTENANCE OTHER EXPENSES.

Factors are based on distribution maintenance expenses other than those being allocated.

Service Classification	Maintenance Expenses	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 5,338,922	0.3889
Rate N	2,221,527	0.1618
Rate DS	973,995	0.0709
Rate LFD	723,233	0.0527
Rate XD Firm	1,821,273	0.1326
Interruptible	91,052	0.0066
<u>Customer Costs</u>		
Rate R	1,526,780	0.1112
Rate N	410,981	0.0299
Rate DS	130,491	0.0095
Rate LFD	307,004	0.0224
Rate XD Firm	94,636	0.0069
Interruptible	90,108	0.0066
Total	<u>\$ 13,730,002</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 12. ALLOCATION OF ADMINISTRATIVE AND GENERAL EXPENSES.

Factors are based on the allocation of operation and maintenance expenses.

Service Classification <hr style="width: 20%; margin: auto;"/> (1)	Operation & Maintenance Expenses <hr style="width: 20%; margin: auto;"/> (2)	Allocation Factor <hr style="width: 20%; margin: auto;"/> (3)
<u>Volumetric Costs</u>		
Rate R	\$ 9,217,232	0.2138
Rate N	3,488,134	0.0809
Rate DS	1,511,356	0.0351
Rate LFD	1,122,219	0.0260
Rate XD Firm	3,548,334	0.0823
Interruptible	141,136	0.0033
<u>Customer Costs</u>		
Rate R	19,756,045	0.4581
Rate N	2,708,487	0.0628
Rate DS	762,200	0.0177
Rate LFD	568,767	0.0132
Rate XD Firm	133,121	0.0031
Interruptible	157,970	0.0037
Total	<hr style="width: 20%; margin: auto;"/> \$ 43,115,001	<hr style="width: 20%; margin: auto;"/> 1.0000

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 13. ALLOCATION OF LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of total operation and maintenance direct labor expense to service classifications as shown on the following page.

Service Classification <u>(1)</u>	Total Labor Expense <u>(2)</u>	Allocation Factor <u>(3)</u>
<u>Volumetric Costs</u>		
Rate R	\$ 4,136,689	0.1926
Rate N	1,673,918	0.0779
Rate DS	727,562	0.0339
Rate LFD	539,854	0.0251
Rate XD Firm	1,745,347	0.0813
Interruptible	68,011	0.0032
<u>Customer Costs</u>		
Rate R	9,499,991	0.4422
Rate N	1,784,605	0.0831
Rate DS	511,808	0.0238
Rate LFD	519,492	0.0242
Rate XD Firm	126,951	0.0059
Interruptible	145,781	0.0068
Total	<u>\$ 21,480,009</u>	<u>1.0000</u>

FACTOR 14. ALLOCATION OF ORGANIZATION, FRANCHISES AND CONSENTS, MISCELLANEOUS INTANGIBLE PLANT AND OTHER RATE BASE ELEMENTS.

Factors are based on the allocation of the original cost less depreciation excluding the items being allocated, as follows:

Service Classification <u>(1)</u>	Original Cost Less Depreciation <u>(2)</u>	Allocation Factor <u>(3)</u>
<u>Volumetric Costs</u>		
Rate R	\$ 212,642,719	0.3154
Rate N	87,747,178	0.1301
Rate DS	37,631,974	0.0558
Rate LFD	27,949,871	0.0415
Rate XD Firm	58,603,266	0.0869
Interruptible	3,505,807	0.0052
<u>Customer Costs</u>		
Rate R	194,846,048	0.2889
Rate N	34,362,984	0.0510
Rate DS	6,544,349	0.0097
Rate LFD	6,823,162	0.0101
Rate XD Firm	1,723,273	0.0026
Interruptible	1,910,828	0.0028
Total	<u>\$ 674,291,459</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
DIRECT LABOR EXPENSE														
750-760	Total Production & Gathering Operation Expenses	1	-	-	-	-	-	-	-	-	-	-	-	-
761 - 769	Total Gas Raw Materials Expenses	1	-	-	-	-	-	-	-	-	-	-	-	-
840	Storage	1A	33,000	23,427	9,573	-	-	-	-	-	-	-	-	-
850 - 860	Total Transmission Operation Expenses	4	4,000	2,284	950	417	310	-	39	-	-	-	-	-
861 - 867	Total Transmission Maintenance Expenses	4	80,000	45,688	19,008	8,336	6,192	-	776	-	-	-	-	-
870	Operation Supervision and Engineering	10	1,907,000	384,833	159,997	70,178	52,061	234,561	6,484	696,055	192,035	62,359	34,707	4,768
871	Distribution Load Dispatching	4a	98,000	23,030	9,575	4,194	3,116	57,693	392	-	-	-	-	-
874	Mains And Services Expenses													
	Mains - Small	5	306,429	175,002	72,808	31,930	23,718	-	2,972	-	-	-	-	-
	Mains - Large	17	762,478	356,916	148,531	65,116	48,341	137,475	6,100	-	-	-	-	-
	Services	6C	1,042,093	-	-	-	-	-	-	901,098	128,594	7,399	3,439	729
875	M & R Station Expenses -General	4a	272,000	63,920	26,574	11,642	8,650	160,126	1,088	-	-	-	-	-
876	Measuring and Regulating Station Expenses-Indust	6B	59,000	-	-	-	-	-	-	-	-	-	35,424	12,779
877	Measuring and Regulating Station Expenses-City G	4a	9,000	2,115	879	385	286	5,298	36	-	-	-	-	-
878	Meter And House Regulator Expenses	6	941,000	-	-	-	-	-	-	395,785	307,801	156,771	62,953	2,635
879	Customer Installation Expenses	6	447,000	-	-	-	-	-	-	188,008	146,214	74,470	29,904	1,252
880	Other Expenses	10	465,000	93,837	39,014	17,112	12,695	57,195	1,581	169,725	46,826	15,206	8,463	1,163
881	Rent	10	-	-	-	-	-	-	-	-	-	-	-	-
885	Supervision - Engineering and Labor	11	452,000	175,783	73,134	32,047	23,820	59,935	2,983	50,262	13,515	4,294	10,125	3,119
886	Structures & Improvements	18	-	-	-	-	-	-	-	-	-	-	-	-
887	Mains - Small	5	837,378	478,227	198,961	87,255	64,813	-	8,123	-	-	-	-	-
	Mains - Large	17	2,083,622	975,343	405,890	177,941	132,102	375,677	16,669	-	-	-	-	-
889	M & R Equip - General	4a	147,000	34,545	14,362	6,292	4,675	86,539	588	-	-	-	-	-
890	M & R Equip - Ind	6B	369,000	-	-	-	-	-	-	-	-	-	221,548	79,925
891	M & R Equip - CG Check Station	4a	142,000	33,370	13,873	6,078	4,516	83,595	568	-	-	-	-	-
892	Services	6C	783,000	-	-	-	-	-	-	677,060	96,622	5,559	2,584	548
893	Meters & House Regulators	6	440,000	-	-	-	-	-	-	185,064	143,924	73,304	29,436	1,232
895	Other Equipment	11	58,000	22,556	9,384	4,112	3,057	7,691	383	6,450	1,734	551	1,299	400
894	Other Equipment	11	-	-	-	-	-	-	-	-	-	-	-	-
901	Supervision	7	73,000	-	-	-	-	-	-	65,715	7,015	190	58	7
902	Meter Reading Expenses	7	375,000	-	-	-	-	-	-	337,575	36,038	975	300	38
903	Customer Records & Coll Expenses	7	2,318,000	-	-	-	-	-	-	2,086,664	222,760	6,027	1,854	232
905	Miscellaneous Cust Accts Expenses	7	585,000	-	-	-	-	-	-	526,617	56,219	1,521	468	59
907	Supervision	7	-	-	-	-	-	-	-	-	-	-	-	-
908	Customer Assistance Expenses	9	363,000	-	-	-	-	-	-	363,000	-	-	-	-
910	Miscellaneous Customer Service & Info. Exp.	7	17,000	-	-	-	-	-	-	15,303	1,634	44	14	2
911	Supervision	8	-	-	-	-	-	-	-	-	-	-	-	-
912	Demonstrating And Selling Expenses	8	184,000	-	-	-	-	-	-	166,262	17,738	-	-	-
920	Administrative & General Salaries	12	5,252,000	1,122,878	424,887	184,345	136,552	432,240	17,332	2,405,941	329,826	92,960	69,326	16,281
921	Office Supplies And Expenses	12	41,000	8,766	3,317	1,439	1,066	3,374	135	18,782	2,575	726	541	127
925	Injuries and Damages	12	313,000	66,919	25,322	10,986	8,138	25,760	1,033	143,385	19,656	5,540	4,132	970
932	Maintenance of General Plant	12	221,000	47,250	17,879	7,757	5,746	18,188	729	101,240	13,879	3,912	2,917	685
	Total Direct Labor Expense		21,480,000	4,136,689	1,673,918	727,562	539,854	1,745,347	68,011	9,499,991	1,784,605	511,808	519,492	126,951

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 15. ALLOCATION OF RETURN AND TAXES.

Factors are based on the result of allocating the original cost measure of value, as presented on the following pages.

Service Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 175,325,648	0.3153
Rate N	72,354,183	0.1301
Rate DS	31,029,906	0.0558
Rate LFD	23,039,730	0.0414
Rate XD Firm	48,321,549	0.0869
Interruptible	2,890,560	0.0052
<u>Customer Costs</u>		
Rate R	160,664,368	0.2892
Rate N	28,328,835	0.0510
Rate DS	5,396,678	0.0097
Rate LFD	5,628,164	0.0101
Rate XD Firm	1,415,649	0.0025
Interruptible	1,579,541	0.0028
Total	<u>\$ 555,974,811</u>	<u>1.0000</u>

FACTOR 16. ALLOCATION OF REGULATORY COMMISSION EXPENSES, ASSESSMENTS AND OTHER REVENUES.

Factors are based on the allocated cost of service excluding those items being allocated.

