



Public Service Commission

15

600 East Boulevard Ave
Dept. 408
Bismarck, ND 58505-0480
701-328-2400
ndpsc@nd.gov

Sheri Haugen-Hoffart

Randy Christmann

Julie Fedorchak

July 3, 2024

Public Service Commission
Attention: Steve Kahl
600 East Boulevard Avenue, Dept 408
Bismarck, ND 58505-0480

In re: Northern States Power Company
2024 Natural Gas Rate Increase
Application
Case No. PU-23-367

Dear Mr. Kahl,

Enclosed for filing in the above referenced matter please find the original copy of the following public document:

1. Revised Prefiled Direct Testimony of Karl R. Pavlovic.

Respectfully,

A handwritten signature in black ink, appearing to read "Brian Johnson".

Brian Johnson
Special Assistant Attorney General Bar ID 07397
North Dakota Public Service Commission
600 East Boulevard Avenue Dept. 408
Bismarck, ND 58505
701-328-2407

77 PU-23-367 Filed 09/05/2024 Pages: 43
PSC Exhibit 15 - Direct Testimony of Karl Pavlovic
(Advocacy Staff)

Public Service Commission

40 PU-23-367 Filed 07/03/2024 Pages: 43
Revised Prefiled Direct Testimony of Karl R. Pavlovic

Public Service Commission Advocacy Staff
Brian Johnson, Advocacy Staff Counsel

STATE OF NORTH DAKOTA
BEFORE THE NORTH DAKOTA PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF
NORTHERN STATES POWER COMPANY FOR
AUTHORITY TO INCREASE RATES FOR
NATURAL GAS SERVICE IN NORTH DAKOTA

Case No. PU-23-367

**DIRECT TESTIMONY OF
KARL R. PAVLOVIC**

**Submitted on Behalf of
the Advocacy Staff of the
North Dakota Public Service Commission**

July 1, 2024

1 **Q. HAVE YOU PREPARED A SUMMARY OF YOUR QUALIFICATIONS AND**
2 **EXPERIENCE?**

3 A. Yes. Exhibit KRP-1 to my testimony summarizes my qualifications and experience.

4 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN REGULATORY**
5 **PROCEEDINGS?**

6 A. Yes. Exhibit KRP-1 also contains a complete list of my engagements as an expert and/or
7 expert witness in matters before state and federal regulatory agencies. I have submitted
8 testimony to the Federal Communications Commission, the Federal Energy Regulatory
9 Commission, the Alaska Public Utilities Commission, the Alberta Utilities Commission,
10 the California Public Utilities Commission, the Delaware Public Service Commission, the
11 Public Service Commission of the District of Columbia, the Hawaii Public Utilities
12 Commission, the Illinois Commerce Commission, the Kansas Corporation Commission,
13 the Maine Public Utilities Commission, the Maryland Public Service Commission, the
14 Massachusetts Department of Public Utilities, the Missouri Public Service Commission,
15 and the North Dakota Public Service Commission.

16 **Q. IN WHICH PROCEEDINGS HAVE YOU PREVIOUSLY APPEARED BEFORE**
17 **THIS COMMISSION?**

18 A. I appeared on behalf of the North Dakota Public Service Commission Advocacy Staff in
19 Case No. PU-12-813 Application of Northern States Power Company for Authority to
20 Increase Rates for Electric Service in North Dakota, in Case No. PU-17-295 Montana-
21 Dakota Utilities Co. for Authority to Establish Increased Rates for Natural Gas Service,
22 in Case PU-20-441 Application of Northern States Power Company for Authority to

1 Increase Rates for Electric Service in North Dakota, and in Case No. PU-21-381
2 Application of Northern States Power Company for Authority to Increase Rates for
3 Natural Gas Service in North Dakota.

4 **Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS?**

5 A. I received undergraduate and graduate degrees in Philosophy from Yale College and
6 Purdue University. By education and professional experience I have expertise in formal
7 and mathematical logic, statistics, economics, financial analysis, econometrics, and
8 computer modeling. I have knowledge and experience in the areas of commercial and
9 industrial operations in the energy, transportation, and telecommunications industries and
10 am familiar with a wide range of experimental and investigative methods in science and
11 engineering.

12 **Q. PLEASE SUMMARIZE YOUR ELECTRIC AND GAS REGULATORY**
13 **EXPERIENCE.**

14 For most of my career I have performed analyses and submitted testimony regarding
15 electric and gas utility least-cost planning, reliability, cost of service, rate design, and
16 weather-emergency response. Specifically regarding gas utilities, I have testified on: (a)
17 integrated resource planning, (b) class cost of service and rate design, and (c) various
18 infrastructure operating expense and investment recovery mechanisms.

19 **I. PURPOSE AND ORGANIZATION**

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

21 A. I have been asked by the Commission's Advocacy Staff to address Northern States Power
22 (NSP) assertions and proposals in this proceeding regarding (1) North Dakota class cost of

1 service study, (2) North Dakota class revenue responsibility distribution, and (3) North
2 Dakota rate design.

