

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Northeast Ohio)	
Natural Gas Corp. for an Increase in Gas)	Case No. 18-1720-GA-AIR
Distribution Rates)	
In the Matter of the Application of Northeast Ohio)	Case No. 18-1721-GA-ATA
Natural Gas Corp. for Tariff Approval)	
In the Matter of the Application of Northeast Ohio)	Case No. 18-1722-GA-ALT
Natural Gas Corp. for Approval of Alternative)	
Regulation)	

DIRECT TESTIMONY

OF

**CHARLES E. LOY
ON BEHALF OF**

NORTHEAST OHIO NATURAL GAS CORP.

_____	Management Policies, Practices, and Organization
_____	Operating Income
_____	Rate Base
_____	Allocations
_____	Rate of Return
<u> X </u>	Rates and Tariffs
<u> X </u>	Other (Cost of Service Study, Gas Infrastructure Replacement Clause)

January 11, 2019

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EXHIBITS

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- CEL-1 - Summary of Current and Proposed Rates
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1 **I. BACKGROUND AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS AFFILIATION, AND ADDRESS.**

3 A. My name is Charles E. Loy. I am employed by GDS Associates, Inc. (“GDS”), and my
4 business address is 919 Congress Avenue, Suite 1110, Austin, Texas 78701.

5 **Q. PLEASE OUTLINE YOUR FORMAL EDUCATION.**

6 A. I received a Bachelor of Business Administration degree with a concentration in
7 Accounting from the University of Texas at Austin. I am also a Certified Public
8 Accountant in the State of Texas.

9 **Q. PLEASE DESCRIBE YOUR PERSONAL EXPERIENCE.**

10 Prior to joining GDS in June of 2001, I was General Manager of Rates and Regulatory
11 Affairs of AquaSource, Inc. (“AquaSource”), a wholly-owned water and wastewater
12 subsidiary of DQE, Inc., a publicly traded electric utility located in Pittsburgh, PA. As the
13 General Manager of Rates and Regulatory Affairs at AquaSource, my responsibilities
14 included the organization, preparation, and management of various rate filings and
15 proceedings on rate requests and other regulatory matters in the twelve states where
16 AquaSource provided water and wastewater utility service. Prior to joining AquaSource,
17 I was a Manager of Regulatory Affairs for Citizens Utilities Company, Public Services
18 Sector (“Citizens”). At Citizens, I was responsible for various regulatory matters in eight
19 states, including rate cases for water/wastewater, gas, and electric services. Prior to joining
20 Citizens, I was a Rate Manager with Southern Union Gas (“SUG”), where I prepared rate
21 filings, cost of service studies, and testimony for SUG’s various operations in Texas and
22 Oklahoma. My utility regulatory experience began with Diversified Utility Consultants as
23 a Senior Analyst, where I assisted in the review and analysis of various gas, electric, and

1 water company rate filings. A copy of my resume is attached as Appendix A to this
2 testimony.

3 **Q. WHAT IS YOUR PRESENT POSITION AND WHAT ARE YOUR**
4 **RESPONSIBILITIES IN THAT POSITION?**

5 A. I am a Principal with GDS. I assist private and public utilities with accounting, finance
6 and numerous other matters that pertain to the regulation and/or rates of utilities.

7 **Q. WOULD YOU PLEASE DESCRIBE GDS?**

8 A. GDS is an engineering and consulting firm with offices in Marietta, Georgia; Austin,
9 Texas; Auburn, Alabama; Orlando, Florida; Manchester, New Hampshire; and Madison,
10 Wisconsin. GDS has approximately 180 employees with backgrounds in engineering,
11 accounting, management, economics, finance, and statistics. GDS provides rate and
12 regulatory consulting services in the electric, natural gas, water, and telephone utility
13 industries. GDS also provides a variety of other services in the electric utility industry,
14 including power supply planning, generation support services, financial analysis, load
15 forecasting, and statistical services. Our clients are primarily publicly-owned utilities,
16 municipalities, and government agencies.

17 **Q. BEFORE WHAT REGULATORY COMMISSIONS HAVE YOU APPEARED AND**
18 **PRESENTED EXPERT TESTIMONY?**

19 A. I have provided expert witness testimony before a number of state regulatory commissions.
20 Information about the dockets in which I filed testimony or actively participated is included
21 in Appendix A to this testimony.

22 **II. PURPOSE OF TESTIMONY**

23 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

24 A. I am testifying on behalf of Northeast Ohio Natural Gas Corp. (the "Company" or "NEO").

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. I will address the cost of service study (“COSS”) and the proposed rate design for the
3 Company, as well as the Company’s proposed gas Infrastructure Replacement Program
4 (“IRP”).

5 **III. PROPOSED SYSTEM CONSOLIDATION AND CUSTOMER CLASSES**

6 **Q. PLEASE PROVIDE AN OVERVIEW OF THE PROPOSED CONSOLIDATION**
7 **OF THE NEO, ORWELL NATURAL GAS COMPANY (“ORWELL”), BRAINARD**
8 **GAS CORP. (“BRAINARD”), AND SPELMAN PIPELINE HOLDINGS, LLC**
9 **(“SPELMAN”) SYSTEMS.**

10 A. On September 28, 2018, in Case No. 18-1484-GA-UNC, NEO, Brainard, Spelman, and
11 Orwell filed a joint application at the Public Utilities Commission of Ohio (“Commission”)
12 seeking approval of a proposed merger of Brainard, Orwell, and Spelman into NEO as the
13 sole, surviving entity. Although the merger has not yet closed, the joint application has
14 recently been approved by this commission. For purposes of this testimony, NEO or
15 Company will refer to the approved consolidated entity that comprises each of the four
16 individual entities identified above (unless specifically stated otherwise). The Company
17 consists of three separate utility systems in Ohio and a pipeline system that services these
18 utilities. Kevin Degenstein’s testimony provides an overview of the proposed
19 consolidation, including the justifications for consolidation. The Company is proposing
20 that costs from the four entities be combined for purposes of this rate case and that the
21 thirteen different rate classes for all four systems be consolidated into the following three
22 separate classes for COSS purposes: 1) Small General Service; 2) General Service

(including General Transportation Service); and 3) Large General Service (including Large General Transportation Service).¹

Q. PLEASE DESCRIBE HOW THESE THREE CLASSES WERE DETERMINED.

A. Although there were three separate retail tariffs, one each for NEO, Brainard, and Orwell, those separate tariffs were reduced to a consolidated tariff while keeping the base rates for the three utilities the same and shown in the merged tariff as area rates for each previous utility. Extensive similarity exists between the existing area rate classes for each entity. NEO (as a standalone entity) and Orwell use the following rate classes:

- Small General Service (consuming less than 500 Mcf per year) (“SGS”)
- General Service (consuming at least 500 Mcf per year) (“GS”)
- General Transportation Service (consuming at least 500 Mcf per year) (“GTS”)
- Large General Service (consuming at least 10,000 Mcf per year) (“LGS”)
- Large General Transportation Service (consuming at least 10,000 Mcf per year) (“LGTS”)

Brainard’s current area rate classes consist of the following:

- Sales Rate (no consumption restrictions)
- Transportation Service – Firm and Interruptible (no consumption restrictions)

For COSS purposes, Brainard customers were placed in comparable rate classifications to those of NEO and Orwell. Customer classifications for all customers within a named rate class (i.e., SGS, GS, etc.) are the same for all three systems (i.e., NEO, Brainard, and

¹ As described more fully in the rate design section of my testimony, the Company’s proposed rate design consists of one set of rates for the customers of NEO and Brainard, and another set of rates for customers of Orwell, which results in six different rates being charged to customers in NEO’s consolidated system.

Orwell); however, these systems have different rates and billing tiers. For an overview of the current and proposed rates, please see Exhibit CEL-1.

**Q. HOW WERE EXISTING RATE CLASSES ASSIGNED TO CONSOLIDATED
RATE CLASSES?**

A. For purposes of cost allocation and rate design, all existing SGS customers were assigned to the consolidated SGS class, all GS and GTS customers to the consolidated GS class, and all LGS and LGTS customers to the consolidated LGS class - i.e., with the exception of Brainard customers who were assigned to classifications consistent with their usage.

**Q. IS THE COMPANY PROPOSING INCREASES FOR CUSTOMERS WHOSE
CURRENT RATES ARE SET BY CONTRACT?**

A. No. The Company is not proposing any increases for its contract customers, who are defined as customers receiving reduced rates based on 1) the competitive services available to the customer, and 2) the Company's need for load preservation or 3) economic cost recovery. However, contract customers were included in the COSS to appropriately assign and allocate costs to the GS and LGS classes.

IV. COST OF SERVICE OVERVIEW

Q. WHAT IS THE PURPOSE OF A COST OF SERVICE STUDY?

A. Once a utility's revenue requirement has been calculated, a determination must be made concerning how the recovery will be allocated between the utility's customers. The cost of service study provides guidance on this allocation, and how the recovery should be split between the customer charges and volumetric charges for each rate class. First, costs are directly assigned or allocated between the demand, commodity, and customer classifications. Next, various metrics (e.g., the total gas sales to each class, load placed on

the system, or number of customers) are used to equitably apportion the costs to each class of customers used in the study. The resulting cost of service for each class is the starting point for assigning any required revenue increases. The COSS can be found in Application Schedule E-3.2

Q. PLEASE DESCRIBE HOW THE CLASSIFICATION OF COSTS DISCUSSED ABOVE IS PERFORMED.

A. The classification of each cost and rate base item reflects that cost or asset's basic causal relationship to the functions provided by the utility. Costs related to the demand component reflect the cost of providing gas to each customer class at the time of their highest or peak demand. Commodity-classified costs are those that vary on the amount of gas used by customers, while customer-classified costs are those that are required to connect the customer to the system and provide functions (such as billing) that are required regardless of the consumption of gas. Some costs and assets are split between two or more classifications, e.g., the distribution system assets and the associated maintenance work. A portion of the costs of mains is classified as customer-related, with the rest being demand-related. This represents the split between the distribution system needed to attach and provide basic service to each customer and the portion of the distribution system that must be sized larger to meet the peak day demands of customers. The portions of the system assigned to each classification were determined using a "minimum system study" in which the cost of constructing a system designed to attach each customer to the distribution system and to meet minimal usage is compared to the cost of the actual system. The proportion of costs associated with the theoretical minimum system are assigned to the

customer function, which represents the portion of plant needed to connect a customer to the system regardless of their usage.

Q. WHAT IS THE NEXT STEP IN THE COSS?

A. Once costs have been classified, they are allocated to customers using factors that best reflect how the costs are incurred. For instance, demand-related costs are allocated to customer classes based on peak day usage by class. As the Company does not have daily usage by customer or by class, it is necessary to make a reliable estimation of peak day usage using historical information. To do this, a summer month with low usage, August for the NEO stand-alone entity and Orwell systems and September for the Brainard system, was used to calculate the amount of base usage for an average user of each class. A high use winter month, January for the NEO stand-alone entity and Orwell systems and February for the Brainard system, was used to determine the heating degree day use by class. The heating use was then adjusted by peak day heating degree days within the distribution system to determine the excess heating demand that average users place on the system during the peak demand day. Combining the resulting base use per day with the peak demand day heating load derives the peak day usage by class that is used for the allocation of demand-costs. Customer-classified costs are allocated using metrics, such as the number of connections or the weighted average cost of meters. Commodity costs are generally allocated based on each class's total annual usage.