Service Classification	Total Cost of Service	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 43,541,257	0.2634
Rate N	17,288,398	0.1046
Rate DS	7,339,695	0.0444
Rate LFD	5,445,883	0.0329
Rate XD Firm	13,555,205	0.0820
Interruptible	685,229	0.0041
<u>Customer Costs</u>		
Rate R	62,244,196	0.3764
Rate N	9,865,327	0.0597
Rate DS	2,336,100	0.0141
Rate LFD	2,003,174	0.0121
Rate XD Firm	475,539	0.0029
Interruptible	555,944	0.0034
Total	<u>\$ 165,335,947</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs							Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)	
RATE BASE															
DISTRIBUTION PLANT															
374	Land	18	276,467	136,077	56,620	24,827	18,440	38,180	2,322	-	-	-	-	-	
374	Land Rights of Way	4	3,109,045	1,775,576	738,709	323,962	240,640	-	30,158	-	-	-	-	-	
375	Structures And Improvements	18	1,678,902	826,356	343,839	150,765	111,983	231,856	14,103	-	-	-	-	-	
376	Mains - Small	5	86,160,035	49,205,996	20,471,624	8,977,876	6,668,787	-	835,752	-	-	-	-	-	
	Mains - Large	4	231,097,024	131,979,510	54,908,653	24,080,310	17,886,910	-	2,241,641	-	-	-	-	-	
	Mains - Direct Assign	DA	50,838,568	-	-	-	-	50,838,568	-	-	-	-	-	-	
378	Measuring & Regulating Equipment - General	18	14,220,894	6,999,524	2,912,439	1,277,036	948,534	1,963,905	119,456	-	-	-	-	-	
379	Measuring & Regulating Equipment - SCADA	18	-	-	-	-	-	-	-	-	-	-	-	-	
379	Measuring & Regulating Equipment - City Gate	18	14,208,221	6,993,286	2,909,844	1,275,898	947,688	1,962,155	119,349	-	-	-	-	-	
380	Services	6C	167,880,263	-	-	-	-	-	-	145,166,063	20,716,424	1,191,950	554,005	117,516	
381	Meters	6	27,157,497	-	-	-	-	-	-	11,422,443	8,883,217	4,524,439	1,816,837	76,041	
382	Meter Installations	6	-	-	-	-	-	-	-	-	-	-	-	-	
383	House Regulators	6A	983,231	-	-	-	-	-	-	860,229	123,002	-	-	-	
384	House Regulator Installations	6A	1,369,696	-	-	-	-	-	-	1,198,347	171,349	-	-	-	
385	Industrial Measuring & Regulating Equipment	6B	6,431,544	-	-	-	-	-	-	-	-	3,861,499	1,393,072	1,176,973	
386	Other Property on Customer Premises	6	-	-	-	-	-	-	-	-	-	-	-	-	
386	Other Property on Customer Premises - Farm Taps	6	-	-	-	-	-	-	-	-	-	-	-	-	
386	Other Property on Customer Premises - Gas Lights	6	-	-	-	-	-	-	-	-	-	-	-	-	
386	Other Property on Customer Premises - CNG Refu	6	-	-	-	-	-	-	-	-	-	-	-	-	
387	Other Equipment	10	42,723	8,622	3,584	1,572	1,166	5,255	145	15,594	4,302	1,397	778	107	
387	Other Equipment - Graphic Data Base	10	-	-	-	-	-	-	-	-	-	-	-	-	
	Total Distribution Plant		605,454,110	197,924,947	82,345,312	36,112,246	26,824,148	55,039,919	3,362,926	158,662,676	29,898,294	5,717,786	6,233,119	1,586,736	
GENERAL PLANT															
389	Land and Land Rights	12	770,030	164,632	62,295	27,028	20,021	63,373	2,541	352,751	48,358	13,630	10,164	2,387	
390	Structures And Improvements	12	14,997,130	3,206,386	1,213,268	526,399	389,925	1,234,264	49,491	6,870,185	941,820	265,449	197,962	46,491	
391	Office Furniture And Equipment	12	751,838	160,743	60,824	26,390	19,548	61,876	2,481	344,417	47,215	13,308	9,924	2,331	
392	Transportation Equipment	12	5,451,763	1,165,587	441,048	191,357	141,746	448,680	17,991	2,497,453	342,371	96,496	71,963	16,900	
394	Tools, Shop And Garage Equipment	12	4,607,606	985,106	372,755	161,727	119,798	379,206	15,205	2,110,744	289,358	81,555	60,820	14,284	
396	Power Operated Equipment	12	55,057	11,771	4,454	1,933	1,431	4,531	182	25,222	3,458	975	727	171	
397	Communication Equipment	12	8,457	1,808	684	297	220	696	28	3,874	531	150	112	26	
398	Miscellaneous Equipment	12	426,920	91,275	34,538	14,985	11,100	35,136	1,409	195,572	26,811	7,556	5,635	1,323	
399	Other Tangible Property	12	-	-	-	-	-	-	-	-	-	-	-	-	
	Total General Plant		27,068,801	5,787,308	2,189,866	950,116	703,789	2,227,762	89,328	12,400,218	1,699,922	479,119	357,307	83,913	
	Total Plant		632,522,911	203,712,255	84,535,178	37,062,362	27,527,937	57,267,681	3,452,254	171,062,894	31,598,216	6,196,905	6,590,426	1,670,649	
COMMON PLANT ALLOCATED @ 14.89%															
301	Organization	14	20,692	6,526	2,692	1,155	859	1,798	108	5,978	1,055	201	209	54	
389.1	Land and Land Rights	12	737,055	157,582	59,628	25,871	19,163	60,660	2,432	337,645	46,287	13,046	9,729	2,285	
390.2	Structures and Improvements	12	4,035,074	862,699	326,437	141,631	104,912	332,087	13,316	1,848,467	253,403	71,421	53,263	12,509	
391	Office Furniture and Equipment	12	381,981	81,668	30,902	13,408	9,932	31,437	1,261	174,985	23,988	6,761	5,042	1,184	
392.1	Transportation Equipment	12	912	195	74	32	24	75	3	418	57	16	12	3	
	Total Common Plant		5,175,714	1,108,670	419,733	182,097	134,890	426,057	17,120	2,367,493	324,790	91,445	68,255	16,035	
INFORMATION SERVICES (IS) ALLOCATED @ 28.17%															
391	Office Furniture and Equipment	12	2,556,463	546,572	206,818	89,732	66,468	210,397	8,436	1,171,116	160,546	45,249	33,745	7,925	
391.1	Office Furniture and Equip. - New CIS Software	7	23,155,306	-	-	-	-	-	-	20,844,406	2,225,225	60,204	18,524	2,316	
	Total Information Services		25,711,769	546,572	206,818	89,732	66,468	210,397	8,436	22,015,522	2,385,771	105,453	52,269	10,241	
READING SERVICE CENTER ALLOCATED @ 27.49%															
390.1	Structures And Improvements	12	215,477	46,069	17,432	7,563	5,602	17,734	711	98,710	13,532	3,814	2,844	668	
	Less:														
390.1	Empire Bldg. to Electric Div. @ 13.04%	12	(1,092,717)	(233,623)	(88,401)	(38,354)	(28,411)	(89,931)	(3,606)	(500,574)	(68,623)	(19,341)	(14,424)	(3,387)	
INTANGIBLE PLANT															
301	Organization	14	86,238	27,199	11,220	4,812	3,579	7,494	448	24,914	4,398	837	871	224	
302	Franchises And Consents	14	9,422	2,972	1,226	526	391	819	49	2,722	481	91	95	24	
304	Land and Land Rights	14	-	-	-	-	-	-	-	-	-	-	-	-	
305	Manufactured Gas Plant Remediation	1	-	-	-	-	-	-	-	-	-	-	-	-	
	Total Nondepreciable Plant		95,660	30,171	12,446	5,338	3,970	8,313	497	27,636	4,879	928	966	248	
	Total Utility Plant in Service		662,628,814	205,210,114	85,103,206	37,308,738	27,710,456	57,840,251	3,475,412	195,071,681	34,258,565	6,379,204	6,700,336	1,694,454	

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
OTHER RATE BASE ELEMENTS														
Gas Storage Inventory	1A	4,729,000	3,357,117	1,371,883	-	-	-	-	-	-	-	-	-	-
Cash Working Capital	12	4,773,000	1,020,467	386,136	167,532	124,098	392,818	15,751	2,186,511	299,744	84,482	63,004	14,796	17,660
Cash Working Capital - Purchased Gas Related	1	2,631,000	2,103,748	527,252	-	-	-	-	-	-	-	-	-	-
Materials & Supplies	12	4,621,000	987,970	373,839	162,197	120,146	380,308	15,249	2,116,880	290,199	81,792	60,997	14,325	17,098
Deferred Taxes	14	(118,433,000)	(37,353,768)	(15,408,133)	(6,608,561)	(4,914,970)	(10,291,828)	(615,852)	(34,215,294)	(6,040,083)	(1,148,800)	(1,196,173)	(307,926)	(331,612)
Customer Deposits	8	(4,975,000)	-	-	-	-	-	-	(4,495,410)	(479,590)	-	-	-	-
Investment Tax Credit	14	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Other Rate Base Elements		(106,654,000)	(29,884,466)	(12,749,023)	(6,278,832)	(4,670,726)	(9,518,702)	(584,852)	(34,407,313)	(5,929,730)	(982,526)	(1,072,172)	(278,805)	(296,854)
Total Measure of Value		\$ 555,974,814	\$ 175,325,648	\$ 72,354,183	\$ 31,029,906	\$ 23,039,730	\$ 48,321,549	\$ 2,890,560	\$ 160,664,368	\$ 28,328,835	\$ 5,396,678	\$ 5,628,164	\$ 1,415,649	\$ 1,579,541

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 17. ALLOCATION OF OPERATION AND MAINTENANCE EXPENSES ASSOCIATED WITH LARGE MAINS.

Factors are based on the allocation of rate base for large and directly assigned mains.

Service Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 131,979,510	0.4681
Rate N	54,908,653	0.1948
Rate DS	24,080,310	0.0854
Rate LFD	17,886,910	0.0634
Rate XD Firm	50,838,568	0.1803
Interruptible	2,241,641	0.0080
	<u>\$ 281,935,592</u>	<u>1.0000</u>

FACTOR 18. ALLOCATION OF RATE BASE ASSOCIATED M&R STATION EQUIPMENT.

Factors are based on the composite allocation of all mains.

Service Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 181,185,506	0.4922
Rate N	75,380,277	0.2048
Rate DS	33,058,186	0.0898
Rate LFD	24,555,697	0.0667
Rate XD Firm	50,838,568	0.1381
Interruptible	3,077,393	0.0084
	<u>\$ 368,095,627</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 19. ALLOCATION OF UNCOLLECTIBLE ACCOUNTS

Factors are based on history of net write-offs by class.

<u>Service Classification</u> (1)	<u>3-Yr. Average of Net Write-offs</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	\$ 2,847,456	0.9600
Rate N	114,529	0.0386
Rate DS	4,247	0.0014
Rate LFD	-	0.0000
Rate XD Firm	-	0.0000
Interruptible	-	0.0000
Total	<u>\$ 2,966,233</u>	<u>1.0000</u>

FACTOR 20. ALLOCATION OF PENALTY REVENUE

Factors are based on an analysis of penalty revenue, by class.

<u>Service Classification</u> (1)	<u>Penalty Revenue</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	\$ 1,243,988	0.6981
Rate N	415,527	0.2332
Rate DS	122,485	0.0687
Rate LFD	-	0.0000
Rate XD Firm	-	0.0000
Interruptible	-	0.0000
Total	<u>\$ 1,782,000</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

	Cost of Service (1)	Rate R (2)	Rate N (3)	Rate DS (4)	Rate LFD (5)	Rate XD Firm (6)	Interruptible (7)
Fully Allocated Customer Costs							
Customer Costs	76,089,024	\$ 61,313,986	\$ 9,499,596	\$ 2,225,429	\$ 2,013,271	\$ 477,960	\$ 558,782
Number of bills	2,028,624	1,826,208	194,916	5,268	1,656	180	396
Customer Cost per bill		\$ 33.57	\$ 48.74	\$ 422.44	\$ 1,215.74	\$ 2,655.33	\$ 1,411.07
Direct Customer Costs							
<u>O & M Expenses:</u>							
874 Mains And Services Expenses							
Mains	-	-	-	-	-	-	-
Services	3,372,115	2,915,868	416,119	23,942	11,128	2,360	2,698
876 M & R Station Expenses - Industrial	82,000	-	-	-	49,233	17,761	15,006
878 Meter and House Regulator Expenses	1,272,000	535,003	416,071	211,915	85,097	3,562	20,352
879 Customer Installations Expenses	570,000	239,742	186,447	94,962	38,133	1,596	9,120
890 M & R Equip - Industrial	423,000	-	-	-	253,969	91,622	77,409
892 Services	1,414,000	1,222,686	174,488	10,039	4,666	990	1,131
893 Meters & House Regulators	723,000	304,094	236,493	120,452	48,369	2,024	11,568
901 Supervision	131,999	118,826	12,685	343	106	13	26
902 Meter Reading Expenses	443,999	399,689	42,668	1,154	355	44	89
903 Customer Records & Coll Expenses	4,435,001	3,992,387	426,204	11,531	3,548	444	887
903.1 Universal Service Program	3,732,000	3,732,000	-	-	-	-	-
904 Uncollectible Accounts	1,965,135	1,880,053	81,016	4,066	-	-	-
905 Miscellaneous Cust Accts Expenses	671,000	604,034	64,483	1,745	537	67	134
907 Supervision	-	-	-	-	-	-	-
908 Customer Assistance Expenses	431,000	431,000	-	-	-	-	-
910 Miscellaneous Customer Service Exp.	43,999	39,609	4,228	114	35	4	9
911 Supervision	-	-	-	-	-	-	-
912 Demonstrating and Selling Expenses	251,000	226,804	24,196	-	-	-	-
912.1 Energy Efficiency and Conservation	1,730,000	1,337,128	223,175	169,697	-	-	-
913 Advertising Expenses	232,000	209,635	22,365	-	-	-	-
916 Miscellaneous	61,000	55,120	5,880	-	-	-	-
926 Employee Pensions and Benefits	2,754,200 *	2,078,340	390,570	111,860	113,740	27,730	31,960
408 Payroll Taxes	945,218 *	713,269	134,040	38,389	39,035	9,517	10,968
Subtotal O & M Expenses	25,683,666	21,035,287	2,861,128	800,209	647,951	157,734	181,357

Schedule G

UGI PENN NATURAL GAS, INC.