3 **Q. HAVE YOU PREPARED ANY EXHIBITS IN SUPPORT OF YOUR**
4 **RECOMMENDATIONS?**

5 A. Yes. I have included the following four exhibits:

6 Exhibit No. KRP-1: Qualifications

7 Exhibit No. KRP-2: CCOSS Without Minimum System Classification

8 Exhibit No. KRP-3: Calculations for Tables 2, 3, 4 and 5.

9
10
11 **II. SUMMARY OF TESTIMONY AND CONCLUSIONS**

12 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

13 A. My testimony finds the following.

- 14 • The NSP CCOSS' use of a minimum size study to classify a portion of
15 distribution mains as customer-related is inconsistent with the principle of cost
16 causation.
- 17 • The NSP CCOSS' use of customer and demand allocators to allocate mains is
18 inconsistent with the principle of cost causation.
- 19 • NSP's CCOSS without minimum-size classification and allocation of distribution
20 mains is a guide to rate design that is consistent with the principle of cost causation.

21 I recommend that the Commission:

- 1 • Direct that NSP’s distribution mains be classified as wholly demand-related with
2 no customer-related component, consistent with the CCOSS’ classification of
3 transmission plant and regulator stations as only demand-related.
- 4 • Direct that NSP’s distribution mains costs be allocated using NSP’s Average and
5 Peak, consistent with the CCOSS’ allocation of transmission plant and regulator
6 stations.
- 7 • Direct that NSP derive class tariff rates from class revenue requirements based on
8 NSP’s CCOSS without minimum-size classification and allocation of NSP’s
9 distribution mains.

10
11 **III. DISCUSSION**

12 **A. NORTH DAKOTA COST OF SERVICE AND RATE DESIGN**

13 **Q. PLEASE SUMMARIZE NSP'S NORTH DAKOTA COST OF SERVICE AND**
14 **RATE DESIGN PROPOSALS.**

15 A. Based on a forecasted 2024 Test Year class cost of service study¹ and a revenue requirement
16 distribution to classes based on the ratemaking principles of cost causation, competitive
17 service pricing and moderation of rate increases,² and the cost study's class customer cost
18 results, NSP proposes the following changes in customer rates in Table 1.

¹ Direct Testimony of Christopher J. Barthol (Berthol Direct).

² Direct Testimony of Martha E Hoschmiller (Hoschmiller Direct)..

1 **Table 1: NSP Rate Design Proposals³**

Residential (RC 401): 12.5% revenue increase with Delivery Service Charge increased 5.1% from \$22.25/month to \$25.00/month and a new Distribution Charge of \$0.06155/therm;
Commercial and Industrial (RC 403, 410): 7.2% revenue increase with (a) Basic Service Charge unchanged of \$35.00/month and (b) Distribution Charge increased 37.54% from \$0.13581/therm to \$0.18665/therm;
Small Interruptible (RC 404): 7.7% revenue increase with (a) Basic Service Charge increased 25.0% from \$100.00/month to \$125.00/month and (b) Distribution Charge increased 31.5% from \$0.11065/therm to \$0.14549/therm;
Large Interruptible (RC 405): 8.1% revenue increase with (a) Basic Service Charge unchanged of \$275.00/month and (b) Distribution Charge increased 48.4% from \$0.07636/therm to \$0.11330/therm.

2

3

B. NORTH DAKOTA CLASS COST OF SERVICE STUDY

4

Q. HAVE YOU EXAMINED NSP'S NORTH DAKOTA CLASS COST OF SERVICE STUDY (CCOSS)?

5

6

A. Yes. NSP's CCOSS is a spreadsheet model⁴ that follows the standard class cost of service procedure of first functionalizing costs, second classifying the functionalized costs as directly assignable to certain classes or as demand-related, customer-related or commodity-related, and third allocating to customer classes those functionalized costs that are classified as demand-, customer-, or commodity-related.⁵

7

8

9

10

11

Q. HAVE YOU FOUND ANY ERRORS IN THE CCOSS' FUNCTIONALIZATION OF NSP'S GAS COSTS?

12

13

A. No. The CCOSS properly functionalizes NSP's gas costs using the FERC Gas Uniform System of Accounts (USoA).

14

³ Hoschmiller Direct, page 1 line23 to page 2 line 7 and Exhibit MEH-1, Schedules 3and 4.

⁴ Exhibit CJB-1, Schedule 3.

⁵ See NARUC Gas Distribution Rate Design Manual (NARUC Gas Manual), 1989, pages 22-24.

1 **Q. HAVE YOU FOUND ANY ERRORS IN THE CCOSS' CLASSIFICATION OF**
2 **NSP'S FUNCTIONALIZED GAS COSTS?**

3 A. Yes. The CCOSS relies on a NARUC minimum system study⁶ to first classify NSP's
4 distribution mains costs as 65.3% customer-related and the remaining 34.7% classified
5 demand related to which NSP makes a "demand adjustment" that lowers the customer -
6 related percentage to 49.2% and raises the demand related percentage to 50.8%.⁷ NSP's
7 minimum system study is based on the minimum size main theory which "assumes that
8 there is a ... minimum size main necessary to connect the customer to the system"
9 (emphasis added).⁸ Under the minimum size theory, "all distribution mains are priced
10 out at the historic unit cost of the smallest main installed, and assigned as customer
11 costs."⁹ The NARUC manual noted in 1989, the date of publication, that the minimum
12 size main theory was controversial.¹⁰ While this method of distribution mains
13 classification is still frequently used, there is, from the perspective of cost causation, no
14 theoretical or practical justification for minimum size mains classification.