Q. HOW WERE THE COSTS FROM THE SPELMAN SYSTEM ASSIGNED?

A. The Spelman pipeline system serves mainly SGS and GS customers connected by the NEO stand alone entity in areas along the route of the pipeline.² As a result, Spelman's investments and costs were allocated between the SGS and GS customer classes.

Q. WHAT IS THE RESULT OF THE COSS?

A. The COSS indicates that increases in revenues are needed for the SGS and LGS customer classes, and that the GS customer class is recovering more than its cost of service:

Table 1: COSS Base Rate Revenue Increases

Description	Total Company	SGS	GS	LGS
COSS Base Rate Revenue Requirement	\$ 18,482,351	\$ 14,072,880	\$ 2,984,944	\$ 1,424,526
Current Base Rate Revenue	14,956,297	9,606,398	4,122,287	1,227,613
Absolute Increase in Base Rate Revenue	\$ 3,526,053	\$ 4,466,482	\$ (1,137,342)	\$ 196,913
Relative Increase in Base Rate Revenue	23.58%	46.49%	-27.59%	16.04%

Q. DO THESE WIDELY VARYING INCREASE PERCENTAGE RESULTS RAISE ANY QUESTIONS ABOUT THE ACCURACY OF THE COSS?

A. No. It is important to consider that Brainard, Orwell, and NEO were previously independent utilities whose rates were established based on their own individual data and characteristics. It is also noteworthy that Orwell previously functioned as a municipal gas company, which operated under a different set of incentives and potentially pursued different objectives than an investor owned utility. For example, a municipally owned/operated utility may favor its residential customers by, among other things, providing an advantageous distribution rate for them. Also, classifications with a limited number of customers in the rate classes can skew results. The results do indicate further study and division of customers should be performed in the future to determine a more

² There is also a larger customer that is served off peak by NEO with gas supplied through Spelman.

homogeneous basis for assigning rate classifications. Importantly, however, the COSS confirms that the largest service class (in terms of sheer numbers and system saturation) should receive a larger rate increase while commercial and industrial customers should receive a more moderated rate increase.

V. PROPOSED CUSTOMER CLASS REVENUE INCREASES

Q. PLEASE DETAIL HOW THE COMPANY IS PROPOSING TO ALLOCATE THE REQUIRED REVENUE INCREASE BETWEEN THE CUSTOMER CLASSES.

A. The Company is proposing to increase revenues by the amounts illustrated in Table 2 below:

Table 2: Proposed Base Rate Revenue Increases

Description	Total Company	SGS	GS	LGS
Proposed Base Rate Revenues	\$ 18,482,248	\$ 12,484,244	\$ 4,708,667	\$ 1,289,338
Current Base Rate Revenue	14,956,297	9,606,398	4,122,287	1,227,613
Absolute Increase in Base Rate Revenue	\$ 3,525,951	\$ 2,877,846	\$ 586,380	\$ 61,725
Relative Increase in Base Rate Revenue	23.58%	29.96%	14.22%	5.03%

Q. WHY IS THE COMPANY'S PROPOSAL MORE REASONABLE THAN ADJUSTING BASE REVENUE BY CLASS USING THE CALCULATED RESULTS OF THE COSS?

A. Although cost-based rates are desirable from cost-causation and price signaling perspectives, full movement from existing rate to cost-based rates in one move is not always practical where there is a large customer bill impact. In those cases, it is reasonable to deviate from the absolute results of the COSS to provide a more equitable outcome to customers while still considering the implications of the COSS results. Spreading the costs more equitably between the customer classes reduces the bill impacts that would otherwise occur if cost-based rates were adopted. To keep rates as competitive as possible, the

Company's proposed rate design distributes the total required increase of 25.4% between the three rate classes, with the SGS classification limited to an increase of 30.0%, and the LGS classification limited to an increase of 5%. It is reasonable to assign an increase of 14.2% to the GS classification because, like the other customer classes, GS customers have not had a rate increase for an extended period of time. Rate increases to only two of the three classes would appear to be inequitable.

VI. RATE DESIGN AND BILL IMPACTS

Q. ARE THERE THEORIES, PRINCIPLES, AND PRACTICAL CONSIDERATIONS TO WEIGH WHEN DEVELOPING RATES FOR NATURAL GAS UTILITY SERVICE?

A. Yes. There are always difference of opinion as to which considerations should receive the most weight or influence. However, there is general agreement that gas utility rates should be designed to encourage and facilitate the following objectives:

- Equity in the rates charged to gas consumers;
- Rates should provide a reasonable opportunity to recover the cost of service;
- Preference should be given to moderate changes rather than significant changes from present rates, if possible;
- Customer understandability; and
- Reasonable incentives for the gas utility to control costs.

Q. PLEASE EXPLAIN THE COMPANY'S APPROACH TO THE PROPOSED RATE DESIGN.

1 A. As I discussed above, two separate area rates are being proposed for each class: one rate
2 for customers formerly on the NEO and Brainard systems and another rate for those
3 customers on the Orwell system. Ultimately, the Company plans to charge the same rates
4 in all systems. However, given that Orwell customers pay much higher customer and
5 volumetric charges than NEO or Brainard customers, the Company must proceed one step
6 at a time. Accordingly, as a reasonable first step, the Company proposes that each class in
7 the consolidated system should incur the same customer charge.

8 **A. COSS Customer Charge Calculations and Proposed Customer Charges**

9 **Q. WHY IS PROPOSING THE SAME CUSTOMER CHARGE FOR ALL SYSTEMS**
10 **A REASONABLE FIRST STEP?**

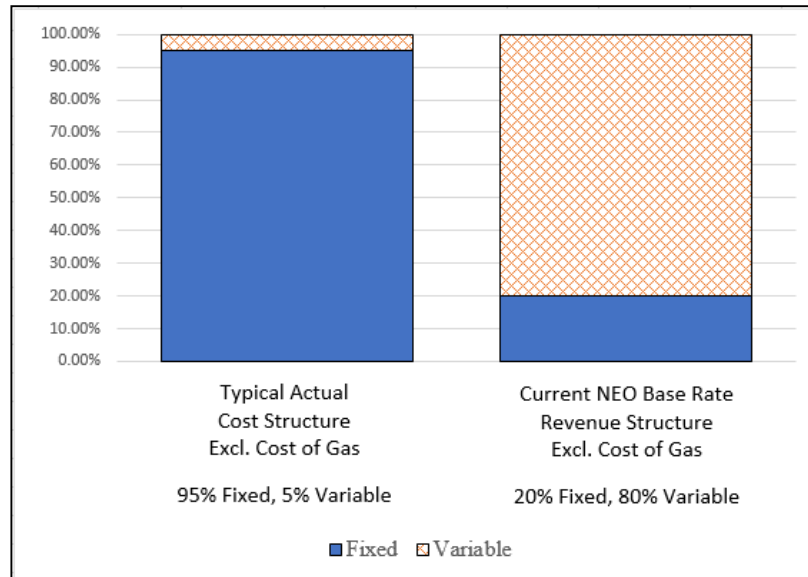
11 A. The current revenues of the consolidated system have a significantly low fixed revenue
12 factor. Also, there is a disparity among the various existing customer charges by area.
13 Since the Company's eventual goal is to charge uniform rates within all system classes, a
14 reasonable first step is to increase customer charges to levels that are substantiated by the
15 fixed costs determined in the COSS, on par with other Ohio natural gas utilities, while at
16 the same time improving the Company's fixed revenue recovery ratio.

17 **Q. PLEASE DISCUSS THE IMPORTANCE OF MAINTAINING A REASONABLE**
18 **FIXED REVENUE RATIO.**

19 A. Table 3, presented below, demonstrates the challenge of establishing the appropriate
20 balance between fixed and variable rates. As seen below, the actual cost structure of a
21 typical gas utility is much different than its base revenue rate structure. Gas utilities have
22 a larger portion of fixed costs (i.e., costs that will be incurred regardless of gas use such as
23 debt service, payroll and related taxes and benefits, capital costs, depreciation, and taxes)

1 than variable costs or costs that are incurred as gas is consumed. Gas utilities' base
2 revenues need to cover more fixed or semi-fixed costs than variable costs or costs that
3 fluctuate with gas consumption.

4 *Table 3: Comparison of Gas Utilities' Actual Cost Incurred to*
5 *Rate Revenue Collected Under Current Rates*



6
7 Additionally, conservation efforts have been widespread and are viewed favorably by most
8 of the population in the United States, thereby making it unlikely that consumption will
9 return to previous levels. This is especially true given that acceptance of conservation has
10 gradually expanded over the past forty years. Federal legislation (e.g., the Energy Policy
11 Act of 1992, the Energy Policy Act of 2005, and the Energy Independence and Security
12 Act of 2007) has led to the development of more efficient fixtures and appliances. In the
13 Company's service area, new home growth is low and most existing homes have very little
14 prospect of adding more gas fixtures and appliances. Thus, additional gas fixtures or
15 appliances are not being added to existing homes; instead, only replacements are occurring,
16 which are typically more efficient than the older devices they are replacing. There is no

1 indication that a pro-conservation attitude, particularly those held by the younger
2 generations, will subside in any meaningful way. Appliances and fixtures will continue to
3 become more energy efficient.

4 **Q. HOW DO THESE FACTORS IMPACT RATE DESIGN FOR GAS UTILITIES?**

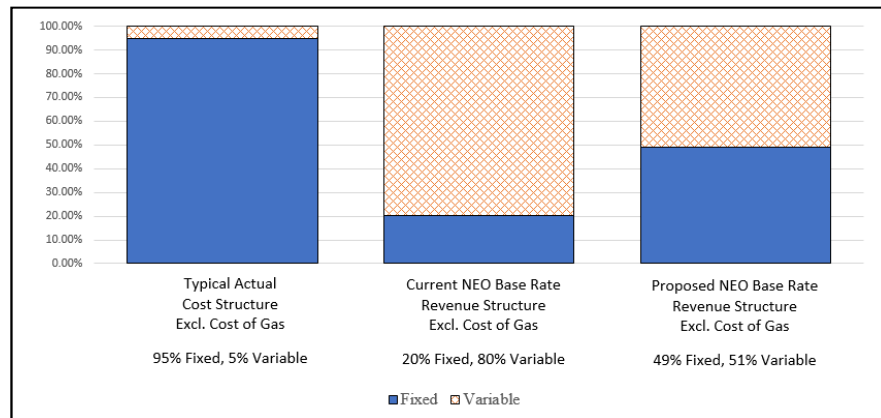
5 A. These factors make it highly unlikely that current consumption will return to the levels of
6 five or ten years ago. This downward usage trend will require a greater revenue
7 requirement to be recovered through fixed rates to maintain cost recovery and earnings.
8 Given the verified decline in gas usage, there will be a trend, if not already occurring, that
9 more and more state utility commissions will approve higher fixed customer charges for
10 gas utilities. Base revenue from fixed charges can be predicted with a high degree of
11 certainty and is important for maintaining adequate and stable cash flows to meet ongoing
12 fixed costs. However, the base rates that a gas company charges must strike a reasonable
13 balance between fixed and variable cost recovery. The fixed cost must be reasonable to
14 customers, while the variable cost must be set at a level sufficient to send an adequate price
15 signal regarding variable use. On the other hand, if a gas utility incurs significant negative
16 or low cash flows during the non-heating months, it is a good indication that fixed customer
17 charges need to be increased. Currently, about 20% of the Company's consolidated
18 regulated base revenues are fixed.