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

	Cost of Service (1)	Rate R (2)	Rate N (3)	Rate DS (4)	Rate LFD (5)	Rate XD Firm (6)	Interruptible (7)
Depreciation Expense							
380 Services	7,196,183	6,222,540	888,009	51,093	23,747	5,037	5,757
381 Meters	1,284,251	540,156	420,079	213,956	85,916	3,596	20,548
382 Meter Installations	-	-	-	-	-	-	-
383 House Regulators	38,337	33,541	4,796	-	-	-	-
384 House Regulator Installations	47,345	41,422	5,923	-	-	-	-
385 Industrial M & R Equipment	216,773	-	-	-	130,151	46,953	39,669
390 Structures and Improvements	434,084 *	355,986	48,801	13,755	10,258	2,409	2,875
391 Office Furniture And Equipment	2,100,140 *	1,854,800	209,107	18,438	11,867	2,641	3,287
Subtotal Depreciation	11,317,113	9,048,445	1,576,715	297,242	261,939	60,636	72,136
Rate Base							
380 Services	167,880,262	145,166,063	20,716,424	1,191,950	554,005	117,516	134,304
381 Meters	27,157,497	11,422,443	8,883,217	4,524,439	1,816,837	76,041	434,520
382 Meter Installations	-	-	-	-	-	-	-
383 House Regulators	983,231	860,229	123,002	-	-	-	-
384 House Regulator Installations	1,369,696	1,198,347	171,349	-	-	-	-
385 Industrial M & R Equipment	6,431,544	-	-	-	3,861,499	1,393,072	1,176,973
390 Structures And Improvements	8,377,396 *	6,870,185	941,820	265,449	197,962	46,491	55,489
391 Office Furniture and Equipment	25,216,696 *	22,534,924	2,456,974	125,522	67,235	13,756	18,285
Deferred Taxes	(43,239,888) *	(34,215,294)	(6,040,083)	(1,148,800)	(1,196,173)	(307,926)	(331,612)
Customer Deposits	(4,975,000)	(4,495,410)	(479,590)	-	-	-	-
Subtotal Rate Base	189,201,434	149,341,487	26,773,113	4,958,560	5,301,365	1,338,950	1,487,959
Taxes and Return @ 12.3%	23,237,779	18,342,168	3,288,282	609,012	651,115	164,450	182,752
Total Direct Customer Costs	<u>\$ 60,238,558</u>	<u>\$ 48,425,900</u>	<u>\$ 7,726,125</u>	<u>\$ 1,706,463</u>	<u>\$ 1,561,005</u>	<u>\$ 382,820</u>	<u>\$ 436,245</u>
Less: USP and EEC Recovery	5,349,275	4,956,403	223,175	169,697	-	-	-
Total	<u>\$ 54,889,283</u>	<u>\$ 43,469,497</u>	<u>\$ 7,502,950</u>	<u>\$ 1,536,766</u>	<u>\$ 1,561,005</u>	<u>\$ 382,820</u>	<u>\$ 436,245</u>
Number of bills	2,028,624	1,826,208	194,916	5,268	1,656	180	396
Direct Costs per bill		\$ 23.80	\$ 38.49	\$ 291.72	\$ 942.64	\$ 2,126.78	\$ 1,101.63

* Customer cost portion of account.

UGI PENN NATURAL GAS, INC.

CALCULATION OF COSTS RELATED TO LFD AND XD DEMAND CHARGES

<u>Capital Costs</u>	<u>Rate LFD</u>	<u>Rate XD Firm</u>
Depreciation	\$ 724,448	\$ 1,622,693
Taxes Other Than Income	80,727	229,282
Income Taxes	893,578	1,875,650
Income Available for Return	<u>1,933,421</u>	<u>4,058,317</u>
Total	<u>\$ 3,632,174</u>	<u>\$ 7,785,942</u>
Cost Per Month	\$ 302,681	\$ 648,829
Demand Volume Units per Month	26,746	494,708
Demand Costs per MCF	\$ 11.32	\$ 1.31

UGI PENN NATURAL GAS, INC.

Docket No. R-2016-2580030

COST OF SERVICE ALLOCATION STUDY
AS OF SEPTEMBER 30, 2018

(Excludes Allocation of Mains to Interruptible Service)

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC
Harrisburg, Pennsylvania

CONTENTS

Schedule A-1. Comparison of Cost of Service with Revenues Under Present and Proposed Rates by Service Classification for the Twelve Months Ended September 30, 2018 - Without Gas Costs.....	1
Schedule B-1. Development of Rate of Return by Service Classification Under Present Rates.....	2
Schedule C-1. Development of Rate of Return by Service Classification Under Proposed Rates.....	3
Schedule D-1 Summary of Cost of Service by Service Classification	4
Schedule E-1. Cost of Service as of September 30, 2018, at Proposed Revenue Level Allocated to Rate R, Rate N, Rate DS, Rate LFD, and Rate XD, and Interruptible Service Classifications	5
Schedule F-1. Factors for Allocating Cost of Service to Service Classifications	9
Schedule G-1. Calculation of Customer Costs per Bill by Service Classification	27
Schedule H-1. Calculation of Costs Related to LFD and XD Demand Charges.....	29

UGI PENN NATURAL GAS, INC.

COMPARISON OF COST OF SERVICE WITH REVENUES UNDER PRESENT AND PROPOSED RATES
BY SERVICE CLASSIFICATION FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2018
WITHOUT GAS COSTS

Service Classification	Pro Forma Cost of Service		Pro Forma Margin Revenues,				Revenue Increase	
	Amount	Percent	Under Present Rates		Under Proposed Rates		Amount	Percent Increase
			Amount	Percent	Amount	Percent		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rate R	\$ 105,398,121	64.1%	\$ 88,666,470	62.1%	\$ 103,680,687	62.9%	\$ 15,014,217	16.9%
Rate N	27,014,242	16.4%	21,457,704	15.0%	26,222,989	16.0%	4,765,285	22.2%
Rate DS	9,686,887	5.9%	7,840,832	5.5%	9,464,319	5.8%	1,623,487	20.7%
Rate LFD	7,612,418	4.6%	7,132,566	5.0%	7,553,330	4.6%	420,764	5.9%
Rate XD Firm	14,101,633	8.6%	16,684,990	11.7%	16,550,361	10.1%	(134,629)	-0.8%
Interruptible	<u>575,647</u>	<u>0.4%</u>	<u>945,000</u>	<u>0.7%</u>	<u>916,738</u>	<u>0.6%</u>	<u>(28,262)</u>	-3.0%
Total	<u>\$ 164,388,948</u>	<u>100.0%</u>	<u>\$ 142,727,562</u>	<u>100.0%</u>	<u>\$ 164,388,423</u>	<u>100.0%</u>	<u>\$ 21,660,861</u>	15.2%
Other Operating Revenues	<u>2,278,000</u>		<u>2,278,000</u>		<u>2,278,000</u>		<u>0</u>	
Total	<u>\$166,666,948</u>		<u>\$145,005,562</u>		<u>\$166,666,423</u>		<u>\$21,660,861</u>	14.9%

UGI PENN NATURAL GAS, INC.

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PRESENT RATES

Item (1)	Cost of Service (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD-Firm (7)	Interruptible (8)
1. Revenues From Tariff Sales and Transportation	\$ 142,727,562	\$ 88,666,470	\$ 21,457,704	\$ 7,840,832	\$ 7,132,566	\$ 16,684,990	\$ 945,000
2. Other Revenues	2,277,901	1,564,486	496,253	151,213	22,290	41,872	1,787
3. Total Operating Revenues	145,005,463	90,230,956	21,953,957	7,992,045	7,154,856	16,726,862	946,787
4. Less: Operating Expenses	98,107,711	65,212,675	15,075,316	5,327,763	4,054,079	8,051,558	386,320
5. Return and Income Taxes	46,897,752	25,018,281	6,878,641	2,664,282	3,100,777	8,675,304	560,467
6. Less: Interest Expense	11,953,000	7,251,885	2,177,837	791,289	627,533	1,069,794	34,664
7. Taxable Income	34,944,752	17,766,396	4,700,804	1,872,993	2,473,244	7,605,510	525,803
8. Less: Income Taxes	12,709,193	6,462,625	1,709,387	681,213	899,811	2,765,520	190,638
9. Net Return (Ln 5 - Ln 8)	34,188,558	18,555,656	5,169,254	1,983,069	2,200,966	5,909,784	369,829
10. Original Cost Measure of Value (Factor 15.)	555,974,806	337,351,003	101,301,566	36,788,908	29,186,265	49,758,845	1,588,219
11. Rate of Return, Percent	6.15%	5.50%	5.10%	5.39%	7.54%	11.88%	23.29%
12. Relative Rate of Return	1.00	0.89	0.83	0.88	1.23	1.93	3.79

UGI PENN NATURAL GAS, INC.

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PROPOSED RATES

Item (1)	Cost of Service (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD-Firm (7)	Interruptible (8)
1. Revenues From Tariff Sales and Transportation	164,388,423	\$ 103,680,687	\$ 26,222,989	\$ 9,464,319	\$ 7,553,330	\$ 16,550,361	\$ 916,738
2. Other Revenues	2,277,999	1,562,488	497,327	151,651	22,681	42,114	1,738
3. Total Operating Revenues	166,666,422	105,243,175	26,720,316	9,615,970	7,576,011	16,592,475	918,476
4. Less: Operating Expenses	98,381,944	65,518,441	15,070,042	5,318,070	4,050,137	8,039,067	386,187
5. Return and Income Taxes	68,284,478	39,724,734	11,650,274	4,297,900	3,525,874	8,553,408	532,289
6. Less: Interest Expense	11,953,000	7,251,885	2,177,837	791,289	627,533	1,069,794	34,664
7. Taxable Income	56,331,478	32,472,849	9,472,437	3,506,611	2,898,341	7,483,614	497,625
8. Less: Income Taxes	21,584,000	12,443,176	3,630,429	1,342,525	1,111,576	2,866,355	189,939
9. Net Return (Ln 5 - Ln 8)	46,700,478	27,281,558	8,019,845	2,955,375	2,414,298	5,687,053	342,350
10. Original Cost Measure of Value (Factor 15.)	555,974,808	337,417,103	101,271,259	36,783,419	29,177,610	49,737,198	1,588,219
11. Rate of Return, Percent	8.40%	8.09%	7.92%	8.03%	8.27%	11.43%	21.56%
12. Relative Rate of Return	1.00	0.96	0.94	0.96	0.99	1.36	2.57

3

UGI PENN NATURAL GAS, INC.

SUMMARY OF COST OF SERVICE BY SERVICE CLASSIFICATION

Cost Function (1)	Cost of Service (Schedule E) (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD Firm (7)	Interruptible (8)
<u>Volumetric Costs</u>							
Rate R	\$ 44,094,704	\$ 44,094,704					
Rate N	17,514,646		\$17,514,646				
Rate DS	7,461,458			\$ 7,461,458			
Rate LFD	5,599,147				\$ 5,599,147		
Rate XD Firm	13,623,673					\$ 13,623,673	
Rate IS/IL	16,865						\$ 16,865
Total Volumetric Costs	<u>88,310,493</u>	<u>44,094,704</u>	<u>17,514,646</u>	<u>7,461,458</u>	<u>5,599,147</u>	<u>13,623,673</u>	<u>16,865</u>
<u>Customer Costs</u>							
Rate R	\$ 61,303,417	\$ 61,303,417					
Rate N	9,499,596		\$ 9,499,596				
Rate DS	2,225,429			\$ 2,225,429			
Rate LFD	2,013,271				\$ 2,013,271		
Rate XD Firm	477,960					\$ 477,960	
Rate IS/IL	558,782						\$ 558,782
Total Customer Costs	<u>76,078,455</u>	<u>61,303,417</u>	<u>9,499,596</u>	<u>2,225,429</u>	<u>2,013,271</u>	<u>477,960</u>	<u>558,782</u>
Total Excluding Gas Costs	<u>\$ 164,388,948</u>	<u>\$ 105,398,121</u>	<u>\$27,014,242</u>	<u>\$ 9,686,887</u>	<u>\$ 7,612,418</u>	<u>\$ 14,101,633</u>	<u>\$ 575,647</u>