15 **Q. WHAT IS THE COST CAUSATION THAT DEFINES THE CLASSIFICATION**
16 **OF GAS DISTRIBUTION ACCOUNTS AS CUSTOMER-RELATED?**

17 A. As clearly articulated in Bonbright's Principles of Public Utility Rates,¹¹ under the
18 principle of cost causation, customer-related costs are "those operating and capital costs
19 found to vary with number of customers."¹² Operationally defined, customer-related

⁶ Barthol Direct, page 9 lines 12-24; NARUC Gas Distribution Rate Design manual (NARUC Manual).

⁷ Bathol Direct, page 11 line 12 to page 14, line 12 and Exhibit CJB-1, Schedule 2, pages 3-4..

⁸ NARUC Gas Manual, page 22.

⁹ NARUC Gas Manual, page 22; Direct Testimony of Christopher J. Barthol, page 14, lines 11-13.

¹⁰ NARUC Gas Manual, page 22.

¹¹ Bonbright et al, Principles of Public Utility Rates, 1988.

¹² Bonbright, page 490; also see NARUC Manual Electric Utility Cost Allocation Manual, 1992, page 90, "The customer component of distribution facilities is the portion of costs which varies with the number of customers."

1 costs are the “costs of connecting another customer or the savings in costs of not
2 connecting the customer.”¹³ Per the NARUC Gas Manual, customer costs are those
3 operating capital costs found to vary directly with the number of customers served rather
4 than with the amount of utility service supplied ... [t]hey include the expenses of
5 metering, reading, billing, collecting, and accounting, as well as those cost associated
6 with the capital investment in metering and in customers’ service connections.”¹⁴ NSP’s
7 CCOSS properly classifies the costs of services, meters and house regulators as
8 customer-related. The CCOSS errs only in classifying a portion of the distribution mains
9 costs as customer-related, rather than properly as demand-related.

10 **Q. WHAT IS THE COST CAUSATION THAT DEFINES THE CLASSIFICATION**
11 **OF GAS DISTRIBUTION ACCOUNTS AS DEMAND-RELATED?**

12 A. As Bonbright also explains, it is theoretically impossible for the capital costs of
13 distribution system facilities upstream of the facilities to be classified as customer-related
14 because the connection of a new customer (or disconnection of an existing customer) has
15 no measurable impact on the costs of those facilities.¹⁵ Since the costs of the distribution
16 facilities upstream of customer-related facilities do not and cannot vary with the number
17 of customers connected to the distribution system, for the purposes of embedded cost
18 analysis, those costs are properly classified as demand-related, because those costs do
19 “var[y] continuously (and, perhaps, even more or less directly) with the maximum
20 demand imposed on this system as measured by peak load.”¹⁶ Per the NARUC Gas

¹³ Bonbright, page 490.

¹⁴ NARUC Gas Manual, page 22; see also page 23 “only facilities, such as meters, regulators and service taps, are considered to be customer related, as they vary directly with the number of customers on the system.”

¹⁵ Bonbright, page 491.

¹⁶ Bonbright, page 492; see also NARUC Electric Manual, page 90, “Classifying distribution plant as a demand cost assigns investment ... based upon its contribution to some total peak load ,, [because] costs are incurred to serve area load, rather than a specific number of customers.”

1 Manual, demand related costs “are related to maximum system requirements which the
2 system is designed to serve during short intervals and do not directly vary with the
3 number of customers or their annual usage.”¹⁷ NSP’s CCOSS properly classifies the
4 costs of production plant, storage plant, transmission plant and regulator stations as
5 demand-related. The CCOSS errs only in classifying a portion of the distribution mains
6 costs as customer-related, rather than properly as demand-related.

7 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE CLASSIFICATION**
8 **OF DISTRIBUTION MAINS IN NSP’S CCOSS?**

9 A. For reasons given above I recommend that NSP’s distribution mains be classified as
10 wholly demand-related with no customer-related component, consistent with the CCOSS’
11 classification of transmission mains and regulator stations as demand-related.

12 **Q. HAVE YOU FOUND ANY ERRORS IN THE CCOSS’ ALLOCATION OF NSP’S**
13 **CLASSIFIED AND FUNCTIONALIZED GAS COSTS?**

14 A. No, except for the allocation error that results from the erroneous classification of a portion
15 of distribution mains as customer-related and the allocation of that portion using a customer
16 allocator.