19 **Q. TABLE 3 ABOVE COMPARED THE TYPICAL GAS UTILITIES' COST**
20 **STRUCTURE TO THE COMPANY'S CURRENT REVENUE STRUCTURE.**
21 **WHAT WOULD BE THE COMPANY'S REVENUE STRUCTURE IF THE**
22 **COMPANY'S PROPOSED RATE DESIGN TOOK EFFECT?**

A. Table 4 below expands on Table 3 by including the Company’s revenue structure under the proposed customer charge levels.

Table 4: Comparison of Gas Utilities’ Actual Cost Incurred to Rate

Revenue Collected Under Current and Proposed Rates



Q. HOW DO HIGHER CUSTOMER CHARGES REDUCE REVENUE RECOVERY VOLATILITY ASSOCIATED WITH SEASONAL USAGE PATTERNS AND ABNORMAL WEATHER EVENTS?

A. Although base revenue related costs are distributed somewhat evenly throughout the year, the majority of revenues are collected during the heating months. As such, there can be a mismatch of revenue collection during the summer months when compared to the winter months. Additionally, extreme weather events or weather that significantly deviates from the norm can cause similar issues – i.e., the utility will have higher revenues if weather causes usage to be high without incurring additional expenses, or the utility may see lower than required revenues if usage is low without being able to cut costs. Furthermore, higher customer charges allow managers to accurately forecast revenues, which lowers the cost of financing and allows planning of system replacements to be done with more certainty

Small General Service Rates

Q. PLEASE DESCRIBE THE PROPOSED RATE DESIGN FOR THE SGS CUSTOMERS.

A. For the NEO and Brainard service areas, the Company is proposing a \$20.00 customer charge and \$2.00 per Mcf for all usage. For the Orwell service area, the proposed customer charge is \$20.00 and \$2.80 per Mcf for all usage.

Q. HOW DOES THIS COMPARE TO THE CURRENT SGS RATES?

A. Currently, NEO SGS customers pay a \$6.30 customer charge and \$2.49 per Mcf. Orwell SGS customers pay a \$9.00 customer charge, \$3.33 per Mcf for the first 50 Mcf, \$3.10 per Mcf for the next 2,450 Mcf, and \$3.00 for all usage above 2,500 Mcf. Brainard's tariff establishes a \$7.00 customer charge and \$2.50 per Mcf for all usage. The Company's proposed rates eliminate the declining block charges for the Orwell customers in order to mitigate the bill impacts as much as possible while also enabling the Company to recover its cost to serve customers.

Q. WHAT TYPICAL BILL IMPACTS WILL SGS CUSTOMERS SEE?

A. The total base rate bill amounts at current and proposed rates for all systems, along with the absolute and relative bill impacts, are shown below in Tables 5, 6, and 7. Information for additional usage levels can be found in the COSS. The average monthly usage for SGS customers over the test year was 8.04 Mcf, with average usage in February of 18.81 Mcf and average usage in August of 1.72 Mcf.

Table 5: NEO - Small General Service

Bill Impact Including Cost of Gas

Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
5 Mcf	\$ 45.63	\$ 56.82	\$ 11.19	24.5%
10 Mcf	84.65	92.65	8.01	9.5%
20 Mcf	162.68	164.31	1.63	1.0%
50 Mcf	396.78	379.27	(17.51)	-4.4%
Includes average cost of gas at \$4.7611 per Mcf				

Table 6: Orwell. - Small General Service

Base Rate Bill Impact Including Cost of Gas

Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
5 Mcf	\$ 55.22	\$ 63.99	\$ 8.77	15.9%
10 Mcf	101.00	106.98	5.98	5.9%
20 Mcf	192.54	192.96	0.42	0.2%
50 Mcf	467.19	450.91	(16.27)	-3.5%
Includes average cost of gas at \$4.7611 per Mcf				

Table 7: Brainard - Small General Service

Base Rate Bill Impact Including Cost of Gas

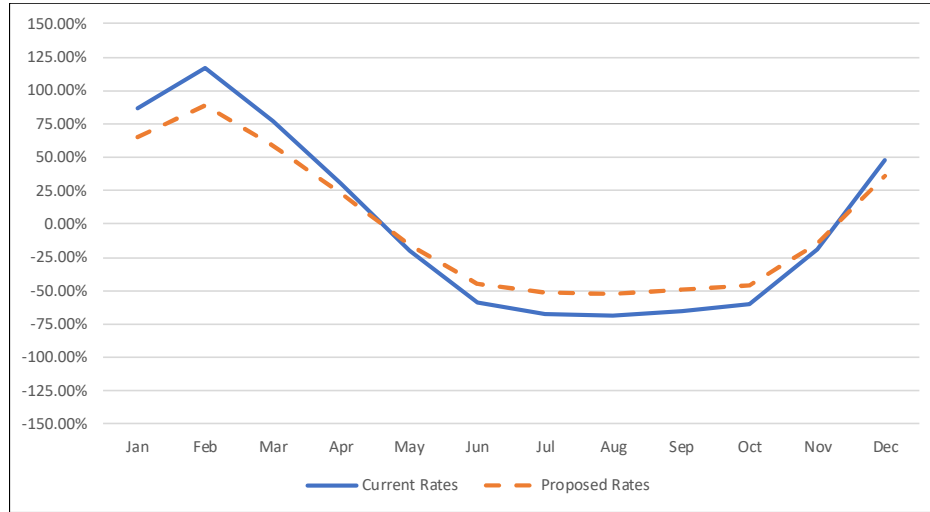
Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
5 Mcf	\$ 45.01	\$ 56.05	\$ 11.04	24.5%
10 Mcf	82.68	91.11	8.43	10.2%
20 Mcf	158.02	161.22	3.21	2.0%
50 Mcf	384.03	371.56	(12.47)	-3.2%
Includes average cost of gas at \$4.7611 per Mcf				

Q. PREVIOUSLY, YOU STATED THAT HIGHER CUSTOMER CHARGES REDUCE VOLATILITY DUE TO SEASONAL VARIATIONS AND EXTREME WEATHER EVENTS. CAN YOU DEMONSTRATE THE EFFECT OF THE PROPOSED CHANGES ON BILL VOLATILITY?

A. Yes. As illustrated in Table 8 below, using a current standalone NEO customer as an example, applying current rates using the weather-adjusted average usages by month for the SGS customer class, bills including base rates and cost of gas during peak months

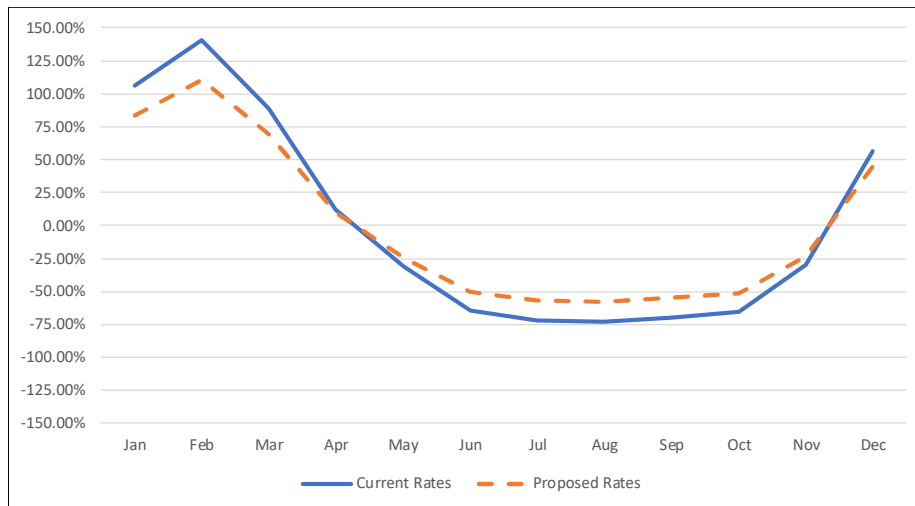
exceeded 215% of the average bill over the year. Meanwhile, bills during non-peak months fell below 35% of the average bill. Under the proposed rate design, the amount of volatility is reduced to 189% during peak usage and 48% during non-peak months.

Table 8: Volatility of Average SGS Customer Bill based on Current and Proposed Company Rates, Including Cost of Gas



In a hypothetical extreme weather event where heating usage increased by 30%, customers under current rates would see a dramatic swing in volatility, which is mitigated under proposed rates:

Table 9: Volatility of Average SGS Customer Bill based on Current and Proposed Company Rates, Including Cost of Gas - Extreme Weather Event



General Service Rates

Q. PLEASE DESCRIBE THE PROPOSED RATE DESIGN FOR THE GS CUSTOMERS.

A. For the NEO and Brainard systems, the Company is proposing a \$100.00 customer charge and \$1.80 per Mcf for all usage. For the Orwell system, the proposed customer charge is \$100.00 and \$2.00 per Mcf for all usage.

Q. HOW DOES THIS COMPARE TO THE CURRENT GS RATES?

A. Currently, NEO GS customers are charged a \$17.50 customer charge, \$2.42 per Mcf for the first 500 Mcf, and \$2.00 per Mcf over 500 Mcf. Orwell GS customer are charged a \$50.00 customer charge, \$3.00 per Mcf for the first 500 Mcf, and \$2.50 per Mcf over 500 Mcf. Brainard's tariff includes a \$17.50 customer charge, \$2.42 per Mcf for usage below 500 Mcf, and \$2.00 per Mcf for usage above 500 Mcf.

Q. WHAT TYPICAL BILL IMPACTS WILL GS CUSTOMERS SEE?

A. The total base rate bill amounts at current and proposed rates for all systems, along with the absolute and relative bill impacts, are shown below. For the test year, the annual average usage per customer in the GS class was 87.29 Mcf, with a peak month average usage per customer of 168.81 Mcf, and a non-peak month average usage per customer of 34.53 Mcf.