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs							Customer Costs				
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
OPERATION AND MAINTENANCE EXPENSES														
NATURAL GAS PRODUCTION EXPENSES														
<u>Manufactured Gas Production Expenses</u>														
710		0	-	-	-	-	-	-	-	-	-	-	-	-
717		0	-	-	-	-	-	-	-	-	-	-	-	-
725-736		0	-	-	-	-	-	-	-	-	-	-	-	-
740-742		1,442,000	1,153,023	288,977	-	-	-	-	-	-	-	-	-	-
		1,442,000	1,153,023	288,977	-	-	-	-	-	-	-	-	-	-
<u>Production and Gathering</u>														
750 - 760		-	-	-	-	-	-	-	-	-	-	-	-	-
761 - 769		-	-	-	-	-	-	-	-	-	-	-	-	-
770 - 783		-	-	-	-	-	-	-	-	-	-	-	-	-
784 - 791		-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-
<u>Other Gas Supply Expenses</u>														
800 - 803		-	-	-	-	-	-	-	-	-	-	-	-	-
804		-	-	-	-	-	-	-	-	-	-	-	-	-
805.1		-	-	-	-	-	-	-	-	-	-	-	-	-
808.1		-	-	-	-	-	-	-	-	-	-	-	-	-
808.2		-	-	-	-	-	-	-	-	-	-	-	-	-
812		-	-	-	-	-	-	-	-	-	-	-	-	-
813		-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Natural Gas Production Expenses		1,442,000	1,153,023	288,977	-	-	-	-	-	-	-	-	-	-
OTHER STORAGE EXPENSE														
840		34,000	24,137	9,863	-	-	-	-	-	-	-	-	-	-
841		-	-	-	-	-	-	-	-	-	-	-	-	-
342 - 842.3		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Natural Gas Storage Expense		34,000	24,137	9,863	-	-	-	-	-	-	-	-	-	-
TRANSMISSION EXPENSE														
850 - 860		-	-	-	-	-	-	-	-	-	-	-	-	-
861 - 867		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Transmission Expense		-	-	-	-	-	-	-	-	-	-	-	-	-
DISTRIBUTION EXPENSES														
<u>Operation</u>														
870		2,077,000	422,046	175,507	77,264	57,741	255,471	1,039	758,105	209,154	67,918	37,801	5,193	9,762
871		657,000	154,395	64,189	28,120	20,893	386,776	2,628	-	-	-	-	-	-
872		-	-	-	-	-	-	-	-	-	-	-	-	-
873		-	-	-	-	-	-	-	-	-	-	-	-	-
874		-	-	-	-	-	-	-	-	-	-	-	-	-
		991,577	571,049	237,582	104,512	78,434	-	-	-	-	-	-	-	-
		2,467,308	1,164,816	484,579	213,175	159,882	444,856	-	-	-	-	-	-	-
		3,372,115	-	-	-	-	-	-	2,915,868	416,119	23,942	11,128	2,360	2,698
875		680,000	159,800	66,436	29,104	21,624	400,316	2,720	-	-	-	-	-	-
876		82,000	-	-	-	-	-	-	-	-	-	49,233	17,761	15,006
877		20,000	4,700	1,954	856	636	11,774	80	-	-	-	-	-	-
878		1,272,000	-	-	-	-	-	-	535,003	416,071	211,915	85,097	3,562	20,352
879		570,000	-	-	-	-	-	-	239,742	186,447	94,962	38,133	1,596	9,120
880		1,041,000	211,531	87,965	38,725	28,940	128,043	521	379,965	104,829	34,041	18,946	2,603	4,893
881		99,000	20,117	8,366	3,683	2,752	12,177	50	36,135	9,969	3,237	1,802	248	465
Total Operation		13,329,000	2,708,454	1,126,578	495,439	370,902	1,639,413	7,038	4,864,818	1,342,589	436,015	242,140	33,323	62,296

5

Schedule E-1

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
Maintenance														
885	11	512,000	200,704	83,507	36,710	27,546	67,891	102	56,986	15,309	4,864	11,469	3,533	3,379
886	18	4,000	1,986	826	363	273	552	-	-	-	-	-	-	-
887	5	2,961,355	1,705,444	709,541	312,127	234,243	-	-	-	-	-	-	-	-
	17	7,368,645	3,478,737	1,447,202	636,651	477,488	1,328,567	-	-	-	-	-	-	-
888	4	-	-	-	-	-	-	-	-	-	-	-	-	-
889	4a	405,000	95,175	39,569	17,334	12,879	238,424	1,620	-	-	-	-	-	-
890	6B	423,000	-	-	-	-	-	-	-	-	-	253,969	91,622	77,409
891	4a	431,000	101,285	42,109	18,447	13,706	253,730	1,724	-	-	-	-	-	-
892	6C	1,414,000	-	-	-	-	-	-	1,222,686	174,488	10,039	4,666	990	1,131
893	6	723,000	-	-	-	-	-	-	304,094	236,493	120,452	48,369	2,024	11,568
894	11	149,000	58,408	24,302	10,683	8,016	19,757	30	16,584	4,455	1,416	3,338	1,028	983
895	11	-	-	-	-	-	-	-	-	-	-	-	-	-
		14,391,000	5,641,739	2,347,056	1,032,315	774,151	1,908,921	3,476	1,600,350	430,745	136,771	321,811	99,197	94,470
Total Distribution Expenses		27,720,000	8,350,193	3,473,634	1,527,754	1,145,053	3,548,334	10,514	6,465,168	1,773,334	572,786	563,951	132,520	156,766
CUSTOMER ACCOUNTING EXPENSES														
<u>Operation</u>														
901	7	132,000	-	-	-	-	-	-	118,826	12,685	343	106	13	26
902	7	444,000	-	-	-	-	-	-	399,689	42,668	1,154	355	44	89
903	7	4,435,000	-	-	-	-	-	-	3,992,387	426,204	11,531	3,548	444	887
903.1	DA	3,732,000	-	-	-	-	-	-	3,732,000	-	-	-	-	-
904	19	2,904,000	907,787	31,078	-	-	-	-	1,880,053	81,016	4,066	-	-	-
905	7	671,000	-	-	-	-	-	-	604,034	64,483	1,745	537	67	134
		12,318,000	907,787	31,078	-	-	-	-	10,726,989	627,056	18,839	4,546	568	1,136
Total Customer Accounting Expenses		12,318,000	907,787	31,078	-	-	-	-	10,726,989	627,056	18,839	4,546	568	1,136
CUSTOMER SERVICE AND INFORMATION EXPENSES														
<u>Operation</u>														
907	7	-	-	-	-	-	-	-	-	-	-	-	-	-
908	9	431,000	-	-	-	-	-	-	431,000	-	-	-	-	-
909	7	294,000	-	-	-	-	-	-	264,659	28,253	764	235	29	59
910	7	44,000	-	-	-	-	-	-	39,609	4,228	114	35	4	9
		769,000	-	-	-	-	-	-	735,268	32,481	878	270	33	68
Total Customer Service & Info Expenses		769,000	-	-	-	-	-	-	735,268	32,481	878	270	33	68
SALES EXPENSES														
<u>Operation</u>														
911	8	-	-	-	-	-	-	-	-	-	-	-	-	-
912	8	251,000	-	-	-	-	-	-	226,804	24,196	-	-	-	-
912.1	DA	1,730,000	-	-	-	-	-	-	1,337,128	223,175	169,697	-	-	-
913	8	232,000	-	-	-	-	-	-	209,635	22,365	-	-	-	-
916	8	61,000	-	-	-	-	-	-	55,120	5,880	-	-	-	-
		2,274,000	-	-	-	-	-	-	1,828,687	275,616	169,697	-	-	-
Total Sales Expenses		2,274,000	-	-	-	-	-	-	1,828,687	275,616	169,697	-	-	-
ADMINISTRATIVE AND GENERAL EXPENSES														
<u>Operation</u>														
920	12	7,246,000	1,560,064	590,549	256,508	192,744	596,346	1,449	3,320,117	455,049	128,254	95,647	22,463	26,810
921	12	5,145,000	1,107,719	419,318	182,133	136,857	423,434	1,029	2,357,439	323,106	91,067	67,914	15,950	19,037
923	12	5,384,000	1,159,175	438,796	190,594	143,214	443,103	1,077	2,466,949	338,115	95,297	71,069	16,690	19,921
924	12	35,000	7,536	2,853	1,239	931	2,881	7	16,037	2,198	620	462	109	130
925	12	3,410,000	734,173	277,915	120,714	90,706	280,643	682	1,562,462	214,148	60,357	45,012	10,571	12,617
926	13	4,700,000	911,800	368,950	160,740	120,790	382,110	940	2,078,810	390,570	111,860	113,740	27,730	31,960
928	16	274,000	72,720	28,880	12,303	9,234	22,468	27	103,106	16,358	3,863	3,315	795	932
930	12	137,000	29,496	11,166	4,850	3,644	11,275	27	62,773	8,604	2,425	1,808	425	507
930	12	596,000	128,319	48,574	21,098	15,854	49,051	119	273,087	37,429	10,549	7,867	1,848	2,205
931	12	549,000	118,200	44,744	19,435	14,603	45,183	110	251,552	34,477	9,717	7,247	1,702	2,031
		27,476,000	5,829,202	2,231,745	969,614	728,577	2,256,494	5,467	12,492,332	1,820,054	514,009	414,081	98,283	116,150

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs						
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)	
Maintenance															
932		889,000	191,402	72,454	31,471	23,647	73,165	178	407,340	55,829	15,735	11,735	2,756	3,289	
935		5,000	1,077	408	177	133	412	1	2,291	314	89	66	16	19	
		894,000	192,479	72,862	31,648	23,780	73,577	179	409,631	56,143	15,824	11,801	2,772	3,308	
Total Administrative & General Expenses		28,370,000	6,021,681	2,304,607	1,001,262	752,357	2,330,071	5,646	12,901,963	1,876,197	529,833	425,882	101,055	119,458	
Total Operation and Maintenance Expenses		72,927,000	16,456,821	6,108,159	2,529,016	1,897,410	5,878,405	16,160	32,658,075	4,584,684	1,292,033	994,649	234,176	277,428	
DEPRECIATION AND AMORTIZATION EXPENSE															
DISTRIBUTION PLANT															
305		-	-	-	-	-	-	-	-	-	-	-	-	-	
375		55,165	27,384	11,392	5,009	3,762	7,618	-	-	-	-	-	-	-	
376		1,948,657	1,122,232	466,898	205,388	154,139	-	-	-	-	-	-	-	-	
		5,680,783	3,271,563	1,361,115	598,754	449,350	-	-	-	-	-	-	-	-	
		1,299,069	-	-	-	-	1,299,069	-	-	-	-	-	-	-	
378		744,919	369,778	153,826	67,639	50,803	102,873	-	-	-	-	-	-	-	
379		573,426	284,649	118,412	52,067	39,108	79,190	-	-	-	-	-	-	-	
380		7,196,184	-	-	-	-	-	-	6,222,540	888,009	51,093	23,747	5,037	5,757	
381		1,284,252	-	-	-	-	-	-	540,156	420,079	213,956	85,916	3,596	20,548	
381.2		282,998	-	-	-	-	-	-	119,029	92,569	47,147	18,933	792	4,528	
382		-	-	-	-	-	-	-	-	-	-	-	-	-	
383		38,337	-	-	-	-	-	-	33,541	4,796	-	-	-	-	
384		47,345	-	-	-	-	-	-	41,422	5,923	-	-	-	-	
385		216,773	-	-	-	-	-	-	-	-	-	130,151	46,953	39,669	
386		3,569	-	-	-	-	-	-	1,501	1,167	595	239	10	57	
387		-	-	-	-	-	-	-	-	-	-	-	-	-	
387.1		-	-	-	-	-	-	-	-	-	-	-	-	-	
		19,371,477	5,075,606	2,111,643	928,857	697,162	1,488,750	-	6,958,189	1,412,543	312,791	258,986	56,388	70,559	
GENERAL PLANT															
390		777,092	167,308	63,333	27,509	20,671	63,955	155	356,064	48,801	13,755	10,258	2,409	2,875	
391		132,410	28,508	10,791	4,687	3,522	10,897	26	60,670	8,315	2,344	1,748	410	490	
392		622,605	134,047	50,742	22,040	16,561	51,240	125	285,278	39,100	11,020	8,218	1,930	2,304	
394		367,316	79,083	29,936	13,003	9,771	30,230	73	168,304	23,067	6,501	4,849	1,139	1,359	
396		12,895	2,776	1,051	456	343	1,061	3	5,908	810	228	170	40	48	
397		7,821	1,683	637	277	208	644	2	3,584	491	138	103	24	29	
398		58,147	12,518	4,739	2,058	1,547	4,785	12	26,643	3,652	1,029	768	180	215	
399		-	-	-	-	-	-	-	-	-	-	-	-	-	
		1,978,286	425,923	161,229	70,030	52,623	162,812	396	906,451	124,236	35,015	26,114	6,132	7,320	
COMMON PLANT ALLOCATED @ 14.89%															
390.2		153,298	33,005	12,494	5,427	4,078	12,616	31	70,241	9,627	2,713	2,024	475	567	
391		25,843	5,564	2,106	915	687	2,127	5	11,841	1,623	457	341	80	96	
392.1		352	76	29	12	9	29	-	161	22	6	5	1	1	
		179,493	38,645	14,629	6,354	4,774	14,772	36	82,243	11,272	3,176	2,370	556	664	
INFORMATION SERVICES (IS) ALLOCATED @ 28.17%															
391		640,508	137,901	52,201	22,674	17,038	52,714	128	293,481	40,224	11,337	8,455	1,986	2,370	
391.1		1,653,951	-	-	-	-	-	-	1,488,887	158,945	4,300	1,323	165	331	
		2,294,459	137,901	52,201	22,674	17,038	52,714	128	1,782,368	199,169	15,637	9,778	2,151	2,701	
READING SERVICE CENTER ALLOCATED @ 27.49%															
390.1		18,908	4,071	1,541	669	503	1,556	4	8,664	1,187	335	250	59	70	
Less:															
390.1		(1,141,000)	(245,657)	(92,992)	(40,391)	(30,351)	(93,904)	(228)	(522,806)	(71,655)	(20,196)	(15,061)	(3,537)	(4,222)	
		(48,691)	(10,483)	(3,968)	(1,724)	(1,295)	(4,007)	(10)	(22,310)	(3,058)	(862)	(643)	(151)	(180)	
		22,652,932	5,426,006	2,244,283	986,469	740,454	1,622,693	326	9,192,799	1,673,694	345,896	281,794	61,598	76,912	