17 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE ALLOCATION OF**
18 **NSP’S MAINS COSTS?**

19 A. For the reasons given above I recommend that NSP’s distribution mains costs be
20 classified as only demand-related and allocated using the Average and Peak demand
21 allocator consistent with to the demand allocator applied to transmission and regulator
22 station costs.

¹⁷ NARUC Gas Manual, pages 23 and 24.

1 **Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATIONS REGARDING THE**
2 **CLASSIFICATION AND ALLOCATION OF NSP'S GAS COSTS?**

3 A. Regarding distribution mains classification, NSP's residential rate class has
4 proportionately more customers than its commercial rate classes and significantly less
5 aggregate demand than the commercial classes. Consequently, the CCOSS' class
6 customer allocation of distribution mains costs that the CCOSS erroneously classifies as
7 customer-related results in an unsupported and unjustified over allocation of distribution
8 costs to NSP's residential rate class, which constitutes a interclass subsidization of the
9 commercial & industrial class. Classifying the entirety of NSP's distribution mains costs
10 as demand-related corrects the over allocation.

11 **Q. HAVE YOU QUANTIFIED THE IMPACT OF YOUR RECOMMENDATION?**

12 A. Yes. NSP's CCOSS calculates the customer class total operating income and rate of return
13 under current rates as shown in columns B and C of Table 2 below. My correction of the
14 minimum-size classification and allocation error in NSP's CCOSS described above results
15 in the customer class costs of service shown in columns D and E of Table 2.

1

Table 2: Comparison of Class Costs of Service Under Current Rates (\$000)

Rate Class (A)	NSP CCOSS ¹⁸		CCOSS without Minimum- Size Classification ¹⁹		Increase (Decrease) (F)
	Operating Income (B)	Rate of Return (C)	Operating Income (D)	Rate of Return (E)	
Residential	\$1,075	1.07%	\$2,215	2.86%	(\$3,451)
C&I Firm	\$4,213	6.63%	\$3,180	3.75%	\$4,051
Small Interruptible	\$318	30.28%	\$294	18.96%	(\$599)
Large Interruptible	\$628	24.32%	\$546	12.79%	(\$82)
Total	\$6,234	3.71%	\$6,234	3.71%	\$0

2

3

As can be readily seen in Table 2, the net impact of correcting the classification and

4

allocation errors and resulting interclass subsidizations is a significant decrease in the

5

residential and interruptible rate classes' costs of service and a significant increase in the

6

commercial & industrial rate class' cost of service.

7

8

NORTH DAKOTA CLASS REVENUE REQUIREMENTS

9

Q. WHAT IS NSP'S PROPOSAL REGARDING CLASS REVENUE

10

REQUIREMENTS?

11

A. NSP proposes to apportion or distribute the overall revenue requirement to customer classes

12

based on cost of service adjusted with regarding efficient energy use, competitive services

13

and moderation in rate increase.²⁰

¹⁸ Exhibit CJB-1, Schedule3, page 1 lines 40 and 42.

¹⁹ Exhibit KRP-2.

²⁰ Hoschmiller Direct, page 2, lines 11-24.

1 **Q. DO YOU FIND ANY ERRORS IN NSP’S PROPOSED CLASS REVENUE**
 2 **REQUIREMENT APPORTIONMENT?**

3 A. Yes, in that it is based on the results of NSP’s CCOSS with minimum-size classification of
 4 distribution mains. Table 3 below compares NSP’s proposed class revenue requirements
 5 and class revenue increases to the class revenue requirements and increases based on the
 6 results from the CCOSS without minimum-size classification of distribution mains.

7 **Table 3: Comparison of Class Revenue Requirements (\$000)**

Rate Class (A)	Current Revenue (B)	NSP ²¹			PSC ²²		
		Proposed Revenue (C)	Increase (Decrease) (D)	Percent Increase (E)	Proposed Revenue (F)	Increase (Decrease) (G)	Increase (Decrease) (H)
Residential	\$35,610	\$40,061	\$4,451	12.50%	\$38,611	\$3,001	8.43%
C&I Firm	\$45,208	\$48,471	\$3,263	7.22%	\$49,516	\$4,308	9.53%
Small Interruptible	\$2,472	\$2,662	\$190	7.69%	\$2,870	\$398	16.11%
Large Interruptible	\$6,700	\$7,242	\$542	8.09%	\$7,440	\$740	11.04%
Total	\$89,990	\$98,436	\$8,446	9.39%	\$98,437	\$8,447	9.39%

8
 9 **Q. HAVE YOU DEVELOPED A CLASS REVENUE RESPONSIBILITY BASED ON**
 10 **THE CCOSS WITHOUT MINIMUM-SIZE CLASSIFICATION OF**
 11 **DISTRIBUTION MAINS AND ADVOCACY STAFF WITNESS MUGRACE’S**
 12 **PROPOSED OVERALL REVENUE REQUIREMENT?**

13 A. Yes. I have developed class revenue requirements based on the CCOSS without minimum-
 14 size classification of distribution mains and Staff Witness Mugrace’s recommended revenue

²¹ Hoschmiller Direct, page 9, Table 2.

²² Exhibit KRP-3.