Table 10: NEO - General Service

Bill Impact Including Cost of Gas

Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
25 Mcf	\$ 211.62	\$ 278.87	\$ 67.26	31.8%
50 Mcf	404.87	452.76	47.90	11.8%
75 Mcf	598.12	626.65	28.53	4.8%
150 Mcf	1,174.11	1,148.31	(25.79)	-2.2%
200 Mcf	1,556.85	1,496.09	(60.76)	-3.9%
Includes average cost of gas at \$4.7611 per Mcf				

Table 11: Orwell - General Service

Bill Impact Including Cost of Gas

Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
25 Mcf	\$ 272.70	\$ 298.95	\$ 26.25	9.6%
50 Mcf	492.91	492.91	(0.00)	0.0%
75 Mcf	713.12	686.87	(26.25)	-3.7%
150 Mcf	1,373.74	1,268.75	(104.99)	-7.6%
200 Mcf	1,814.16	1,656.67	(157.48)	-8.7%
Includes average cost of gas at \$4.7611 per Mcf				

Table 12: Brainard - General Service

Bill Impact Including Cost of Gas

Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
25 Mcf	\$ 207.74	\$ 278.16	\$ 70.42	33.9%
50 Mcf	397.12	451.33	54.20	13.6%
75 Mcf	586.51	624.50	37.99	6.5%
150 Mcf	1,154.66	1,144.01	(10.65)	-0.9%
200 Mcf	1,533.43	1,490.35	(43.08)	-2.8%
Includes average cost of gas at \$4.7611 per Mcf				

Large General Service Rates

Q. PLEASE DESCRIBE THE PROPOSED RATE DESIGN FOR THE LGS CUSTOMERS.

A. The proposed LGS rate design is a declining tier rate that includes a \$300 customer charge. Customers on the NEO system will pay \$1.00 per Mcf for the first 50 Mcf, \$0.80 per Mcf for the next 2,450 Mcf, \$0.60 per Mcf for the next 7,500 Mcf, and then \$0.16 per Mcf thereafter. Customers taking service from the Orwell system will pay \$2.50 per Mcf for the first 100 Mcf, \$2.00 per Mcf for the next 2,400 Mcf, \$1.00 per Mcf for the next 7,500 Mcf, and \$0.75 per Mcf thereafter.

Q. HOW DOES THIS COMPARE TO THE CURRENT LGS RATES?

A. The proposed rates for NEO and Orwell maintain the same volumetric charges as the current rates. Currently, NEO LGS customers pay a \$52.50 customer charge, and Orwell LGS customers pay a \$100.00 customer charge.

Q. WHAT BILL IMPACTS WILL LGS CUSTOMERS TYPICALLY SEE?

A. The total base rate bill amounts at current and proposed rates for the NEO and Orwell systems, along with the absolute and relative bill impacts, are identified below:

Table 13: NEO - Large General Service

Bill Impact Including Cost of Gas

Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
25 Mcf	211.09	467.85	256.76	121.6%
100 Mcf	668.56	916.02	247.47	37.0%
500 Mcf	3,050.30	3,278.28	227.98	7.5%
1,000 Mcf	6,027.49	6,231.10	203.61	3.4%
5,000 Mcf	32,290.85	32,446.83	155.98	0.5%
Includes average cost of gas at \$4.7611 per Mcf				

Table 14: Orwell - Large General Service

Base Rate Bill Impact Including Cost of Gas

Usage (Mcf)	Current Bill	Proposed Bill	Increase - \$	Increase - %
25 Mcf	312.07	522.04	209.97	67.3%
100 Mcf	933.32	1,143.30	209.97	22.5%
500 Mcf	4,036.70	4,246.67	209.97	5.2%
1,000 Mcf	7,915.92	8,125.88	209.97	2.7%
5,000 Mcf	36,324.97	36,534.92	209.94	0.6%
Includes average cost of gas at \$4.7611 per Mcf				

Q. PLEASE EXPLAIN THE PROPOSAL TO MOVE THE BRAINARD LGS CUSTOMERS TO THE GS CUSTOMER CLASS.

A. As more fully explained in Mr. Jed Henthorne's testimony, the large contract service customer taking service under the LGS rate during the test year is no longer taking service from NEO (the standalone entity). The remaining accounts in this class do not contain enough usage to remain in the LGS customer class. If any LGS customers begin taking service in the former Brainard area, they will be charged the same rates as those applied to NEO customers.

VII. PROPOSED GAS INFRASTRUCTURE REPLACEMENT PROGRAM CLAUSE

Q. PLEASE DISCUSS INFRASTRUCTURE REPLACEMENT CLAUSES IN GENERAL.

1 A. Infrastructure replacement clauses target specific used and useful or existing in-service
2 plant for replacement due to deterioration or obsolescence. Infrastructure clauses are
3 effective in promoting more timely replacement of critical infrastructure while eliminating
4 or reducing regulatory lag and the need for frequent full general rate proceedings. These
5 surcharges allow utilities to recover the revenue requirement associated with the ongoing
6 non-revenue producing replacement infrastructure incurred in-between rate cases. Exhibit
7 CEL-2 is a copy of a list prepared by the American Gas Association, which identifies the
8 natural gas utilities, by state, that currently have some form of infrastructure clause in
9 effect. As Exhibit CEL-2 illustrates, four natural gas utilities in the state of Ohio (i.e.,
10 Columbia Gas, Dominion East, Duke Energy and Vectren) have infrastructure replacement
11 riders. Infrastructure clauses differ from state to state, but they generally help to enhance
12 customer safety and service while helping utilities attract capital and investment.
13 Moreover, infrastructure replacement clauses can be used to accelerate a utility's
14 replacement efforts while either mitigating or avoiding rate shock to customers. These
15 clauses allow the utility to begin earning a return on necessary infrastructure replacement
16 outside of a general rate proceeding, and many include limits on the surcharges and some
17 form of reconciliation procedures to protect ratepayers.

18 **Q. PLEASE DISCUSS THE GAS INFRASTRUCTURE REPLACEMENT PROGRAM**
19 **(“IRP”) THE COMPANY IS PROPOSING.**

20 A. Existing IRP clauses within Ohio are complex and administratively burdensome for smaller
21 utilities. These existing programs appear to reflect all investment costs along with
22 incorporating all possible changes in operating expense. What the Company is proposing
23 is to recover a return on and the return of any investment made under this program based

1 on the actual investment made in a previous calendar year. To explain and demonstrate the
2 impact of the infrastructure replacement clause, I developed an example using the
3 forecasted replacement costs for five years (i.e., 2020 through 2024) provided to me by
4 NEO. The forecasted data consists of the dollar amounts related to the accelerated
5 replacement of mains, service lines, and service risers, which the Company proposes to
6 undertake over the next five years. The example assumes the proposed clause (or rider)
7 will be effective over the next five years. The example also provides the calculations and
8 resulting IRP rates by class. Exhibit CEL-3 shows how the annual IRP revenue
9 requirements would be calculated under the clause. Exhibit CEL-4 further demonstrates
10 how each annual IRP surcharge rate is calculated.

11 **Q. PLEASE EXPLAIN THE IRP REVENUE REQUIREMENT CALCULATIONS**
12 **APPEARING ON EXHIBIT CEL-3.**

13 A. Exhibit CEL-3 calculates the cumulative revenue requirements using the five-year forecast
14 of “IRP eligible” mains and services replacements provided to me by NEO. Lines 1
15 through 4 provide the IRP plant additions and show plant balances increasing as
16 replacements are added with the progression of each year. The year 2020, i.e., the first
17 year the proposed IRP will be implemented, reflects the replacements added during 2019.
18 Lines 6 through 10 compute the annual depreciation expense, and line 13 reflects calendar
19 year net plant, or rate base, to be used in each year’s IRP calculation. The rate of return
20 (“ROR”) on line 14 reflects the requested return on equity, adjusted for income taxes. The
21 proposed ROR allows the Company to recover the incremental income taxes that will result
22 from the additional IRP revenues. The revenue requirement for each year’s IRP is
23 calculated on lines 15 through 17. The return reflects the ROR on line 14 multiplied by

1 the average rate base on line 13. The depreciation expense for the current year's
2 replacements is computed using the half year convention to recognize that the current
3 replacements have not been in service a full year before it is added to the depreciation
4 expense computed for the previous years.

5 **Q. PLEASE EXPLAIN THE IRP RATE CALCULATIONS APPEARING ON**
6 **EXHIBIT CEL-4.**

7 A. The revenue requirements calculated on Exhibit CEL-3 are carried forward to Exhibit
8 CEL-4 on line 1. The Company is proposing to develop one single rate each year to be
9 billed to each customer class. Line 4 reflects the amount to be collected in the upcoming
10 year. The first year reflects only the calculated revenue requirement while subsequent
11 years include adjustments for any over or under collections from the previous calendar
12 year. The calculations in the example are based on forecasted bills, which are derived from
13 year-end customer counts multiplied by twelve months. Line 5 calculates the actual rate
14 that will appear on all customers' bills each month. Lines 6 and 7 calculate the over or
15 under collection that will be included in the subsequent year's rate calculations.

16 **Q. HOW DOES THE COMPANY'S PROPOSED IRP COMPARE TO SIMILAR**
17 **PROGRAMS APPROVED BY THE COMMISSION?**

18 A. As stated earlier, the Company's proposed rider is not as complex as other riders that have
19 been approved by the Commission. Compared to other natural gas utilities in Ohio, the
20 Company is a small operation and the administrative cost needed to make numerous filings
21 to track and measure all impacted expenses, taxes, etc. would reduce the net recovery of
22 investment costs. At this time, the Company considers the proposed IRP as temporary and
23 designed to proactively meet the most dire and urgent infrastructure replacement needs of

the Company in the immediate short-term. Once the IRP is approved and implemented for a few years, the Company will have ample experience with its implementation. Further, the Company intends to add more experienced personnel and make further, necessary refinements in future rate case proceedings.

Q. HOW WILL THE PROPOSED IRP IMPACT CUSTOMER BILLS?

A. Table 15 below shows the Company's monthly bill impacts using average bill usage amounts for the years 2020 through 2024 as an example. The data in Table 15 also summarizes average annual usage and the total annual IRP charges for each class.