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
TAXES OTHER THAN INCOME TAXES														
408.10	15	-	-	-	-	-	-	-	-	-	-	-	-	-
408.10	16	122,000	32,378	12,859	5,478	4,111	10,004	12	45,909	7,283	1,720	1,476	354	415
408.10	13	1,613,000	312,922	126,621	55,165	41,454	131,137	323	713,430	134,040	38,389	39,035	9,517	10,968
408.10	16	935,000	248,149	98,549	41,982	31,510	76,670	94	351,841	55,820	13,184	11,314	2,712	3,179
408.10	15	132,000	41,963	17,318	7,458	5,597	11,471	-	38,148	6,732	1,280	1,333	330	370
408.10	16	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Taxes Other Than Income		2,802,000	635,412	255,347	110,083	82,672	229,282	429	1,149,328	203,875	54,573	53,158	12,913	14,932
Total Operating Expenses		98,381,932	22,518,239	8,607,789	3,625,568	2,720,536	7,730,380	16,915	43,000,202	6,462,253	1,692,502	1,329,601	308,687	369,272
INCOME TAXES	15	21,584,000	6,861,555	2,831,821	1,219,496	915,162	1,875,650	-	6,237,776	1,100,784	209,365	217,998	53,960	60,435
OPERATING INCOME AVAILABLE FOR RETURN	15	46,701,000	14,846,248	6,127,171	2,638,607	1,980,122	4,058,317	-	13,496,589	2,381,751	453,000	471,680	116,753	130,763
TOTAL COST OF SERVICE		166,666,932	44,226,042	17,566,781	7,483,671	5,615,820	13,664,347	16,915	62,734,567	9,944,788	2,354,867	2,019,279	479,400	560,470
Less: Other Revenues														
Reconnection Charges	6C	-	-	-	-	-	-	-	-	-	-	-	-	-
Rent From Gas Property	12	6,000	1,292	489	212	160	494	1	2,749	377	106	79	19	22
Forfeited Discounts/Penalties	20	1,782,000	-	-	-	-	-	-	1,244,014	415,562	122,423	-	-	-
Other Miscellaneous Revenues	16	490,000	130,046	51,646	22,001	16,513	40,180	49	184,387	29,253	6,909	5,929	1,421	1,666
Subtotal		2,278,000	131,338	52,135	22,213	16,673	40,674	50	1,431,150	445,192	129,438	6,008	1,440	1,688
TOTAL COST OF SERVICE RELATED TO TARIFF SALES AND TRANSPORTATION		\$ 164,388,932	\$ 44,094,704	\$ 17,514,646	\$ 7,461,458	\$ 5,599,147	\$ 13,623,673	\$ 16,865	\$ 61,303,417	\$ 9,499,596	\$ 2,225,429	\$ 2,013,271	\$ 477,960	\$ 558,782

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 1 and 1A. ALLOCATION OF COSTS WHICH VARY DIRECTLY WITH PGC AND CHOICE SALES.

Factors are based on the pro forma average daily PGC sales volumes for each service classification.

<u>Service Classification</u>	<u>Pro Forma Average Daily PGC Volumes (Mcf)</u>	<u>Allocation Factor 1</u>	<u>PGC and Choice Volumes (Mcf)</u>	<u>Allocation Factor 1A</u>
(1)	(2)	(3)		
<u>Volumetric Costs</u>				
Rate R	43,082	0.7996	44,134	0.7099
Rate N	10,796	0.2004	18,037	0.2901
Rate DS		-		
Rate LFD		-		
Rate XD	-	-		
Interruptible	-	-		
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Total	<u>53,878</u>	<u>1.0000</u>	<u>62,171</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 2 . ALLOCATION OF COMPRESSOR STATION FUEL.

Factors are based on the pro forma average daily throughput volumes for each service classification.

<u>Service Classification</u> (1)	<u>Pro Forma Average Daily Throughput Volumes (Mcf)</u> (2)	<u>Allocation Factor 2</u> (3)
<u>Volumetric Costs</u>		
Rate R	44,134	0.0970
Rate N	18,037	0.0396
Rate DS	10,837	0.0238
Rate LFD	14,858	0.0326
Rate XD Firm	364,093	0.7997
Interruptible	<u>3,328</u>	<u>0.0073</u>
Total	<u><u>455,287</u></u>	<u><u>1.0000</u></u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 3 and 3A. CALCULATION OF MAXIMUM DAY EXTRA DEMAND FACTORS.

Factors are based on the maximum day extra demand throughput for each classification.

Service Classification	Pro Forma Average Daily Throughput Volumes (Mcf)	Peak Day Capacity (Mcf)	Extra Capacity (Mcf)	Allocation Factor 3	Allocation Factor 3A
(1)	(2)	(3)	(4)=(3)-(2)	(5)	(5)
<u>Volumetric Costs</u>					
Rate R	44,134	198,310	154,176	0.3989	0.6026
Rate N	18,037	82,486	64,449	0.1668	0.2519
Rate DS	10,837	36,157	25,320	0.0655	0.0990
Rate LFD	14,858	26,746	11,888	0.0308	0.0465
Subtotal	87,866	343,699	255,833	0.6620	1.0000
Rate XD Firm	364,093	494,708	130,615	0.3380	-
Total	451,959	838,407	386,448	1.0000	1.0000

FACTOR 3B. CALCULATION OF MAXIMUM DAY EXTRA DEMAND FACTORS FOR SMALL MAINS ALLOCATION.

Factors are based on the maximum day extra demand throughput for each classification, excluding XD and Interruptible classifications.

Service Classification	Pro Forma Average Daily Throughput Volumes (Mcf)	Peak Day Capacity (Mcf)	Extra Capacity (Mcf)	Allocation Factor 3B
(1)	(2)	(3)	(4)=(3)-(2)	(5)
<u>Volumetric Costs</u>				
Rate R	44,134	198,310	154,176	0.6026
Rate N	18,037	82,486	64,449	0.2519
Rate DS	10,837	36,157	25,320	0.0990
Rate LFD	14,858	26,746	11,888	0.0465
Total	87,866	343,699	255,833	1.0000

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH LARGE DISTRIBUTION MAINS.

Factors are based on the weighting of the factors derived from average daily throughput volumes and from maximum day extra capacity demand for each service classification, as follows:

Service Classification	Average Daily Throughput			Maximum Day Extra Demand		Allocation Factor 4 (7)=(4)+(6)
	MCF/Day (2)	Allocation Factor (3)	Weighted Factor* (4)=(3)x 0.2653	Allocation Factor 3A (5)	Weighted Factor (6)=(5)x 0.7347	
(1)	(2)	(3)	(4)=(3)x 0.2653	(5)	(6)=(5)x 0.7347	(7)=(4)+(6)
<u>Volumetric Costs</u>						
Rate R	44,134	0.5023	0.1332	0.6026	0.4427	0.5759
Rate N	18,037	0.2053	0.0545	0.2519	0.1851	0.2396
Rate DS	10,837	0.1233	0.0327	0.0990	0.0727	0.1054
Rate LFD	14,858	0.1691	0.0449	0.0465	0.0342	0.0791
Rate XD Firm	-	-	-	-	-	-
Interruptible	-	-	-	-	-	-
Total	<u>87,866</u>	<u>1.0000</u>	<u>0.2653</u>	<u>1.0000</u>	<u>0.7347</u>	<u>1.0000</u>

* The weighting of the factors is based on the percentage of average daily throughput excluding XD of 91,194 mcf divided by peak day demand excluding XD of 343,699 mcf. $(91,194 / 343,699 = 26.53\%)$

FACTOR 4A. ALLOCATION OF COSTS ASSOCIATED WITH LOAD DISPATCHING AND M&R STATION EQUIPMENT.

Factors are based on the weighting of the factors derived from average daily throughput volumes and from maximum day extra capacity demand for each service classification, as follows:

Service Classification	Throughput (2)	Average Daily Throughput		Maximum Day Extra Demand		Allocation Factor (7)=(4)+(6)
		Allocation Factor 2 (3)	Weighted Factor (4)=(3)x 0.5430	Allocation Factor 3 (5)	Weighted Factor (6)=(5)x 0.4570	
(1)	(2)	(3)	(4)=(3)x 0.5430	(5)	(6)=(5)x 0.4570	(7)=(4)+(6)
<u>Volumetric</u>						
Rate R	44,134	0.0970	0.0527	0.3989	0.1823	0.2350
Rate N	18,037	0.0396	0.0215	0.1668	0.0762	0.0977
Rate DS	10,837	0.0238	0.0129	0.0655	0.0299	0.0428
Rate LFD	14,858	0.0326	0.0177	0.0308	0.0141	0.0318
Rate XD-Firm	364,093	0.7997	0.4342	0.3380	0.1545	0.5887
Interruptible	3,328	0.0073	0.0040	-	-	0.0040
Total	<u>455,287</u>	<u>1.0000</u>	<u>0.5430</u>	<u>1.0000</u>	<u>0.4570</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH SMALL DISTRIBUTION MAINS.

Factors are based on the weighting of the factors derived from average daily throughput volumes and from maximum day extra capacity demand for each service classification, as follows:

Service Classification	Average Daily Throughput			Maximum Day Extra Demand		Allocation Factor 5
	Volumes (Mcf)	Allocation Factor	Weighted Factor (4)=(3)x 0.2653	Allocation Factor 3B (5)	Weighted Factor (6)=(5)x 0.7347	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>Volumetric Costs</u>						
Rate R	44,134	0.5023	0.1332	0.6026	0.4427	0.5759
Rate N	18,037	0.2053	0.0545	0.2519	0.1851	0.2396
Rate DS	10,837	0.1233	0.0327	0.0990	0.0727	0.1054
Rate LFD	14,858	0.1691	0.0449	0.0465	0.0342	0.0791
Rate XD - Firm	-	-	-	-	-	-
Interruptible	-	-	-	-	-	-
Total	<u>87,866</u>	<u>1.0000</u>	<u>0.2653</u>	<u>1.0000</u>	<u>0.7347</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 6. ALLOCATION OF COSTS ASSOCIATED WITH ACCOUNT 381, METERS.

Factors are based on the cost of meters by class included in Account 381, Meters.

<u>Service Classification</u> (1)	<u>Cost of Meters</u>	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	\$ 20,138,244	0.4206
Rate N	15,662,761	0.3271
Rate DS	7,976,921	0.1666
Rate LFD	3,200,616	0.0669
Rate XD-Firm	132,705	0.0028
Interruptible	<u>765,366</u>	<u>0.0160</u>
Total	<u>\$ 47,876,613</u>	<u>1.0000</u>

FACTOR 6A. ALLOCATION OF COSTS ASSOCIATED WITH HOUSE REGULATORS

Factors are based on the number of weighted house Regulators for customers served.

<u>Service Classification</u> (1)	<u>Number of Regulators</u> (2)	<u>Factor</u> (3)	<u>Weighted Regulators</u> (4)	<u>Allocation Factor</u> (5)
<u>Customer</u>				
Rate R	152,184	1.00	152,184	0.8749
Rate N	<u>16,243</u>	1.34	<u>21,766</u>	<u>0.1251</u>
Total	<u>168,427</u>		<u>173,950</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 6B. ALLOCATION OF COSTS ASSOCIATED WITH INDUSTRIAL MEASURING AND REGULATING EQUIPMENT, ACCOUNT 385.

Factors are based on the cost of M&R equipment by class included in Account 385, Industrial Measuring and Regulating Equipment.

<u>Service Classification</u> (1)	<u>Cost of M&R Equipment</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate N	\$ -	-
Rate LFD	6,565,770	0.6004
Rate XD - Firm	2,369,141	0.2166
Interruptible	<u>2,000,997</u>	<u>0.1830</u>
Total	<u>\$ 10,935,908</u>	<u>1.0000</u>

FACTOR 6C. ALLOCATION OF COSTS ASSOCIATED WITH SERVICES.