1 requirement.²³ Table 4 compares those class revenue requirements to NSP's proposed class
2 revenue requirements.

3 **Table 4: Comparison of Class Revenue Requirements (\$000)**

Rate Class (A)	NSP Proposed Revenue ²⁴ (B)	PSC Proposed Revenue ²⁵ (C)	Increase (Decrease)
Residential	\$40,061	\$37,970	(\$2,091)
C&I Firm	\$48,471	\$48,694	\$223
Small Interruptible	\$2,662	\$2,823	\$161
Large Interruptible	\$7,242	\$7,316	\$74
Total	\$98,436	\$96,803	(\$1,633)

4
5 As one can see from Table 3, the net impact of the corrected class cost of service and Staff
6 Witness Mugrace's recommended revenue requirement is a reduction in the revenue
7 requirement of the Residential rate class and marginal increases for the other classes.

8
9
10 **C. NORTH DAKOTA TARIFF RATE DESIGN**

11 **Q. WHAT ARE NSP'S RATE DESIGN PROPOSALS?**

12 A. NSP is proposing no structural changes to its Commercial & Industrial, Small Interruptible
13 and Large Interruptible customer classes' rate structures. NSP proposes to add a
14 Distribution Charge to its Residential rate structure. Regarding both class rate structures and
15 class tariff charges proposals see Table 1 above.

²³ Direct Testimony of Dante Mugrace, Schedule DM-1.

²⁴ Hoschmiller Direct, page 9, Table 2.

²⁵ Exhibit KRP-3.

1 **Q. DO YOU HAVE ANY CRITICISMS OF THE PROPOSED RATE DESIGNS?**

2 A. My only criticism is that the class tariff charges are derived from NSP's proposed class
3 revenue requirements. Table 5 shows my recommended class tariff charges based on the
4 class revenue requirements in Table 4 above.

5 **Table 5: Recommended Class Tariff Rates²⁶**

Residential (RC 401): 8.4% revenue increase with Delivery Service Charge unchanged at \$22.25/month and a new Distribution Charge of \$0.05507/therm;
Commercial and Industrial (RC 403, 410): 9.5% revenue increase with (a) Basic Service Charge unchanged of \$35.00/month and (b) Distribution Charge increased 37.54% from \$0.13581/therm to \$0.18944/therm;
Small Interruptible (RC 404): 16.1% revenue increase with (a) Basic Service Charge increased 25.0% from \$100.00/month to \$125.00/month and (b) Distribution Charge increased 60.7% from \$0.11065/therm to \$0.17779/therm;
Large Interruptible (RC 405): 11.0% revenue increase with (a) Basic Service Charge unchanged of \$275.00/month and (b) Distribution Charge increased 54.6% from \$0.07636/therm to \$0.11804/therm.

6

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

8 A. Yes.

²⁶ Exhibit KRP-3.

KARL RICHARD PAVLOVIC, Ph.D.***Education***

Purdue University – MA and Ph.D. in Philosophy

Karl-Ruprecht Universität, Heidelberg, Germany – graduate study

Yale University – BA in Philosophy

Positions

Senior Consultant – PCMG and Associates	2015-Present
Senior Consultant – Snavely King Majoros and Associates	2010-2014
Director – FTI Consulting	2008-2010
President – DOXA, Inc	1994-2008
Partner – Snavely King and Associates	1983-1994
Assistant Professor – University of Florida-Gainesville	1978-1983

Professional Experience

Dr. Pavlovic provides clients with economic and policy analyses of commercial operations and expert testimony in support of litigation, negotiation and strategic planning. His analyses and testimony are distinguished by systematic articulation and testing of assumptions, thorough evaluation of data, innovative application of statistical tools and economic principles, and clarity and precision of presentation. Dr. Pavlovic has provided expert testimony on the operations, costs and revenues of gas and electric utilities, the impacts of restructuring wholesale and retail electric markets, effects of mergers, the operation and competitiveness of petroleum and electric markets, the market valuation of crude oil, electric and gas reliability, and the performance of energy efficiency, renewable energy, and peak reduction programs.

Major projects directed by Dr. Pavlovic have included: analytical assistance to counsel and testimony on all aspects of the restructuring of wholesale and retail electric markets in the Eastern Interconnection; technical representation of the District of Columbia People's Counsel on the DC PSC's Pepco Productivity Improvement Working Group and various PJM working groups; impact evaluation study of pilot energy efficiency and renewable energy programs in the District of Columbia; analysis of petroleum markets, expert testimony, and coordination of technical testimony in the Trans-Alaska Pipeline quality bank litigation; Independent Technical Review of the economic models used by the US Army Corps of Engineers for the Ohio River System Investment Plan; assistance to a major independent telephone company in the formulation and implementation of corporate strategic plans, applications for long-distance authority, and settlement negotiations with major domestic and foreign carriers.

By education and professional experience Dr. Pavlovic has expertise in formal and mathematical logic, statistics, economics, financial analysis, econometrics, and computer modeling. With 33 years' experience as a consultant and expert witness, Dr. Pavlovic has in-depth knowledge of

commercial and industrial operations in the energy, transportation, and telecommunications industries and is familiar with a wide range of experimental and investigative methods in science and engineering.