Table 15: NEO Monthly Bill Impact From the IRP

Year		NEO - SGS	Brainard - SGS	Orwell - SGS	NEO - GS	Brainard - GS	Orwell - GS	NEO - LGS	Orwell - LGS
2020	Average Monthly Bill *	\$ 35.48	\$ 68.97	\$ 41.04	\$235.47	\$449.14	\$374.43	\$4,353.19	\$ 5,350.18
	Monthly GIRC Charges	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18
	Percent Increase	0.506%	0.260%	0.437%	0.076%	0.040%	0.048%	0.004%	0.003%
2021	Average Monthly Bill *	\$ 36.27	\$ 70.66	\$ 42.03	\$239.04	\$454.89	\$382.84	\$4,417.10	\$ 5,350.53
	Monthly GIRC Charges	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53
	Percent Increase	1.449%	0.744%	1.250%	0.220%	0.116%	0.137%	0.012%	0.010%
2022	Average Monthly Bill *	\$ 37.15	\$ 72.70	\$ 43.08	\$244.35	\$469.64	\$392.81	\$4,570.97	\$ 5,360.64
	Monthly GIRC Charges	\$ 0.92	\$ 0.92	\$ 0.92	\$ 0.92	\$ 0.92	\$ 0.92	\$ 0.92	\$ 0.92
	Percent Increase	2.465%	1.259%	2.125%	0.375%	0.195%	0.233%	0.020%	0.017%
2023	Average Monthly Bill *	\$ 36.84	\$ 70.17	\$ 41.47	\$239.14	\$459.02	\$380.12	\$4,449.93	\$ 5,350.18
	Monthly GIRC Charges	\$ 1.17	\$ 1.17	\$ 1.17	\$ 1.17	\$ 1.17	\$ 1.17	\$ 1.17	\$ 1.17
	Percent Increase	3.172%	1.665%	2.818%	0.489%	0.255%	0.307%	0.026%	0.022%
2024	Average Monthly Bill *	\$ 37.07	\$ 71.05	\$ 42.72	\$237.17	\$453.16	\$377.71	\$4,350.17	\$ 5,359.77
	Monthly GIRC Charges	\$ 1.67	\$ 1.67	\$ 1.67	\$ 1.67	\$ 1.67	\$ 1.67	\$ 1.67	\$ 1.67
	Percent Increase	4.518%	2.357%	3.920%	0.706%	0.370%	0.443%	0.038%	0.031%
* Bills reflect proposed rates.									

Q. WHO IS SPONSORING THE IRP RIDER AND ITS IMPLEMENTATION?

A. Mr. Kevin Degenstein will address the specifics of the proposed IRP Rider and how the Company will implement it if approved by the Commission.

1 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

2 **A. Yes.**

EDUCATION: BBA Accounting, University of Texas at Austin
Certified Public Accountant, Texas

PROFESSIONAL MEMBERSHIPS:

American Water Works Association
National Association of Water Companies
Water Environment Federation
Texas Society of Certified Public Accountants
American Public Gas Association
Texas Gas Association

EXPERIENCE:

Mr. Loy has over 25 years' of experience helping organizations meet challenges arising in both regulated and competitive environments within in the utility industry.

2001-Present GDS Associates, Inc.: Principal – Mr. Loy started with GDS in June of 2001. His focus is on regulatory accounting and finance. He is experienced in water, wastewater, natural gas, and electric regulatory and accounting matters. Mr. Loy assisted a number of water, wastewater and gas distribution clients with rate case filings before various regulatory authorities in a number of states. He has assisted with the financial analysis of wholesale purchase power and retail aggregation projects as a result of the deregulation of the electric industry in Texas. He has conducted analysis and developed recommendations regarding the Southwest Power Administration's rate increase on behalf of member clients. He has participated in a number of natural gas and electric projects involving rate increases, acquisition analysis and other special projects.

1999-2001 AquaSource Inc.: General Manager Rates and Regulatory Affairs - AquaSource Inc., a wholly owned subsidiary of DQE Inc and parent of Duquesne Light. AquaSource was formed in 1997 to take advantage of the consolidation in the water and wastewater industries and spent three years and more than \$400 million acquiring water and wastewater companies. Mr. Loy's duties included directing the compilation and filing of rate cases, acquisition analyses and related filings, regulatory commission/governmental relations in the twelve states in which AquaSource operates. Additionally, he supervised a professional staff located throughout the country and assisted in business development, developer contract negotiations and other special projects. His appointment came in the middle of AquaSource's aggressive acquisition phase. Accordingly, his first year was spent primarily working to clean up a very chaotic regulatory situation.

1993-1999 Citizens Utilities Company: Manager, Regulatory Affairs – Mr. Loy served as Project Manager of numerous multiple-company water and wastewater rate case filings, in Ohio, Illinois, Pennsylvania and Arizona. In those cases, he prepared and presented testimony, developed revenue requirement calculations, generated revenue and expense pro forma adjustments, performed working capital lead/lag studies, and evaluated rate design/cost of service issues. He proposed surcharge mechanisms for purchased water, a reverse osmosis process, and contract waste treatment. Additionally, Mr. Loy designed and directed the development of the multiple company revenue requirement models that generated filing schedules. In the fall of 1997, Citizens promoted Mr. Loy to Manager Regulatory Affairs. In the new position, he supervised the staff responsible for all regulatory activity involving gas, electric and water/wastewater in ten states. He was a key member of a team that negotiated a multimillion dollar water and wastewater agreement with a major developer in Phoenix on behalf of Citizens.

1989-1993 Southern Union Gas Company: Rate Manager – Mr. Loy joined Southern Union as Sr. Internal Auditor. In that capacity, he contributed to multiple projects pertaining to the upcoming merger

with a large publicly traded corporation. These projects included supervising audits of gas purchases, accounts receivable, accounts payable and oil and gas holdings. He was promoted to Rate Manager reporting to the Vice President of Regulatory Affairs. In that capacity, he supervised a team of four directing the preparation and implementation of 16 rate increase applications before various municipal and state regulatory bodies, and led negotiating sessions with elected and municipal officials. In addition to improving efficiency, he developed several rate mechanisms that resulted in increased earnings. One such efficiency was the Weather Normalization Adjustment Clause (WNAC). By eliminating weather-sensitive fluctuations, the WNAC increased earnings as much as 12%. He also developed a Cost of Service Adjustment Clause (CSAC) which was established in several smaller municipal jurisdictions. The CSAC allowed annual rate increases without the time and expense of major rate filings. Also, Mr. Loy performed analysis and due diligence for numerous municipal and private acquisitions.

1987-1989 Diversified Utility Consultants, Inc.: Sr. Accounting Analyst - Diversified Utility Consultants (DUC) is a consulting firm which represents consumers' interests in rate case proceedings. The firm's clients include municipalities and various state-supported consumer agencies. As a Sr. Accounting Analyst, Mr. Loy worked on seven electric rate cases, two gas rate cases and one water rate case.

Prior to 1987 Mr. Loy spent summers in college rough necking, both offshore and onshore, on oil and gas drilling rigs. His first job after college was in the oil & gas industry where he started in accounts receivable and specialized in collecting past due accounts. He was in the Joint Interest Auditing Department where he reviewed drilling costs and negotiated refunds for the company and its joint interest owners.

Regulatory Experience:

Mr. Loy has presented testimony and/or participated in cases before the following regulatory bodies:

Pennsylvania Public Utility Commission – Water/Wastewater, Steam
Public Utilities Commission of Ohio – Water/Wastewater, Gas
Indiana Regulatory Commission – Water/Wastewater
Idaho Public Utilities Commission- Water
Illinois Commerce Commission – Water/Wastewater
Arizona Corporation Commission – Water/Wastewater, Conservation Rates, Reclaimed Water
Arkansas Public Utility Commission - Water
Oklahoma Corporation Commission - Gas
Texas Railroad Commission - Gas
Texas Public Utilities Commission – Electric, Water/Wastewater/Electric
Texas Commission on Environmental Quality – Water/Wastewater, Conservation Rates
Delaware Public Service Commission – Water, Conservation Rates
New Mexico Public Regulation Commission – Water/Wastewater, Conservation rates
New York Public Service Commission – Water
Public Service Commission of Montana - Gas
Public Service Commission of South Carolina – Water/Wastewater
Connecticut Department of Public Utility Control - Water
New Jersey Board of Public Utilities - Water
El Paso Public Utilities Board – Gas

**WATER/WASTEWATER/GAS/ELECTRIC EXPERIENCE
LIST OF TESTIMONY, EXPERT PROCEEDINGS, AND ENGAGEMENTS BY
CHARLES E. LOY, CPA**

GAS UTILITY RATES AND REGULATION EXPERIENCE

Railroad Commission of Texas

GUD Docket 10190

Prepared filing and testimony of behalf of Hughes Natural Gas 2012 rate increase for the environs of the City of Magnolia.

GUD Docket 10083

Prepared filing and testimony of behalf of Hughes Natural Gas 2011 rate increase for the incorporated area of the City of Magnolia and environs.

GUD Docket 9731

Prepared filing and testimony of behalf of Hughes Natural Gas 2007 rate increase for the environs of the City of Magnolia.

GUD Docket 9488-9512

Prepared filing and testimony of behalf of West Texas Gas 2004 rate increase for the environs of cities served.

GUD Docket 8033

Filed testimony on behalf of Southern Union Gas Company's 1991 appeal for a rate increase in South Jefferson County.

GUD Docket 7878

Filed testimony and prepared the rate filing on behalf of Southern Union Gas Company's 1991 request for a rate increase in the Austin environs.

GUD Docket 6968

Assisted in the analysis of Southern Union Gas Company's 1987 appeal for a rate increase on the behalf of the City of Austin

Public Service Commission of Montana

Docket D2017.9.80

Filed testimony and prepared the cost of service and rate design, developed and explained the proposed Gas Infrastructure Reliability Clause (GIRC) and addressed the negative acquisition adjustment in the Energy West Montana's 2017/2018 rate filing.

Oklahoma Corporation Commission

Docket No. 001345

Presented testimony and prepared the rate filing on behalf of Southern Union Gas Company's 1992 rate request.

Pennsylvania Public Utility Commission

Docket No. 2013-2386293

Assisted the University of Pennsylvania with the analysis of Veolia Energy Philadelphia Inc.'s 2013 steam rate case.

Docket No. 2009-2111011

Assisted the University of Pennsylvania with the analysis of Trigen-Philadelphia Energy Corp's 2009 steam rate case.

Federal Energy Regulatory Commission

Docket No. RP09-791-000

Assist municipal customers of MoGas analyze issues in FERC 2009 gas transportation rate case.

Lower Valley Energy Distribution Cooperative – Afton, Wyoming

Developed cost of service and rate design study 2017/2018

City of Austin

- Presented testimony and prepared filing as well as conducted settlement negotiations associated with Southern Union's 1993 rate request.
- Presented testimony and prepared filing on behalf of Southern Union Gas Company's 1991 rate request.
- Assisted in the analysis of Southern Union Gas Company's 1987 rate request on behalf of the City of Austin.

City of El Paso Public Service Board

- Presented testimony and prepared filing as well as participated in the settlement negotiations of Southern Union's 1993 rate request.
- Presented testimony and prepared filing on behalf of Southern Union Gas Company 1991 rate request.

City of El Paso Public Service Board-cont.

- Presented testimony and prepared the filing on behalf of Southern Union Gas Company 1990 request.

City of Port Arthur

- Presented testimony and prepared filing on behalf of Southern Union Gas Company's 1991 rate request.
- Participated in Southern Union Gas Company's 1990 rate request.

City of Monahans

- Presented testimony and prepared filing on behalf of Southern Unions Gas Company's 1992 rate request.
- Assisted in the analysis of Southern Union Gas Company's 1989 rate request on the behalf of the City of Monahans.