Factors are based on the cost of services by class included in Account 380, Service Lines.

<u>Service Classification</u> (1)	<u>Cost of Services</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	\$ 209,900,494	0.8647
Rate N	29,957,720	0.1234
Rate DS	1,723,028	0.0071
Rate LFD	793,222	0.0033
Rate XD - Firm	174,993	0.0007
Interruptible	<u>189,684</u>	<u>0.0008</u>
Total	<u>\$ 242,739,142</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 7. ALLOCATION OF COSTS ASSOCIATED WITH CUSTOMER ACCOUNTING.
AND METER READING

Factors are based on the number of customers for each classification, as follows.

<u>Service Classification</u> (1)	<u>Number of Customers</u> (2)	<u>Allocation Factor 7</u> (3)
<u>Customer Costs</u>		
Rate R	152,184	0.9002
Rate N	16,243	0.0961
Rate DS	439	0.0026
Rate LFD	138	0.0008
Rate XD Firm	15	0.0001
Interruptible	<u>33</u>	<u>0.0002</u>
Total	<u><u>169,052</u></u>	<u><u>1.0000</u></u>

FACTOR 8. ALLOCATION OF COSTS ASSOCIATED WITH SALES EXPENSES.

Factors are based on the number of Rate R and Rate N customers.

<u>Service Classification</u> (1)	<u>Number of Customers</u> (2)	<u>Allocation Factor</u> (3)
<u>Customer Costs</u>		
Rate R	152,184	0.9036
Rate N	<u>16,243</u>	<u>0.0964</u>
Total	<u><u>168,427</u></u>	<u><u>1.0000</u></u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 9 (DA). ALLOCATION OF CUSTOMER ASSISTANCE EXPENSES.

These costs are directly assigned to the Residential Classification.

<u>Service Classification</u>	<u>Allocation Factor</u>
(1)	(3)
<u>Customer Costs</u>	
Rate R	<u><u>1.0000</u></u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 10. ALLOCATION OF DISTRIBUTION OPERATION OTHER EXPENSES AND RENT.

Factors are based on distribution operation expenses other than those being allocated.

Service Classification	Operation Expenses	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 2,054,760	0.2032
Rate N	854,740	0.0845
Rate DS	375,767	0.0372
Rate LFD	281,469	0.0278
Rate XD Firm	1,243,722	0.1230
Interruptible	5,428	0.0005
<u>Customer Costs</u>		
Rate R	3,690,613	0.3650
Rate N	1,018,637	0.1007
Rate DS	330,819	0.0327
Rate LFD	183,591	0.0182
Rate XD Firm	25,279	0.0025
Interruptible	47,176	0.0047
Total	<u>\$ 10,112,001</u>	<u>1.0000</u>

FACTOR 11. ALLOCATION OF DISTRIBUTION MAINTENANCE OTHER EXPENSES.

Factors are based on distribution maintenance expenses other than those being allocated.

Service Classification	Maintenance Expenses	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 5,382,627	0.3920
Rate N	2,239,247	0.1631
Rate DS	984,922	0.0717
Rate LFD	738,589	0.0538
Rate XD Firm	1,821,273	0.1326
Interruptible	3,344	0.0002
<u>Customer Costs</u>		
Rate R	1,526,780	0.1113
Rate N	410,981	0.0299
Rate DS	130,491	0.0095
Rate LFD	307,004	0.0224
Rate XD Firm	94,636	0.0069
Interruptible	90,108	0.0066
Total	<u>\$ 13,730,002</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 12. ALLOCATION OF ADMINISTRATIVE AND GENERAL EXPENSES.

Factors are based on the allocation of operation and maintenance expenses.

Service Classification <u>(1)</u>	Operation & Maintenance Expenses <u>(2)</u>	Allocation Factor <u>(3)</u>
<u>Volumetric Costs</u>		
Rate R	\$ 9,282,117	0.2153
Rate N	3,514,575	0.0815
Rate DS	1,527,754	0.0354
Rate LFD	1,145,053	0.0266
Rate XD Firm	3,548,334	0.0823
Interruptible	10,514	0.0002
<u>Customer Costs</u>		
Rate R	19,756,112	0.4582
Rate N	2,708,487	0.0628
Rate DS	762,200	0.0177
Rate LFD	568,767	0.0132
Rate XD Firm	133,121	0.0031
Interruptible	157,970	0.0037
Total	<u>\$ 43,115,004</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 13. ALLOCATION OF LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of total operation and maintenance direct labor expense to service classifications as shown on the following page.

Service Classification (1)	Total Labor Expense (2)	Allocation Factor (3)
<u>Volumetric Costs</u>		
Rate R	\$ 4,167,608	0.1940
Rate N	1,686,510	0.0785
Rate DS	734,986	0.0342
Rate LFD	551,170	0.0257
Rate XD Firm	1,745,347	0.0813
Interruptible	5,126	0.0002
<u>Customer Costs</u>		
Rate R	9,500,625	0.4423
Rate N	1,784,605	0.0831
Rate DS	511,808	0.0238
Rate LFD	519,492	0.0242
Rate XD Firm	126,951	0.0059
Interruptible	145,781	0.0068
Total	<u>\$ 21,480,009</u>	<u>1.0000</u>

FACTOR 14. ALLOCATION OF ORGANIZATION, FRANCHISES AND CONSENTS, MISCELLANEOUS INTANGIBLE PLANT AND OTHER RATE BASE ELEMENTS.

Factors are based on the allocation of the original cost less depreciation excluding the items being allocated, as follows:

Service Classification (1)	Original Cost Less Depreciation (2)	Allocation Factor (3)
<u>Volumetric Costs</u>		
Rate R	\$ 214,373,097	0.3179
Rate N	88,465,569	0.1312
Rate DS	38,059,800	0.0564
Rate LFD	28,566,073	0.0424
Rate XD Firm	58,603,266	0.0869
Interruptible	8,678	-
<u>Customer Costs</u>		
Rate R	194,850,380	0.2890
Rate N	34,362,984	0.0510
Rate DS	6,544,349	0.0097
Rate LFD	6,823,162	0.0101
Rate XD Firm	1,723,273	0.0026
Interruptible	1,910,828	0.0028
Total	<u>\$ 674,291,459</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs							Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)	
DIRECT LABOR EXPENSE															
750-760	Total Production & Gathering Operation Expenses	1	-	-	-	-	-	-	-	-	-	-	-	-	
761 - 769	Total Gas Raw Materials Expenses	1	-	-	-	-	-	-	-	-	-	-	-	-	
840	Storage	1A	33,000	23,427	9,573	-	-	-	-	-	-	-	-	-	
850 - 860	Total Transmission Operation Expenses	4	4,000	2,304	958	422	316	-	-	-	-	-	-	-	
861 - 867	Total Transmission Maintenance Expenses	4	80,000	46,072	19,168	8,432	6,328	-	-	-	-	-	-	-	
870	Operation Supervision and Engineering	10	1,907,000	387,502	161,142	70,940	53,015	234,561	954	696,055	192,035	62,359	34,707	4,768	
871	Distribution Load Dispatching	4a	98,000	23,030	9,575	4,194	3,116	57,693	392	-	-	-	-	-	
874	Mains And Services Expenses														
	Mains - Small	5	306,429	176,472	73,420	32,298	24,239	-	-	-	-	-	-	-	
	Mains - Large	17	762,478	359,966	149,751	65,878	49,409	137,475	-	-	-	-	-	-	
	Services	6C	1,042,093	-	-	-	-	-	-	901,098	128,594	7,399	3,439	729	
875	M & R Station Expenses -General	4a	272,000	63,920	26,574	11,642	8,650	160,126	1,088	-	-	-	-	-	
876	Measuring and Regulating Station Expenses-Indust	6B	59,000	-	-	-	-	-	-	-	-	-	35,424	12,779	
877	Measuring and Regulating Station Expenses-City G	4a	9,000	2,115	879	385	286	5,298	36	-	-	-	-	-	
878	Meter And House Regulator Expenses	6	941,000	-	-	-	-	-	-	395,785	307,801	156,771	62,953	2,635	
879	Customer Installation Expenses	6	447,000	-	-	-	-	-	-	188,008	146,214	74,470	29,904	1,252	
880	Other Expenses	10	465,000	94,488	39,293	17,298	12,927	57,195	233	169,725	46,826	15,206	8,463	1,163	
881	Rent	10	-	-	-	-	-	-	-	-	-	-	-	-	
885	Supervision - Engineering and Labor	11	452,000	177,184	73,721	32,408	24,318	59,935	90	50,308	13,515	4,294	10,125	3,119	
886	Structures & Improvements	18	-	-	-	-	-	-	-	-	-	-	-	-	
887	Mains - Small	5	837,378	482,246	200,636	88,260	66,237	-	-	-	-	-	-	-	
	Mains - Large	17	2,083,622	983,678	409,223	180,025	135,019	375,677	-	-	-	-	-	-	
889	M & R Equip - General	4a	147,000	34,545	14,362	6,292	4,675	86,539	588	-	-	-	-	-	
890	M & R Equip - Ind	6B	369,000	-	-	-	-	-	-	-	-	-	221,548	79,925	
891	M & R Equip - CG Check Station	4a	142,000	33,370	13,873	6,078	4,516	83,595	568	-	-	-	-	-	
892	Services	6C	783,000	-	-	-	-	-	-	677,060	96,622	5,559	2,584	548	
893	Meters & House Regulators	6	440,000	-	-	-	-	-	-	185,064	143,924	73,304	29,436	1,232	
895	Other Equipment	11	58,000	22,736	9,460	4,159	3,120	7,691	12	6,455	1,734	551	1,299	400	
894	Other Equipment	11	-	-	-	-	-	-	-	-	-	-	-	-	
901	Supervision	7	73,000	-	-	-	-	-	-	65,715	7,015	190	58	7	
902	Meter Reading Expenses	7	375,000	-	-	-	-	-	-	337,575	36,038	975	300	38	
903	Customer Records & Coll Expenses	7	2,318,000	-	-	-	-	-	-	2,086,664	222,760	6,027	1,854	232	
905	Miscellaneous Cust Accts Expenses	7	585,000	-	-	-	-	-	-	526,617	56,219	1,521	468	59	
907	Supervision	7	-	-	-	-	-	-	-	-	-	-	-	-	
908	Customer Assistance Expenses	9	363,000	-	-	-	-	-	-	363,000	-	-	-	-	
910	Miscellaneous Customer Service & Info. Exp.	7	17,000	-	-	-	-	-	-	15,303	1,634	44	14	2	
911	Supervision	8	-	-	-	-	-	-	-	-	-	-	-	-	
912	Demonstrating And Selling Expenses	8	184,000	-	-	-	-	-	-	166,262	17,738	-	-	-	
920	Administrative & General Salaries	12	5,252,000	1,130,756	428,038	185,921	139,703	432,240	1,050	2,406,466	329,826	92,960	69,326	16,281	
921	Office Supplies And Expenses	12	41,000	8,827	3,342	1,451	1,091	3,374	8	18,786	2,575	726	541	127	
925	Injuries and Damages	12	313,000	67,389	25,510	11,080	8,326	25,760	63	143,417	19,656	5,540	4,132	970	
932	Maintenance of General Plant	12	221,000	47,581	18,012	7,823	5,879	18,188	44	101,262	13,879	3,912	2,917	685	
Total Direct Labor Expense			21,480,000	4,167,608	1,686,510	734,986	551,170	1,745,347	5,126	9,500,625	1,784,605	511,808	519,492	126,951	145,781

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 15. ALLOCATION OF RETURN AND TAXES.

Factors are based on the result of allocating the original cost measure of value, as presented on the following pages.

Service Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 176,760,234	0.3179
Rate N	72,942,424	0.1312
Rate DS	31,386,741	0.0565
Rate LFD	23,549,446	0.0424
Rate XD Firm	48,321,549	0.0869
Interruptible	8,678	-
<u>Customer Costs</u>		
Rate R	160,656,869	0.2890
Rate N	28,328,835	0.0510
Rate DS	5,396,678	0.0097
Rate LFD	5,628,164	0.0101
Rate XD Firm	1,415,649	0.0025
Interruptible	1,579,541	0.0028
Total	<u>\$ 555,974,808</u>	<u>1.0000</u>

FACTOR 16. ALLOCATION OF REGULATORY COMMISSION EXPENSES, ASSESSMENTS AND OTHER REVENUES.

Factors are based on the allocated cost of service excluding those items being allocated.