Regulatory Projects and Appearances

1. In re: the Application of Otter Tail Power Company for Authority to Increase Rates for Electric Utility Service in North Dakota (2024) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-20-441
2. In re: 2023 Gas System Enhancement Program Plan Filings for the Commonwealth's Natural Gas Distribution Companies (2024) - (Appearance: cost and project compliance with tariff on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket Nos. D.P.U. 23-GSEP-01 to 23-GSEP-06
3. In re: the Application of Northern States Power Company for Advance Determination of Prudence – 345kV Big Stone to Sherburne (2024) - (Appearance: need, necessity and conformance with North Dakota Statutes and Regulation on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-23-329
4. Pennsylvania Office of Consumer Advocate: Monitor, Review and Report on Electric and Natural Gas Filings to the FERC (2024)
Federal Energy Regulatory Agency Dockets
5. In re: Petition of Veolia Water New Jersey, Inc. for an Increase in Rates for Water Service and Other Tariff Changes (2023) - (Appearance: cost of service and rate design on behalf of the New Jersey Rate Counsel)
NJ BPU Docket No. WR23110790
6. In re: the Application of Northern States Power Company for Advance Determination of Prudence – Brookings County to Lyon County and Helena to Hampton 345 kV Second Circuit (2023) - (Appearance: need, necessity and conformance with North Dakota Statutes and Regulation on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-23-295
7. In re: the Application of Northern States Power Company for Advance Determination of Prudence - Sherburne County 345 kV Transmission Line (2023) - (Appearance: need, necessity and conformance with North Dakota Statutes and Regulation on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-23-142
8. In re: Petition of Middlesex Water Company for an Increase in Rates for Water Service and Other Tariff Changes (2023) - (Appearance: cost of service and rate design on behalf of the Township of East Brunswick, New Jersey)
NJ BPU Docket No. WR23050292

9. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2022 Gas System Enhancement Plan Reconciliation Filing (2023) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 23-GREC-06
10. In re: Petition of Eversource Gas Company of Massachusetts d/b/a Eversource Energy for Approval of its 2022 Gas System Enhancement Plan Reconciliation Filing (2023) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 23-GREC-05
11. In re: Petition of Berkshire Gas Company for Approval of its 2022 Gas System Enhancement Plan Reconciliation Filing (2023) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 23-GREC-02
12. In re: Pittsburgh Water and Sewer Authority General Base Rate Increase Filing (2023) – (Appearance: gas and electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2023-3039920 et al
13. In re: UGI Electric Company General Base Rate Increase Filing (2023) – (Appearance: electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3037368
14. In re: Application of Hawaii Water Service Company, Inc. for Approval of a General Rate Increase for its Pukalani Wastewater Division and Certain Tariff Changes (2023) – (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2022-0186
15. In re: Application of Lanai Water Company, Inc. for Review and Approval of Rate Increases; Revised Rate Schedules; and Changes to its Tariff (2023) – (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2022-0233

16. In re: Application of Southern Maryland Electric Cooperative, Inc., for Authority to Revise Its Rates and Charges for Electric Service and Certain Rate Design Changes (2023) – (Appearance: cost of service and rate design on behalf of the Maryland Office of the People’s Counsel)
MD PSC Case No. 9688
17. In re: Application of San Diego Gas & Electric Company for Authority to Establish Its Authorized Cost of Capital for Utility Operations for 2023 (2022) – (Appearance: business risk and cost of equity on behalf of Utility Consumers’ Action Network)
CA Public Utilities Commission Application 22-04-012
18. In re: Valley Energy, Inc. General Base Rate Increase Filing (2022) – (Appearance: gas cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3032300
19. In re: Citizens’ Electric Company General Base Rate Increase Filing (2022) – (Appearance: electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3032369
20. In re: PECO Energy Company (Gas Division) General Base Rate Increase Filing (2022) – (Appearance: gas and electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3031113
21. In re: Petition of Eversource Gas Company of Massachusetts d/b/a Eversource Energy for Approval of its 2021 Gas System Enhancement Plan Reconciliation Filing (2022) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 22-GREC-05
22. In re: Petition of Liberty Utilities (New England Natural Gas Company Corp.) d/b/a Liberty for Approval of its 2021 Gas System Enhancement Plan Reconciliation Filing (2022) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 22-GREC-04
23. In re: Petition of Berkshire Gas Company for Approval of its 2021 Gas System Enhancement Plan Reconciliation Filing (2022) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 22-GREC-02