City of Borger

- Prepared testimony and prepared the filing on behalf of Southern Union Gas Company's 1992 rate request.

- Participated in Southern Union Gas Company's 1989 rate request on the behalf of the City of Borger.

City of Galveston

- Presented testimony and prepared the filing on behalf of Southern Union Gas Company's 1992 rate request.

Other Gas Related Engagements

EPCOR

Report and analysis of Gas IOU's and their regulation in the State of Texas

Mitchell County Utility

Assist with divestiture of gas utility assets

Hughes Natural Gas

Ongoing assistance with GRIP filings

Markwest Energy Partners

Ongoing transportation rates and regulatory consulting

Consolidated Asset Management Services (CAMS)

Ongoing assistance regarding RRC Transmission pipeline issues

City of Alexandria, Louisiana

Financial review, allocated cost of service and rate study for the gas system.

City of George West, Texas

Gas utility rate study

Alamo Transmission

Assisted with initial tariff development and related cost of service

Dynamic Energy Concepts Incorporated

Assisted with the review of gas contracts, tariffs, analyzed usage data and assessed procurement practices for a number of US Veteran Hospitals across the country.

WATER UTILITY RATES AND REGULATION EXPERIENCE

Arizona Corporation Commission

Docket No. WS-01303A-006-0403

Presented testimony, prepared the Cost of Service study and rate design on behalf of Arizona-American Sun City and Sun City West Wastewater rate request.

Docket No. WS-01303A-06-0403

Presented testimony, prepared the Cost of Service study and rate design on behalf of Arizona-American Anthem/Aqua Fria Water and Wastewater rate request.

Docket No. WS-01303A-06-0014

Presented testimony, prepared the Cost of Service study, rate design, and assisted with the preparation of the revenue requirements on behalf of Arizona-American Mohave Water and Wastewater rate request.

Docket No. W-01656A-98-0577, SW-02334A-98-0577

Presented testimony for approval of a Central Arizona Project Water utilization plan, the implementation of a Groundwater Savings Fee and the recovery of deferred project costs.

Docket WS-02334A-98-0569

Presented a filing for the approval of an agreement relating to a wastewater plant de-nitrification project with the Sun City Recreation Centers and Del Webb Corporation.

Docket U-3454-97-599

Prepared and presented a filing for the approval of a CCN to provide water and wastewater services to Del Webb's Anthem project and the approval of two related agreements.

Docket No. E-1032-95-417 ET AL.

Presented testimony and prepared the rate filing on behalf of Citizens Utilities Maricopa County water properties 1995 rate request.

Arkansas Public Service Commission

Docket No. 09-130-U

Presented pro forma adjustments to revenues and prepared the Cost of Service study and rate design on behalf of United Water Arkansas's 2009 rate request.

Docket No. 06-160-U

Presented testimony, prepared the Cost of Service study and rate design on behalf of United Water Arkansas's 2006 rate request.

Docket No. 03-161-U

Presented testimony, prepared the Cost of Service study, rate design, and assisted with the preparation of the revenue requirements on behalf of United Water Arkansas's 2003 rate request.

Connecticut Department of Public Utility Control

Docket No. 07-05-44

Prepared the rate filing and supporting testimony on behalf of United Water Connecticut's 2007 water rate request.

Public Service Commission of South Carolina

Docket No. 2014-346-WS

Represented ratepayers in Daufuskie Island Utility Company's 2014 Request for Increase for Water and Sewer Rates and in the Rehearing or Supreme Court Remand in 2017. Filed Testimony in both proceedings.

Public Service Commission of Delaware

PSC Docket No. 16-0163

Presented testimony, prepared the Revenue Requirements Schedules, Cost of Service study and rate design on behalf of SUEZ Water Delaware's 2016 rate request

PSC Docket No. 09-60

Presented testimony, prepared the Cost of Service study and rate design on behalf of United Water Delaware's 2009 rate request.

PSC Docket No. 06-174

Presented testimony, prepared the Cost of Service study, rate design, revenue normalization and cash working capital requirements on behalf of United Water Delaware's 2006 rate request.

Idaho Public Utilities Commission

Case No. UWI-W-09-01

Presented testimony, prepared revenue and expense pro forma adjustments, and proposed rate design on behalf of United Water Idaho, Inc. 2010 rate request.

Indiana Utility Regulatory Commission

Cause No. 41842

Prepared the filing and presented testimony for the Petition of Utility Center Inc. for the recovery of Distribution System Improvement Charges -2001

Cause No. 41559

Prepared the filing and presented testimony for a Certificate of Territorial Authority to render Sewage service.- 2000

Cause No. 41968

Directed the preparation of Utility Center Inc.' request for authority to increase its rates and charges for water and sewer service. -2000

Illinois Commerce Commission

Docket No. 94-0481

Presented testimony and prepared the filing on behalf of Citizens Utilities Company of Illinois 1994 rate request.

Docket No. 95-0633

Presented testimony on behalf of Citizens Utilities Company of Illinois in Tudor Park Apartments vs. Citizens Utilities of Illinois.- 1995

Docket No. 97-0372

Presented testimony on behalf of Citizens Utilities of Illinois in the Application for Consent to and Approval of a Contract with Affiliated Interests. 1997

State Board of New Jersey Public Utilities

BPU Docket No. WRO702125

Prepared and presented testimony on the determination of the cash working capital requirements on behalf of United Water New Jerseys 2007 rate request.

New Mexico Public Regulation Commission

Case No. 11-00196-UT

Presented testimony and assisted with the preparation of the water rate filing on behalf of New Mexico American Water Company Clovis District

Case No. 09-00156-UT

Presented testimony and prepared the water rate filing on behalf of New Mexico American Water Company Edgewood District

Case No. 07-00435-UT

Presented testimony and prepared the water and wastewater rate filing on behalf of New Mexico Utilities Inc.

Case No. 08-00134-UT

Presented testimony and prepared the water rate filing on behalf of New Mexico –American Water Co.

New York Public Service Commission

Presented testimony, prepared the Cost of Service study and rate design on behalf of United Water New Rochelle's 2010 rate request.

Public Utilities Commission of Ohio

Docket No. 98-178-WS-AIR

Presented testimony and prepared the filing on behalf of Citizens Utilities Company of Ohio 1998 rate request.

Docket No. 94-1237

Presented testimony and prepared the filing on behalf of Citizens Utilities Company of Ohio 1994 rate request.

Pennsylvania Public Utility Commission

Docket Nos. R-2018-3002645 and R-2018-3002647

Filed testimony on behalf of Peoples Natural Gas Company LLC supporting capital and expense saving opportunities related to collaborative mains/service replacements.

Docket No. R-2009-2122887

Presented testimony, prepared the Cost of Service study and rate design on behalf of United Water Pennsylvania's 2009 rate request.

Docket No. R-00051186

Assisted with analysis/filing preparation of United Water Pennsylvania, Inc. 2005 Rate Case.

Docket No. R-00953300

Presented testimony on behalf of Citizens Utilities Company of Pennsylvania 1995 rate request.

Public Utility Commission of Texas

Docket 43242

Application for a 2014 Water Rate Tariff Change of Wiedenfeld Water Works

Prepared the application and filed testimony

Docket 44911

Application for a 2015 Sewer Rate Tariff Change of Bolivar Utility Services

Assisted in the preparation of the application

Docket 44809

Application for a 2015 Water/Sewer Rate Tariff Change of Quadvest LP

Prepared the application and filed testimony

Docket 47680

Application for a 2017 Sewer Rate Tariff Change of Bolivar Utility Services

Assisted in the preparation of the application and filed testimony

Texas Commission of Environmental Quality

SOAH Docket 582-14-3415

Application for a 2013 Water Rate/Tariff Change of Canyon Lake Water Service Company

Prepared the application and filed testimony on behalf of Canyon Lake WSC.

SOAH Docket No. 582-14-3384

Application for a 2013 Water and Sewer Rate/Tariff Change of SWWC Inc.

Prepared application on behalf of SWWC, Inc.

SOAH 582-14-3381

Application for a 2013 Water and Sewer Rate/Tariff Change of Monarch Utilities LP

Prepared application on behalf of SWWC, Inc.

SOAH Docket No. 582-12-0224

STM Application of Monarch Utilities I, L.P. to Transfer Water and Sewer Facilities and Certificates of Convenience and Necessity – provided assistance

Application 37531-R

Application for a Water Rate/Tariff Change of Quadvest L.P. Prepared application on behalf of Quadvest L.P.

Prepared application on behalf of Quadvest L.P.

Applications 37507-R and 37508-R

Application for a Water and Sewer Rate/Tariff Change of Ranch Utilities, Inc. Prepared application on behalf of Ranch Utilities, Inc.

Application 37317-R

Application for a Water Rate/Tariff Change of Wiedenfeld Water Works, Inc. Prepared application on behalf of Wiedenfeld Water Works, Inc.

Applications 37234-R and 37235-R

Application for a Water and Sewer Rate/Tariff Change of Aqua Texas, Inc. North and Southwest Regions

Prepared application on behalf of Aqua Texas, Inc.

SOAH Docket No. 582-12-0224

Application for a Water and Sewer Rate/Tariff Change of Monarch Utilities LP

Prepared application on behalf of SWWC, Inc.

SOAH Docket No. 582-11-1468

Application for a 2010 Water Rate/Tariff Change of Canyon Lake Water Service Company

Prepared the application and filed testimony on behalf of Canyon Lake WSC.

SOAH Docket No. 582-11-1458

Application for a Water and Sewer Rate/Tariff Change of Aqua Texas, Inc. Southeast Region

Prepared application on behalf of Aqua Texas, Inc.

Docket No. 0580-UCR

Application for a 2009 Water Rate/Tariff Change of Canyon Lake Water Service Company

Prepared the application on behalf of Canyon Lake WSC.

Docket No. 35850-R

Application for a 2007 Water Rate/Tariff Change of Canyon Lake Water Service Company

Prepared the application on behalf of Canyon Lake WSC.

Docket No. 33763-R

Application for a 2007 Water and Sewer Rate/Tariff Change of Midway, Inc. For the City of Oak Point Service area. Filing initially made with the City of Oak Point.

Docket Nos. 35748-R & 35747-R

Application for a Water and Sewer Rate/Tariff Change of Monarch Utilities LP

Prepared the application on behalf of Monarch.

Docket No. 2006-0072-UCR

Application for a Water and Sewer Rate/Tariff Change of Aqua Texas, Inc

Prepared application and presented testimony on behalf of Aqua Texas, Inc.

Docket No. 2007-0478-UCR

Application for a Water and Sewer Rate/Tariff Change of Texas American Water Inc.

Prepared the application on behalf of Texas American Water.

Docket No. 2005-0114-UCR

Application for a Water and Sewer Rate/Tariff Change of Aqua Texas, Inc

Presented Testimony on behalf of Aqua Texas, Inc.