Service Classification	Total Cost of Service	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 43,872,795	0.2654
Rate N	17,426,493	0.1054
Rate DS	7,423,908	0.0449
Rate LFD	5,570,965	0.0337
Rate XD Firm	13,555,205	0.0820
Interruptible	16,782	0.0001
<u>Customer Costs</u>		
Rate R	62,233,711	0.3763
Rate N	9,865,327	0.0597
Rate DS	2,336,100	0.0141
Rate LFD	2,003,174	0.0121
Rate XD Firm	475,539	0.0029
Interruptible	555,944	0.0034
Total	<u>\$ 165,335,943</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs							Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)	
RATE BASE															
DISTRIBUTION PLANT															
374	Land	18	276,467	137,238	57,090	25,103	18,855	38,180	-	-	-	-	-	-	
374	Land Rights of Way	4	3,109,045	1,790,499	744,927	327,693	245,925	-	-	-	-	-	-	-	
375	Structures And Improvements	18	1,678,902	833,407	346,693	152,444	114,501	231,856	-	-	-	-	-	-	
376	Mains - Small	5	86,160,035	49,619,564	20,643,944	9,081,268	6,815,259	-	-	-	-	-	-	-	
	Mains - Large	4	231,097,024	133,088,776	55,370,847	24,357,626	18,279,775	-	-	-	-	-	-	-	
	Mains - Direct Assign	DA	50,838,568	-	-	-	-	50,838,568	-	-	-	-	-	-	
378	Measuring & Regulating Equipment - General	18	14,220,894	7,059,252	2,936,615	1,291,257	969,865	1,963,905	-	-	-	-	-	-	
379	Measuring & Regulating Equipment - SCADA	18	-	-	-	-	-	-	-	-	-	-	-	-	
379	Measuring & Regulating Equipment - City Gate	18	14,208,221	7,052,961	2,933,998	1,290,106	969,001	1,962,155	-	-	-	-	-	-	
380	Services	6C	167,880,263	-	-	-	-	-	145,166,063	20,716,424	1,191,950	554,005	117,516	134,304	
381	Meters	6	27,157,497	-	-	-	-	-	11,422,443	8,883,217	4,524,439	1,816,837	76,041	434,520	
382	Meter Installations	6	-	-	-	-	-	-	-	-	-	-	-	-	
383	House Regulators	6A	983,231	-	-	-	-	-	860,229	123,002	-	-	-	-	
384	House Regulator Installations	6A	1,369,696	-	-	-	-	-	1,198,347	171,349	-	-	-	-	
385	Industrial Measuring & Regulating Equipment	6B	6,431,544	-	-	-	-	-	-	-	-	3,861,499	1,393,072	1,176,973	
386	Other Property on Customer Premises	6	-	-	-	-	-	-	-	-	-	-	-	-	
386	Other Property on Customer Premises - Farm Taps	6	-	-	-	-	-	-	-	-	-	-	-	-	
386	Other Property on Customer Premises - Gas Lights	6	-	-	-	-	-	-	-	-	-	-	-	-	
386	Other Property on Customer Premises - CNG Refue	6	-	-	-	-	-	-	-	-	-	-	-	-	
387	Other Equipment	10	42,723	8,681	3,610	1,589	1,188	5,255	21	15,594	4,302	1,397	778	107	
387	Other Equipment - Graphic Data Base	10	-	-	-	-	-	-	-	-	-	-	-	-	
	Total Distribution Plant		605,454,110	199,590,378	83,037,724	36,527,086	27,414,369	55,039,919	21	158,662,676	29,898,294	5,717,786	6,233,119	1,586,736	1,745,998
GENERAL PLANT															
389	Land and Land Rights	12	770,030	165,787	62,757	27,259	20,483	63,373	154	352,828	48,358	13,630	10,164	2,387	2,849
390	Structures And Improvements	12	14,997,130	3,228,882	1,222,266	530,898	398,924	1,234,264	2,999	6,871,685	941,820	265,449	197,962	46,491	55,489
391	Office Furniture And Equipment	12	751,838	161,871	61,275	26,615	19,999	61,876	150	344,492	47,215	13,308	9,924	2,331	2,782
392	Transportation Equipment	12	5,451,763	1,173,765	444,319	192,992	145,017	448,680	1,090	2,497,998	342,371	96,496	71,963	16,900	20,172
394	Tools, Shop And Garage Equipment	12	4,607,606	992,018	375,520	163,109	122,562	379,206	922	2,111,205	289,358	81,555	60,820	14,284	17,048
396	Power Operated Equipment	12	55,057	11,854	4,487	1,949	1,465	4,531	11	25,227	3,458	975	727	171	204
397	Communication Equipment	12	8,457	1,821	689	299	225	696	2	3,875	531	150	112	26	31
398	Miscellaneous Equipment	12	426,920	91,916	34,794	15,113	11,356	35,136	85	195,615	26,811	7,556	5,635	1,323	1,580
399	Other Tangible Property	12	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total General Plant		27,068,801	5,827,914	2,206,107	958,234	720,031	2,227,762	5,413	12,402,925	1,699,922	479,119	357,307	83,913	100,155
	Total Plant		632,522,911	205,418,292	85,243,831	37,485,320	28,134,400	57,267,681	5,434	171,065,601	31,598,216	6,196,905	6,590,426	1,670,649	1,846,153
COMMON PLANT ALLOCATED @ 14.89%															
301	Organization	14	20,692	6,578	2,715	1,167	877	1,798	-	5,980	1,055	201	209	54	58
389.1	Land and Land Rights	12	737,055	158,688	60,070	26,092	19,606	60,660	147	337,719	46,287	13,046	9,729	2,285	2,727
390.2	Structures and Improvements	12	4,035,074	868,751	328,859	142,842	107,333	332,087	807	1,848,871	253,403	71,421	53,263	12,509	14,930
391	Office Furniture and Equipment	12	381,981	82,241	31,131	13,522	10,161	31,437	76	175,024	23,988	6,761	5,042	1,184	1,413
392.1	Transportation Equipment	12	912	196	74	32	24	75	-	418	57	16	12	3	3
	Total Common Plant		5,175,714	1,116,454	422,849	183,655	138,001	426,057	1,030	2,368,012	324,790	91,445	68,255	16,035	19,131
INFORMATION SERVICES (IS) ALLOCATED @ 28.17%															
391	Office Furniture and Equipment	12	2,556,463	550,406	208,352	90,499	68,002	210,397	511	1,171,371	160,546	45,249	33,745	7,925	9,459
391.1	Office Furniture and Equip. - New CIS Software	7	23,155,306	-	-	-	-	-	-	20,844,406	2,225,225	60,204	18,524	2,316	4,631
	Total Information Services		25,711,769	550,406	208,352	90,499	68,002	210,397	511	22,015,777	2,385,771	105,453	52,269	10,241	14,090
READING SERVICE CENTER ALLOCATED @ 27.49%															
390.1	Structures And Improvements	12	215,477	46,392	17,561	7,628	5,732	17,734	43	98,732	13,532	3,814	2,844	668	797
	Less:														
390.1	Empire Bldg. to Electric Div. @ 13.04%	12	(1,092,717)	(235,262)	(89,056)	(38,682)	(29,066)	(89,931)	(219)	(500,683)	(68,623)	(19,341)	(14,424)	(3,387)	(4,043)
INTANGIBLE PLANT															
301	Organization	14	86,238	27,415	11,314	4,864	3,656	7,494	-	24,923	4,398	837	871	224	241
302	Franchises And Consents	14	9,422	2,995	1,236	531	399	819	-	2,723	481	91	95	24	26
304	Land and Land Rights	14	-	-	-	-	-	-	-	-	-	-	-	-	-
305	Manufactured Gas Plant Remediation	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total Nondepreciable Plant		95,660	30,410	12,550	5,395	4,055	8,313	-	27,646	4,879	928	966	248	267
	Total Utility Plant in Service		662,628,814	206,926,692	85,816,087	37,733,815	28,321,124	57,840,251	6,799	195,075,085	34,258,565	6,379,204	6,700,336	1,694,454	1,876,395

UGI PENN NATURAL GAS, INC.

COST OF SERVICE AS OF SEPTEMBER 30, 2018, AT PROPOSED REVENUE LEVEL ALLOCATED TO RATE R, RATE N, RATE DS, RATE LFD, RATE XD, AND INTERRUPTIBLE SERVICE CLASSIFICATIONS

Account (1)	Factor Ref. (2)	Cost of Service (3)	Volumetric Costs						Customer Costs					
			Rate R (4)	Rate N (5)	Rate DS (6)	Rate LFD (7)	Rate XD Firm (8)	Interruptible (9)	Rate R (10)	Rate N (11)	Rate DS (12)	Rate LFD (13)	Rate XD Firm (14)	Interruptible (15)
OTHER RATE BASE ELEMENTS														
Gas Storage Inventory	1A	4,729,000	3,357,117	1,371,883	-	-	-	-	-	-	-	-	-	-
Cash Working Capital	12	4,773,000	1,027,627	389,000	168,964	126,962	392,818	955	2,186,989	299,744	84,482	63,004	14,796	17,660
Cash Working Capital - Purchased Gas Related	1	2,631,000	2,103,748	527,252	-	-	-	-	-	-	-	-	-	-
Materials & Supplies	12	4,621,000	994,901	376,612	163,583	122,919	380,308	924	2,117,342	290,199	81,792	60,997	14,325	17,098
Deferred Taxes	14	(118,433,000)	(37,649,851)	(15,538,410)	(6,679,621)	(5,021,559)	(10,291,828)	-	(34,227,137)	(6,040,083)	(1,148,800)	(1,196,173)	(307,926)	(331,612)
Customer Deposits	8	(4,975,000)	-	-	-	-	-	-	(4,495,410)	(479,590)	-	-	-	-
Investment Tax Credit	14	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Other Rate Base Elements		<u>(106,654,000)</u>	<u>(30,166,458)</u>	<u>(12,873,663)</u>	<u>(6,347,074)</u>	<u>(4,771,678)</u>	<u>(9,518,702)</u>	<u>1,879</u>	<u>(34,418,216)</u>	<u>(5,929,730)</u>	<u>(982,526)</u>	<u>(1,072,172)</u>	<u>(278,805)</u>	<u>(296,854)</u>
Total Measure of Value		\$ 555,974,814	\$ 176,760,234	\$ 72,942,424	\$ 31,386,741	\$ 23,549,446	\$ 48,321,549	\$ 8,678	\$ 160,656,869	\$ 28,328,835	\$ 5,396,678	\$ 5,628,164	\$ 1,415,649	\$ 1,579,541

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 17. ALLOCATION OF OPERATION AND MAINTENANCE EXPENSES ASSOCIATED WITH LARGE MAINS.

Factors are based on the allocation of rate base for large and directly assigned mains.

Service Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 133,088,776	0.4721
Rate N	55,370,847	0.1964
Rate DS	24,357,626	0.0864
Rate LFD	18,279,775	0.0648
Rate XD Firm	50,838,568	0.1803
Interruptible	-	-
Total	<u>\$ 281,935,592</u>	<u>1.0000</u>

FACTOR 18. ALLOCATION OF RATE BASE ASSOCIATED M&R STATION EQUIPMENT.

Factors are based on the composite allocation of all mains.

Service Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
<u>Volumetric Costs</u>		
Rate R	\$ 182,708,340	0.4964
Rate N	76,014,791	0.2065
Rate DS	33,438,894	0.0908
Rate LFD	25,095,034	0.0682
Rate XD Firm	50,838,568	0.1381
Interruptible	-	-
Total	<u>\$ 368,095,627</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 19. ALLOCATION OF UNCOLLECTIBLE ACCOUNTS

Factors are based on history of net write-offs by class.

Service Classification	3-Yr. Average of Net Write-offs	Allocation Factor
(1)	(2)	(3)
<u>Customer Costs</u>		
Rate R	\$ 2,847,456	0.9600
Rate N	114,529	0.0386
Rate DS	4,247	0.0014
Rate LFD	-	0.0000
Rate XD Firm	-	0.0000
Interruptible	-	0.0000
Total	<u>\$ 2,966,233</u>	<u>1.0000</u>

FACTOR 20. ALLOCATION OF PENALTY REVENUE

Factors are based on an analysis of penalty revenue, by class.

Service Classification	Penalty Revenue	Allocation Factor
(1)	(2)	(3)
<u>Customer Costs</u>		
Rate R	\$ 1,243,988	0.6981
Rate N	415,527	0.2332
Rate DS	122,485	0.0687
Rate LFD	-	0.0000
Rate XD Firm	-	0.0000
Interruptible	-	0.0000
Total	<u>\$ 1,782,000</u>	<u>1.0000</u>

UGI PENN NATURAL GAS, INC.