24. In re: Nova Scotia Power 2022-2024 General Rate Application (2022) - (Appearance: cost of service on behalf of the Nova Scotia Utility and Review Board)
NS UARB M10431
25. In re: the Application of Northern States Power Company for Authority to Increase Rates for Natural Gas Service in North Dakota (2021) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-20-441
26. In re: Application of San Diego Gas & Electric Company for Authority to Establish Its Authorized Cost of Capital for Utility Operations for 2022 and to Reset the Annual Cost of Capital Mechanism (2021) – (Appearance: wildfire risk accounting and ratemaking on behalf of Utility Consumers’ Action Network)
CA Public Utilities Commission Application 21-08-014
27. In re: Petition of HPBS, Inc. for review and approval of Central Scheduling System (CSS) charge increase and revised CSS schedule (2021) – (Appearance: rate design on behalf of the Hawaii Department of Commerce and Consumer Affairs)
HI DCCA Docket No. PTP-2021-001
28. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2020 Gas System Enhancement Plan Reconciliation Filing (2021) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 21-GREC-06
29. In re: Petition of Eversource Gas Company of Massachusetts d/b/a Eversource Energy for Approval of its 2020 Gas System Enhancement Plan Reconciliation Filing (2021) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 21-GREC-05
30. In re: Petition of Berkshire Gas Company for Approval of its 2020 Gas System Enhancement Plan Reconciliation Filing (2021) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-02
31. In re: the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in North Dakota (2021) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-20-441

32. In re: Pike County Light & Power Company 2020 General Base Rate Increase Filing – (Appearance: gas and electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2020-3022134 and R-2020-3022135
33. In re: Young Brothers LLC’s Application for Approval of a New Cost of Service Model (2020) – (Appearance: cost of service on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2020-0135
34. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-06
35. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-05
36. In re: Petition of Berkshire Gas Company for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-02
37. In re: Pittsburgh Water and Sewer Authority 2020 General Base Rate Increases 2020 – (Appearance: multi-year rate plan and performance-based ratemaking on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2020-3017970 and R-2020-3017951
38. In re: Commonwealth Edison Company Petition for approval of a Revision to Integrated Distribution Company Implementation Plan Creation of Rate Residential Time of Use Pricing Pilot (“Rate RTOUP”) – On Rehearing (2020) – (Appearance: price signal and customer response on behalf of the Illinois Attorney General)
IL Commerce Commission Docket Nos. 18-1725/18-1824
39. In re: Hawaii Electric Company, Inc. Application for Approval of a General Rate Increase and Revised Rate Schedules and Rules (2019) - (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2019-0085

40. In re: Application of San Diego Gas & Electric Company for Authority to: (i) Adjust its Authorized Return on Common Equity, (ii) Adjust its Authorized Embedded Costs of Debt and Preferred Stock, (iii) Adjust its Authorized Capital Structure; (iv) Increase its Overall Rate of Return, (v) Modify its Adopted Cost of Capital Mechanism Structure, and (vi) Revise its Electric Distribution and Gas Rates Accordingly, and for Related Substantive and Procedural Relief (2019) – (Appearance: wildfire risk accounting and ratemaking on behalf of Utility Consumers’ Action Network)
CA Public Utilities Commission Application 19-04-017
41. In re: Proposed Amendments to N.J.A.C. 14:9 Adoption of Water and Sewer Uniform System of Accounts (2019) – (Assistance to counsel: water and sewer accounting on behalf of the Division of Rate Counsel)
NJ Board of Public Utilities Docket Nos. WX19050612 and WX19050613
42. In re: Petition of Public Service Electric and Gas Company for Approval of Gas Base Rate Adjustments Pursuant to its Gas System Modernization Program (2019) – (Assistance to Counsel: infrastructure replacement accounting)
NJ Board of Public Utilities Docket No. GE19040522
43. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2018 Gas System Enhancement Plan Reconciliation Filing (2019) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 19-GREC-06
44. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2018 Gas System Enhancement Plan Reconciliation Filing (2019) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 19-GREC-05
45. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2019) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9602
46. In re: PECO Energy Company Non-Bypassable Transmission Service Charge (NBT) Semiannual Adjustment (2019) - (Appearance: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket No. M-2018-3005860

47. In re: PECO Energy Company Transmission Formula Rate Application (2018) - (Appearance: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Federal Energy Regulatory Commission Docket ER17-1519-000
48. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2017 Gas System Enhancement Plan Reconciliation Filing (2018) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 18-GREC-06
49. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2017 Gas System Enhancement Plan Reconciliation Filing (2018) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 18-GREC-05
50. In re: The Application of the Potomac Edison Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2018) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9490
51. In re: Rate Applications of Kansas City Power & Light – Missouri and Kansas City Power & Light – Greater Missouri Operations (2018) – (Appearance: consolidated operations, cost of service and rate design on behalf of the Missouri Office of Public Counsel)
MO Public Service Commission Case Nos. ER-2018-0145 and ER-2018-0146
52. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2018) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9472
53. In re: Mid-Atlantic Interstate Transmission, L.L.C. 2018 Transmission Formula Rate Protocol Filings (2018) - (Analysis and Advice to Counsel: accounting)
Federal Energy Regulatory Commission Docket ER17-211-000
54. In re: The Gas Company d/b/a Hawaii Gas Application for Approval of Rate Increases and Revised Rate Schedules and Rules (2017) - (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2017-0105
55. In re: Montana-Dakota Utilities Co., Application to Increase Natural Gas Rates (2017) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-12-813