Docket No. 2004-2029-UCR

Application for a Water and Sewer Rate/Tariff Change of Walker Water Works, Inc.

Prepared the application on behalf of Texas American Water.

Texas Commission of Environmental Quality-cont.

Application Nos. 34658-R & 34659-R

Application for a Water and Sewer Rate/Tariff Change of Southwest Utilities, Inc.

Prepared the application on behalf of Texas American Water.

Docket Nos. 2000-1074-UCR, 2000-1075-UCR, 2000-1366 UCR through 2000-1369 UCR

Assisted in the preparation and presentation of the Aqua Source 2000 rate increase

Application No. 7371-R (Texas Water Commission)

Assisted in the analysis of Southern Utilities 1988 rate request on the behalf of Southern Utilities customers.

Other Water Related Engagements and Expert Proceedings

The Landings Association – Savannah, Georgia

Assist with the annual review of water and sewer rate adjustments proposed by Utilities Inc of Georgia according to Settlement Agreement

The City of Hutto, Texas

Independent Assessment of Proposed Acquisition of Groundwater Supply by the City of Hutto

Woodland Oaks Utilities, Conroe Texas

Assist with the Texas PUC Transition

Town of Providence Village, Texas

Developed Expert Witness Report for Denton County Court Cause No. 2011-60876-393
Analysis of Agreements between Mustang SUD and Providence Village WCID

City of Page, Arizona

Developed retail water and wastewater rate model, recommended retail water and wastewater rates and provided results and recommendations in a written report and presentation to the City of Page Council

Mitchell County Utility, Texas

Assist with divestiture of water utility assets

City of Longview, Texas

Ongoing assistance with development of annual formulary wholesale water and wastewater treatment rates.

Aqua Texas, Inc.

Calculations and updates of Regional Uniform CIAC Fees

Dripping Springs WSC, Hays County WCID 1&2

Review and analysis of West Travis County Public Utility Agency wholesale rate cost of service and rate increase 2012.

SWWC Inc.

- Decertification analysis and valuation of the CCN for Crosswinds development area.
- Decertification analysis and valuation of the CCN for TXI development area.
- Decertification analysis and valuation of the CCN for Tower Terrace/Kilgore Tract development area.
- Decertification analysis and valuation of the CCN for Villages at Warner Ranch development area.
- Long term forecast of all components of the revenue requirements of all Texas utilities

Crystal Clear WSC

Decertification analysis and valuation of the CCN for Texas GLO development area around New Braunfels Texas

Woodbine Development Corp.

Analysis and assistance with LCRA Windmill Ranch wholesale wastewater services contract renegotiations.

Rebecca Creek MUD

Before and after rate comparison, analysis and forecast regarding the merger proposed by Canyon Lake Water Supply Company.

Global Water Resources

Expert witness before American Arbitration Association regarding the financial standing and regulatory status of Global Water.

City of Alexandria, Louisiana

Financial review, allocated cost of service and rate study for the water and wastewater systems. Provided results and recommendations in a written report to the City Council.

City of Clinton, South Carolina

Financial review, allocated cost of service and rate study for the water and wastewater systems. Provided results and recommendations in a written report and presentation to the City Council.

Corix Utilities

Assistance with bid preparation and analysis regarding the LCRA retail water and wastewater divestiture.

Golden State Water Company

Assistance with bid concerning divestiture of SWWC Inc.

United Water Management and Services

Developed report regarding Texas IOU regulation for internal assessment of the Texas water regulatory status.

Austin Apartment Association

Represented the Multi-Family water and wastewater classes in the City of Austin's Public Involvement Committee to review the 2017 water and wastewater rate study.

Greater Austin Water Forum

Assisted industrial class water users with analysis and participation in the City of Austin 2008 Cost of Service Study.

New Mexico Utilities

Review/analysis and critique report on Albuquerque Bernalillo County Water Utility Authority's Cost of Service Wholesale Wastewater Rate Model

Hays County Water Control & Improvement District No. 1 and No. 2

Developed 2015/2016 retail water and wastewater rate model, recommended retail water and wastewater rates and provided results and recommendations in a written report and presentation to the Boards of each utility.

ELECTRIC UTILITY RATES AND REGULATION EXPERIENCE

Public Utility Commission of Texas

Docket No. 48002

Prepared the 2017/2018 Application for Interim Update of Wholesale Transmission Rates and testimony for Guadalupe Valley Electric COOP

Docket No. 46710

Prepared the 2016/2017 Application for Interim Update of Wholesale Transmission Rates and testimony for Guadalupe Valley Electric COOP.

Docket No. 45414

Prepared a cash working capital study and testimony on behalf of Sharyland Utilities L.P.'s 2016 Rate Application to establish retail distribution rates.

Docket No. 43731

Prepared a cash working capital study and testimony on behalf of Cross Texas Transmission LLC 2015 Rate Application to establish rates.

Docket No. 41474

Prepared a cash working capital study and testimony on behalf of Sharyland Utilities L.P.'s 2013 Rate Application to establish retail distribution rates.

Docket No. 31250

Presented testimony and rate filing on behalf of Rio Grande Electrical Cooperatives 2005 Change in rates for wholesale transmission service.

Docket No. 8702

Assisted in the analysis of Gulf States Utilities 1987 rate request.

Docket 8646

Assisted in the analysis of Central Power & Light's 1988 rate request.

Docket 7661

Assisted in the analysis of the City of Fredericksburg's proposed amendment to Certificate of Convenience.

Docket 7510

Assisted in the analysis of West Texas Utilities Company's 1987 rate request.

Federal Energy Regulatory Commission

Docket No. ER88-202-0000

Assisted in the analysis of the Maine Yankee Atomic Power Plant Decommissioning.

Docket No. ER88-224-0000

Assisted in the analysis of the Carolina Power & Light Company Atomic Power Plant Decommissioning.

City of Bryan

- Developed and programmed data management system for the city electric department.

City of Fredericksburg

- Organized and performed an electric rate survey of Central Texas.
- Assisted in a load and rate design study.

City of Austin

- Assisted in the analysis of the City Electric Utility Department's 1989 rate request.

Other Electric Related Engagements

Dynamic Energy Concepts Incorporated

Assisted with the review of electric contracts, tariffs, analyzed usage data and assessed procurement practices for a number of US Veteran Hospitals across the country

H.E. Butt Grocery Company

Electricity procurement assistance and analysis of supply alternatives

Martin Marietta Materials

Electricity procurement assistance and analysis of supply alternatives

C.H. Guenther & Son, Inc.

Electricity procurement assistance and analysis of supply alternatives

Van Tuyl, Inc.

Electricity procurement assistance and analysis of supply alternatives

Northeast Texas Electrical Cooperative

- Ongoing review/analysis of Southwest Power Administration's annual Integrated Power Repayment Studies and resulting rates.
- Ongoing review/analysis of Southwest Electric Power Company's annual formulary wholesale rate adjustments.

Tex-La Electric Cooperative

- Ongoing review/analysis of Southwest Power Administration's annual Integrated Power Repayment Studies and resulting rates.
- Ongoing review/analysis of Southwest Electric Power Company's annual formulary wholesale rate adjustments

Sam Rayburn G&T Electrical Cooperative

- Ongoing review/analysis of Southwest Power Administration's annual Integrated Power Repayment Studies and resulting rates.
- Ongoing review/analysis of Southwest Power Administration's annual Robert D. Willis Power Repayment Studies and resulting rates.

East Texas Electrical Cooperative

- Ongoing review/analysis of Southwest Electric Power Company's annual formulary wholesale rate adjustments
- Ongoing review/analysis of Southwest Power Administration's annual Robert D. Willis Power Repayment Studies and resulting rates.

Northeast Ohio Natural Gas Corp.
Base Rate Comparison and Bill Impacts at Average Usage

Line No.	System/Rate Class	Avg. Usage (Mcf)	Existing Rates	Existing Bill at Avg. Usage	Proposed Rates	Proposed Bill at Avg. Usage	Increase - \$	Increase - %
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	Northeast Ohio Gas							
2	Small General Service	7.78		\$ 25.68		\$ 35.57	\$ 9.89	38.49%
3	Customer Charge		\$ 6.30		\$ 20.00			
4	Volumetric Charge - All Mcf		\$ 2.49		\$ 2.00			
5	General Service	61.87		\$ 167.23		\$ 211.37	\$ 44.14	26.40%
6	Customer Charge		\$ 17.50		\$ 100.00			
7	Volumetric Charge - First 500 Mcf		\$ 2.42		\$ 1.80			
8	Volumetric Charge - Over 500 Mcf		\$ 2.00		\$ 1.80			
9	Large General Service	1,739.62		\$ 1,454.19		\$ 1,701.69	\$ 247.50	17.02%
10	Customer Charge		\$ 52.50		\$ 300.00			
11	Volumetric Charge - First 50 Mcf		\$ 1.00		\$ 1.00			
12	Volumetric Charge - Next 2,450 Mcf		\$ 0.80		\$ 0.80			
13	Volumetric Charge - Next 7,500 Mcf		\$ 0.60		\$ 0.60			
14	Volumetric Charge - Over 10,000 Mcf		\$ 0.16		\$ 0.16			
15	General Transportation Service	310.25		\$ 768.31		\$ 658.46	\$ (109.86)	-14.30%
16	Customer Charge		\$ 17.50		\$ 100.00			
17	Volumetric Charge - First 500 Mcf		\$ 2.42		\$ 1.80			
18	Volumetric Charge - Over 500 Mcf		\$ 2.00		\$ 1.80			
19	Large General Transportation Service	7,596.60		\$ 5,120.46		\$ 5,367.96	\$ 247.50	4.83%
20	Customer Charge		\$ 52.50		\$ 300.00			
21	Volumetric Charge - First 50 Mcf		\$ 1.00		\$ 1.00			
22	Volumetric Charge - Next 2,450 Mcf		\$ 0.80		\$ 0.80			
23	Volumetric Charge - Next 7,500 Mcf		\$ 0.60		\$ 0.60			
24	Volumetric Charge - Over 10,000 Mcf		\$ 0.16		\$ 0.16			
25	Brainard Gas Corp.							
26	Small General Service	24.12		\$ 67.31		\$ 68.25	\$ 0.94	1.39%
27	Customer Charge		\$ 7.00		\$ 20.00			
28	Volumetric Charge - All Mcf		\$ 2.50		\$ 2.00			
29	General Service	200.86		\$ 468.97		\$ 461.55	\$ (7.43)	-1.58%
30	Customer Charge		\$ 7.00		\$ 100.00			
31	Volumetric Charge - All Mcf		\$ 2.30		\$ 1.80			
32	Transportation Service	200.86		\$ 468.97		\$ 461.55	\$ (7.43)	-1.58%
33	Customer Charge		\$ 7.00		\$ 100.00			
34	Volumetric Charge - All Mcf		\$ 2.30		\$ 1.80			
35	Orwell Natural Gas Company							
36	Small General Service	7.59		\$ 34.28		\$ 41.26	\$ 6.98	20.35%
37	Customer Charge		\$ 9.00		\$ 20.00			
38	Volumetric Charge - First 100 Mcf		\$ 3.33		\$ 2.80			
39	Volumetric Charge - Next 300 Mcf		\$ 3.10		\$ 2.80			
40	Volumetric Charge - Over 400 Mcf		\$ 3.00		\$ 2.80			
41	General Service	117.04		\$ 401.13		\$ 334.09	\$ (67.04)	-16.71%
42	Customer Charge		\$ 50.00		\$ 100.00			
43	Volumetric Charge - First 500 Mcf		\$ 3.00		\$ 2.00			
44	Volumetric Charge - Over 500 Mcf		\$ 2.50		\$ 2.00			
45	General Transportation Service	234.28		\$ 772.83		\$ 568.55	\$ (204.28)	-26.43%
46	Customer Charge		\$ 70.00		\$ 100.00			
47	Volumetric Charge - First 500 Mcf		3.00		\$ 2.00			
48	Volumetric Charge - Over 500 Mcf		2.50		\$ 2.00			