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

	Cost of Service (1)	Rate R (2)	Rate N (3)	Rate DS (4)	Rate LFD (5)	Rate XD Firm (6)	Interruptible (7)
Fully Allocated Customer Costs							
Customer Costs	76,078,455	\$ 61,303,417	\$ 9,499,596	\$ 2,225,429	\$ 2,013,271	\$ 477,960	\$ 558,782
Number of bills	2,028,624	1,826,208	194,916	5,268	1,656	180	396
Customer Cost per bill		\$ 33.57	\$ 48.74	\$ 422.44	\$ 1,215.74	\$ 2,655.33	\$ 1,411.07
Direct Customer Costs							
<u>O & M Expenses:</u>							
874 Mains And Services Expenses							
Mains	-	-	-	-	-	-	-
Services	3,372,115	2,915,868	416,119	23,942	11,128	2,360	2,698
876 M & R Station Expenses - Industrial	82,000	-	-	-	49,233	17,761	15,006
878 Meter and House Regulator Expenses	1,272,000	535,003	416,071	211,915	85,097	3,562	20,352
879 Customer Installations Expenses	570,000	239,742	186,447	94,962	38,133	1,596	9,120
890 M & R Equip - Industrial	423,000	-	-	-	253,969	91,622	77,409
892 Services	1,414,000	1,222,686	174,488	10,039	4,666	990	1,131
893 Meters & House Regulators	723,000	304,094	236,493	120,452	48,369	2,024	11,568
901 Supervision	131,999	118,826	12,685	343	106	13	26
902 Meter Reading Expenses	443,999	399,689	42,668	1,154	355	44	89
903 Customer Records & Coll Expenses	4,435,001	3,992,387	426,204	11,531	3,548	444	887
903.1 Universal Service Program	3,732,000	3,732,000	-	-	-	-	-
904 Uncollectible Accounts	1,965,135	1,880,053	81,016	4,066	-	-	-
905 Miscellaneous Cust Accts Expenses	671,000	604,034	64,483	1,745	537	67	134
907 Supervision	-	-	-	-	-	-	-
908 Customer Assistance Expenses	431,000	431,000	-	-	-	-	-
910 Miscellaneous Customer Service Exp.	43,999	39,609	4,228	114	35	4	9
911 Supervision	-	-	-	-	-	-	-
912 Demonstrating and Selling Expenses	251,000	226,804	24,196	-	-	-	-
912.1 Energy Efficiency and Conservation	1,730,000	1,337,128	223,175	169,697	-	-	-
913 Advertising Expenses	232,000	209,635	22,365	-	-	-	-
916 Miscellaneous	61,000	55,120	5,880	-	-	-	-
926 Employee Pensions and Benefits	2,754,670 *	2,078,810	390,570	111,860	113,740	27,730	31,960
408 Payroll Taxes	945,379 *	713,430	134,040	38,389	39,035	9,517	10,968
il O & M Expenses	25,684,297	21,035,918	2,861,128	800,209	647,951	157,734	181,357

UGI PENN NATURAL GAS, INC.

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

	Cost of Service (1)	Rate R (2)	Rate N (3)	Rate DS (4)	Rate LFD (5)	Rate XD Firm (6)	Interruptible (7)
Association Expense							
380 Services	7,196,183	6,222,540	888,009	51,093	23,747	5,037	5,757
381 Meters	1,284,251	540,156	420,079	213,956	85,916	3,596	20,548
382 Meter Installations	-	-	-	-	-	-	-
383 House Regulators	38,337	33,541	4,796	-	-	-	-
384 House Regulator Installations	47,345	41,422	5,923	-	-	-	-
385 Industrial M & R Equipment	216,773	-	-	-	130,151	46,953	39,669
390 Structures and Improvements	434,162 *	356,064	48,801	13,755	10,258	2,409	2,875
391 Office Furniture And Equipment	2,100,219 *	1,854,879	209,107	18,438	11,867	2,641	3,287
Total Depreciation	11,317,270	9,048,602	1,576,715	297,242	261,939	60,636	72,136
Rate Base							
380 Services	167,880,262	145,166,063	20,716,424	1,191,950	554,005	117,516	134,304
381 Meters	27,157,497	11,422,443	8,883,217	4,524,439	1,816,837	76,041	434,520
382 Meter Installations	-	-	-	-	-	-	-
383 House Regulators	983,231	860,229	123,002	-	-	-	-
384 House Regulator Installations	1,369,696	1,198,347	171,349	-	-	-	-
385 Industrial M & R Equipment	6,431,544	-	-	-	3,861,499	1,393,072	1,176,973
390 Structures And Improvements	8,378,896 *	6,871,685	941,820	265,449	197,962	46,491	55,489
391 Office Furniture and Equipment	25,217,065 *	22,535,293	2,456,974	125,522	67,235	13,756	18,285
Deferred Taxes	(43,251,731) *	(34,227,137)	(6,040,083)	(1,148,800)	(1,196,173)	(307,926)	(331,612)
Customer Deposits	(4,975,000)	(4,495,410)	(479,590)	-	-	-	-
Subtotal Rate Base	189,191,460	149,331,513	26,773,113	4,958,560	5,301,365	1,338,950	1,487,959
Taxes and Return @ 12.3%	23,236,554	18,340,943	3,288,282	609,012	651,115	164,450	182,752
Total Direct Customer Costs	\$ 60,238,121	\$ 48,425,463	\$ 7,726,125	\$ 1,706,463	\$ 1,561,005	\$ 382,820	\$ 436,245
Less: USP and EEC Recovery	5,349,275	4,956,403	223,175	169,697	-	-	-
Total	\$ 54,888,846	\$ 43,469,060	\$ 7,502,950	\$ 1,536,766	\$ 1,561,005	\$ 382,820	\$ 436,245
Number of bills	2,028,624	1,826,208	194,916	5,268	1,656	180	396
Direct Costs per bill		\$ 23.80	\$ 38.49	\$ 291.72	\$ 942.64	\$ 2,126.78	\$ 1,101.63

* Customer cost portion of account.

UGI PENN NATURAL GAS, INC.

CALCULATION OF COSTS RELATED TO LFD AND XD DEMAND CHARGES

<u>Capital Costs</u>	<u>Rate LFD</u>	<u>Rate XD Firm</u>
Depreciation	\$ 740,454	\$ 1,622,693
Taxes Other Than Income	82,672	229,282
Income Taxes	915,162	1,875,650
Income Available for Return	<u>1,980,122</u>	<u>4,058,317</u>
Total	<u>\$ 3,718,410</u>	<u>\$ 7,785,942</u>
Cost Per Month	\$ 309,868	\$ 648,829
Demand Volume Units per Month	26,746	494,708
Demand Costs per MCF	\$ 11.59	\$ 1.31

UGI PENN NATURAL GAS, INC.

Docket No. R-2016-2580030

COST OF SERVICE ALLOCATION STUDY

AS OF SEPTEMBER 30, 2018

(Average of Cost of Service Allocation Studies)

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC
Harrisburg, Pennsylvania

CONTENTS

Schedule A-2. Comparison of Cost of Service with Revenues Under Present and Proposed Rates by Service Classification for the Twelve Months Ended September 30, 2018 - Without Gas Costs	1
Schedule B-2. Development of Rate of Return by Service Classification Under Present Rates.....	2
Schedule C-2. Development of Rate of Return by Service Classification Under Proposed Rates.....	3

UGI PENN NATURAL GAS, INC.

COMPARISON OF COST OF SERVICE WITH REVENUES UNDER PRESENT AND PROPOSED RATES
BY SERVICE CLASSIFICATION FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2018
WITHOUT GAS COSTS

Service Classification (1)	Average of Cost of Service Studies		Pro Forma Margin Revenues,				Revenue Increase	
	Amount (2)	Percent (3)	Under Present Rates		Under Proposed Rates		Amount (8)	Percent Increase (9)
			Amount (4)	Percent (5)	Amount (6)	Percent (7)		
Rate R	\$ 105,236,800	63.9%	\$ 88,666,470	62.1%	\$ 103,680,687	62.9%	\$ 15,014,217	16.9%
Rate N	26,944,860	16.4%	21,457,704	15.0%	26,222,989	16.0%	4,765,285	22.2%
Rate DS	9,644,571	5.9%	7,840,832	5.5%	9,464,319	5.8%	1,623,487	20.7%
Rate LFD	7,549,543	4.6%	7,132,566	5.0%	7,553,330	4.6%	420,764	5.9%
Rate XD Firm	14,101,633	8.6%	16,684,990	11.7%	16,550,361	10.1%	(134,629)	-0.8%
Interruptible	911,543	0.6%	945,000	0.7%	916,738	0.6%	(28,262)	-3.0%
Total	<u>\$ 164,388,949</u>	<u>100.0%</u>	<u>\$ 142,727,562</u>	<u>100.0%</u>	<u>\$ 164,388,423</u>	<u>100.0%</u>	<u>\$ 21,660,861</u>	15.2%
Other Operating Revenues	2,278,000		2,278,000		2,278,000		0	
Total	<u>\$166,666,949</u>		<u>\$145,005,562</u>		<u>\$166,666,423</u>		<u>\$21,660,861</u>	14.9%

UGI PENN NATURAL GAS, INC.

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PRESENT RATES

Item (1)	AVERAGE of Cost of Service Studies (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD (7)	Interruptible (8)
1. Revenues From Tariff Sales and Transportation	\$ 142,727,562	\$ 88,666,470	\$ 21,457,704	\$ 7,840,832	\$ 7,132,566	\$ 16,684,990	\$ 945,000
2. Other Revenues	\$ 2,278,000	\$ 1,563,644	\$ 495,857	\$ 150,966	\$ 21,944	\$ 41,872	\$ 3,717
3. Total Operating Revenues	145,005,562	90,230,114	21,953,561	7,991,798	7,154,510	16,726,862	948,717
4. Less: Operating Expenses	98,107,978	65,133,081	15,043,300	5,307,654	4,026,787	8,051,558	545,598
5. Return and Income Taxes	46,897,584	25,097,033	6,910,261	2,684,144	3,127,723	8,675,304	403,119
6. Less: Interest Expense	11,953,000	7,237,542	2,171,860	787,703	621,556	1,069,794	64,546
7. Taxable Income	34,944,584	17,859,491	4,738,401	1,896,441	2,506,167	7,605,510	338,573
8. Less: Income Taxes	12,709,193	6,495,669	1,723,367	690,109	911,249	2,765,520	123,279
9. Net Return (Ln 5 - Ln 8)	34,188,391	18,601,364	5,186,894	1,994,035	2,216,474	5,909,784	279,840
10. Original Cost Measure of Value (Factor 15.)	555,974,807	336,637,460	101,001,529	36,614,239	28,933,574	49,758,845	3,029,160
11. Rate of Return, Percent	6.15%	5.53%	5.14%	5.45%	7.66%	11.88%	9.24%
12. Relative Rate of Return	1.00	0.90	0.84	0.89	1.25	1.93	1.50

UGI PENN NATURAL GAS, INC.

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PROPOSED RATES

Item (1)	AVERAGE of Cost of Service Studies (2)	Rate R (3)	Rate N (4)	Rate DS (5)	Rate LFD (6)	Rate XD-Firm (7)	Interruptible (8)
1. Revenues From Tariff Sales and Transportation	\$ 164,388,423	\$ 103,680,687	\$ 26,222,989	\$ 9,464,319	\$ 7,553,330	\$ 16,550,361	\$ 916,738
2. Other Revenues	2,278,000	1,561,548	496,931	151,405	22,285	42,114	3,717
3. Total Operating Revenues	166,666,423	105,242,235	26,719,920	9,615,724	7,575,615	16,592,475	920,455
4. Less: Operating Expenses	98,381,949	65,438,593	15,038,019	5,299,531	4,021,207	8,039,067	545,532
5. Return and Income Taxes	68,284,474	39,803,642	11,681,901	4,316,193	3,554,408	8,553,408	374,923
6. Less: Interest Expense	11,953,000	7,239,932	2,170,665	786,507	621,556	1,069,794	64,546
7. Taxable Income	56,331,474	32,563,710	9,511,236	3,529,686	2,932,852	7,483,614	310,377
8. Less: Income Taxes	21,584,000	12,477,710	3,643,379	1,353,317	1,124,526	2,866,355	118,712
9. Net Return (Ln 5 - Ln 8)	46,700,474	27,325,932	8,038,522	2,962,876	2,429,882	5,687,053	256,211
10. Original Cost Measure of Value (Factor 15.)	555,974,811	336,703,560	100,977,139	36,605,002	28,922,752	49,737,198	3,029,160
11. Rate of Return, Percent	8.40%	8.12%	7.96%	8.09%	8.40%	11.43%	8.46%
12. Relative Rate of Return	1.00	0.97	0.95	0.96	1.00	1.36	1.01

3