Utilities with Full Infrastructure Cost Recovery Mechanisms

1. AL – Alabama Gas Company
2. AL – Mobile Gas Service
3. AR – Arkansas Oklahoma Gas
4. AR -- SourceGas
5. AR – CenterPoint Energy
6. CA – San Diego Gas and Electric
7. CA – Southern California Gas
8. CA – Southwest Gas
9. CO – Public Service Co. of Colorado
10. CO – Atmos Energy
11. CO -- SourceGas
12. CT – Connecticut Natural Gas
13. DC – Washington Gas
14. FL – Chesapeake Utilities
15. FL – Florida Public Utilities Company
16. FL – Florida City Gas
17. FL – TECO Peoples Gas
18. GA – Atlanta Gas Light
19. GA – Liberty Utilities
20. IL – Ameren Illinois
21. IL – NICOR Gas
22. IL – Peoples Gas
23. IN – Vectren North Indiana Gas
24. IN – Vectren South SIGECO
25. IN – NIPSCO
26. KS – Atmos Energy
27. KS – Black Hills
28. KS – Kansas Gas Service
29. KY – Atmos Energy
30. KY – Columbia Gas of Kentucky
31. KY – Delta Natural Gas
32. KY – Duke Energy Kentucky
33. LA – CenterPoint Energy
34. LA – Entergy Gulf States
35. MA – Berkshire Gas
36. MA – Columbia Gas of Massachusetts
37. MA – National Grid Massachusetts
38. MA – Eversource Energy
39. MA – Liberty Utilities
40. MA – Unitil
41. MD – Baltimore Gas and Electric
42. MD – Columbia Gas of Maryland
43. MD – Washington Gas
44. MI – Consumers Energy
45. MI – DTE
46. MI – SEMCO Energy
47. MN – Xcel Energy
48. MO – Ameren Missouri
49. MO – Liberty Utilities
50. MO – Laclede Gas
51. MO – Missouri Gas Energy
52. MS – Atmos Energy
53. MS – CenterPoint Energy
54. NC – Piedmont Natural Gas
55. NC – Public Service of North Carolina
56. NH – Liberty Utilities
57. NJ – New Jersey Natural
58. NJ – Elizabethtown Gas
59. NJ – Public Service Electric and Gas
60. NJ – South Jersey Gas
61. NV – Southwest Gas
62. OH – Columbia Gas of Ohio
63. OH – Dominion East Ohio
64. OH – Duke Energy
65. OH – Vectren Ohio
66. OK – CenterPoint Energy
67. OR – Avista Corp.
68. OR – NW Natural
69. PA – Columbia Gas of Pennsylvania
70. PA – Equitable Gas
71. PA – Peoples Gas Company
72. PA – Peoples TWP
73. PA – UGI Central Penn Gas
74. PA – UGI Penn Natural Gas
75. PA – PECO
76. PA – Philadelphia Gas Works
77. RI – National Grid Narragansett Gas
78. SC – Piedmont Natural Gas
79. SC – South Carolina Electric and Gas
80. TN – Atmos Energy
81. TN – Piedmont Natural Gas
82. TX – Atmos Energy
83. TX – CenterPoint Energy
84. TX – Texas Gas Service
85. UT – Questar Gas
86. VA – Atmos Energy
87. VA – Columbia Gas of Virginia
88. VA – Virginia Natural Gas
89. VA – Washington Gas
90. WA – Avista Corporation
91. WA – Puget Sound Energy, Inc.
92. WA – Cascade Natural Gas Company
93. WA – Northwest Natural Gas Company
94. WV – Mountaineer Gas Company
95. WV – Dominion Hope
96. WY – Black Hills

Limited and Pending Infrastructure Mechanisms

LIMITED – 3 States

1. AZ – Southwest Gas
2. ME – Northern Utilities
3. NY – Consolidated Edison
4. NY – Corning Natural Gas
5. NY – National Grid NYC
6. NY – National Grid Long Island
7. NY – National Grid Niagara Mohawk
8. NY – Orange and Rockland

PENDING – 3 States

1. KS – All utilities
2. NJ – Elizabethtown Gas
3. NY – Consolidated Edison
4. NY – All utilities

GENERIC RULINGS OR LEGISLATION – 3 States

1. Iowa – All utilities may apply
2. Nebraska – All utilities may apply
3. West Virginia – All utilities may apply

CALCULATE IRP REVENUE REQUIREMENT**Incremental Additions Revenue Requirement Calculation**

			<i>First Year</i>	<i>2021</i>		<i>2022</i>		<i>2023</i>		<i>2024</i>	
			<u>2020 (1)</u>	<u>Additions</u>	<u>2021</u>	<u>Additions</u>	<u>2022</u>	<u>Additions</u>	<u>2023</u>	<u>Additions</u>	<u>2024</u>
1	376	Mains	\$360,600	\$471,000	\$831,600	\$471,000	\$1,302,600	\$471,000	\$1,773,600	\$471,000	\$2,244,600
2	380/381	Services	\$150,000	\$465,000	\$615,000	\$465,000	\$1,080,000	\$465,000	\$1,545,000	\$465,000	\$2,010,000
3	380/381	Service Risers	\$30,000	\$67,500	\$97,500	\$67,500	\$165,000	\$67,500	\$232,500	\$67,500	\$300,000
4	Total		\$540,600	\$1,003,500	\$1,544,100	\$1,003,500	\$2,547,600	\$1,003,500	\$3,551,100	\$1,003,500	\$4,554,600
5	Annual Depreciation Rate (2)		1.25%	1.25%	2.50%	1.25%	2.50%	1.25%	2.50%	1.25%	2.50%
Annual Depreciation Expense (2)											
6	2020		\$6,758		\$13,515		\$13,515		\$13,515		\$13,515
7	2021			\$12,544	\$12,544		\$25,088		\$25,088		\$25,088
8	2022					\$12,544	\$12,544		\$25,088		\$25,088
9	2023							\$12,544	\$12,544		\$25,088
10	2024									\$12,544	\$12,544
11	IRP Depreciation Expense		\$6,758		\$26,059		\$51,146		\$76,234		\$101,321
12	Accumulated Depreciation		\$6,758		\$32,816		\$83,963		\$160,196		\$261,518
13	Net Plant (Line 4 less Line 12)		\$533,843		\$1,511,284		\$2,463,638		\$3,390,904		\$4,293,083
14	Revenue Requirement Rate (3)		10.52%		10.52%		10.52%		10.52%		10.52%
15	Return (Line 13 * Line 14)		\$56,149		\$158,954		\$259,121		\$356,649		\$451,538
16	Add Depreciation Expense		\$6,758		\$26,059		\$51,146		\$76,234		\$101,321
17	Annual IRP Rev Reqs. (4)		\$62,906		\$185,013		\$310,267		\$432,883		\$552,860

(1) Reflects additions made during 2019

(2) 1/2 year depreciation expense for current year additions.

(3) Current Proposed Rate Case Rate of Return/Revenue Requirement Rate

	<u>Weighting</u>	<u>Rates</u>	<u>Weighted Rates</u>	<u>Tax **</u>	<u>Total</u>
Equity	64.50%	10.83%	6.99%	1.86%	8.84%
Debt	35.50%	4.72%	1.68%	0	1.68%
Revenue Requirement Rate					10.52%

** Equity Rate X Tax Rate of 21% Divided by Tax Rate Reciprocal of 79%

(4) Breakdown of IRP Revenue Requirement

	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Mains	\$41,961	\$99,642	\$158,641	\$216,204	\$272,461
Services	\$17,455	\$73,689	\$131,531	\$188,337	\$243,984
Service Risers	\$3,491	\$11,682	\$20,095	\$28,342	\$36,415
Total	<u>\$62,906</u>	<u>\$185,013</u>	<u>\$310,267</u>	<u>\$432,883</u>	<u>\$552,860</u>

CALCULATE IRP ANNUAL RATES

	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
1 Total IRP Revenue Requirement	\$62,906	\$185,013	\$310,267	\$432,883	\$552,860

Calculate Amount To Collect

2 Adjusted Total Rev. Req. to Recover	\$62,906	\$185,013	\$310,267	\$432,883	\$552,860
3 Actual (Over)/Under Collection	\$0	\$245	\$14,254	(\$16,485)	\$47,011
4 Total to Collect	\$62,906	\$185,258	\$324,521	\$416,398	\$599,871

Calculate IRP Rates

5 Dollar Rate Per Bill (Line 4 / Line 11)	\$0.179	\$0.525	\$0.916	\$1.169	\$1.675
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IRP Actual Collections

6 Actual Collections (Line 5 * Line 15)	\$63,151	\$199,512	\$308,036	\$463,409	\$603,234
7 Actual (Over)/Under Collection	\$245	\$14,254	(\$16,485)	\$47,011	\$3,363

Forecast/Actual Bills/Fixed Charges for IRP Example Calculations

	<u>TY Bills</u>	<u>Growth %</u>	<u>Forecast</u>					
8 Small General Service	329,203	0.5%	330,849	332,503	334,166	335,837	337,516	
9 General Service	19,154	1.0%	19,346	19,539	19,734	19,932	20,131	
10 Large General Service	528	0.5%	531	533	536	539	541	
11 Total	348,885		350,725	352,576	354,436	356,307	358,188	
			<u>Actual</u>					
12 Small General Service			330,902	359,742	313,780	375,539	339,314	
13 General Service			20,623	19,403	22,122	20,403	20,349	
14 Large General Service			568	557	530	592	533	
15 Total			352,092	379,703	336,432	396,534	360,196	

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Case No(s). 18-1720-GA-AIR, 18-1721-GA-ATA, 18-1722-GA-ALT

Summary: Testimony Direct Testimony of Charles E. Loy electronically filed by Mr. Trevor Alexander on behalf of Northeast Ohio Natural Gas Corp. and Brainard Gas Corp. and Spelman Pipeline Holdings, LLC and Orwell Natural Gas Company