56. In re: The Application of Delmarva Power and Light Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2017) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9455
57. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 17-GREC-06
58. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 17-GREC-05
59. In re: In the matter of the application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2017) - (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9447
60. In re: PJM Interconnection, L.L.C. - PECO Energy Company Transmission Formula Rate Application (2017) - (Analysis and Advice to Counsel: accounting, cost of service and rate design)
Federal Energy Regulatory Commission Docket ER17-1519-000
61. In re: Northern Illinois Gas Company d/b/a Nicor Gas Company Proposed General Increase in Gas Rates (2017) - (Appearance: prudence/used and useful and plant accounting re. accelerated asset replacement program on behalf of the Illinois Citizens Utility Board)
IL Commerce Commission Docket No. 17-0124
62. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2017) - (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9443
63. In re: PJM Interconnection, L.L.C. - Rockland Electric Company Transmission Rate Application (2017) (Analysis and Advice to Counsel: accounting, cost of service and rate design on behalf of the New Jersey Division of Rate Counsel)
Federal Energy Regulatory Commission Docket ER17-856-000

64. In re: PJM Interconnection, L.L.C. - Mid-Atlantic Interstate Transmission, L.L.C. Transmission Formula Rate Application (2016) - (Analysis and Advice to Counsel: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Federal Energy Regulatory Commission Docket ER17-211-000
65. In re: The Application of Delmarva Power and Light Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9424
66. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9418
67. In re: Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Analysis and Advice to Counsel: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-01
68. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-05
69. In re: Petition for Approval of Gas Infrastructure Contract Between Public Service Company of New Hampshire d/b/a Eversource Energy and Algonquin Gas Transmission, LLC (2016) - (Appearance: compliance with statutes and regulations, prudence, cost/benefit, and ratemaking on behalf of the New Hampshire Office of Consumer Advocate)
NH Public Utilities Commission Docket No. DE 16-241
70. In re: Central Maine Power Company, Annual Compliance Filing and Price Change (2016) - (Analysis and Advice to Counsel: tax normalization regulatory asset on behalf of the Maine Office of the Public Advocate)
ME Public Service Commission Docket No. 2016-00035
71. In re: Bulletin 2015-10 Generic Proceeding to Establish Parameters for the Next Generation PBR Plans (2016) - (Appearance: productivity adjustments/performance based ratemaking on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20414

72. In re: Emera Maine, Proposed Rate Increase in Rates (2016) - (Analysis and Advice to to Counsel: evaluation of management audit of implementation of Customer Information System on behalf of the Maine Office of the Public Advocate)
ME Public Service Commission Docket No. 2015-00360
73. In re: The Merger of the Southern Company and AGL Resources Inc.- Joint Application of the Southern Company, AGL Resources Inc., and Pivotal Utility Holdings, Inc., d/b/a Elkton Gas (2015-2016) - (Appearance: earnings, synergy savings, rates, operations, supply procurement, safety, and reliability on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9404
74. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of Firm Transportation Agreements with Millennium Pipeline Company, LLC (2015-2016) - (Analysis, Advice to Counsel, and Assistance on Brief: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-142
75. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Precedent Agreements with Millennium Pipeline Company, LLC (2015-2016)
- (Analysis, Advice to Counsel, and Assistance on Brief: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-130
76. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Agreements for LNG or Liquefaction Services with GDF Suez Gas NA, LLC; Northeast Energy Center, LLC; Gaz Metro LNG, L.P.; and National Grid LNG (2015- 2016) - (Analysis and Advice to Counsel: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-129
77. In re: Columbia Gas of Massachusetts CY2014 Targeted Infrastructure Reinvestment Factor Compliance Filing (2015) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-55
78. ENMAX Energy Corporation (EEC) 2015-2016 Regulated Rate Option Non-Energy Tariff Application (2015-2016) - (Appearance: cost allocation, rate design, non-energy risk on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20480

79. In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc. (2014) - (Advice to Counsel: impact on customers on behalf of the New Jersey Division of Rate Counsel)
NJ Board of Public Utilities BPU Docket No. EM1406
80. In re: Application of Baltimore Gas and Electric Company For Adjustments To Its Electric and Gas Base Rates (2014) (Analysis and Advice to Counsel in Settlement: earnings, investment tracker, cost allocation and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9355
81. In re: Columbia Gas of Massachusetts CY2013 Targeted Infrastructure Reinvestment Factor Compliance Filing (2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 14-83
82. In re: Potential Business Combination of Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. (2014-2015) - (Analysis and Advice to Counsel: impact on rates and consolidation of rates on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.U-33244
83. In the Matter of the Application of Ohio Power Company to Adopt a Final Implementation Plan for the Retail Stability Rider (2014) - (Analysis and Advice to Counsel: rate design)
OH Public Utilities Commission Case No. 14-1186-EL-RDR
84. In re: Examination of Long-Term Natural Gas Hedging Proposals (2014-2015) - (Analysis and Advice to Counsel: natural gas procurement on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.R-32975-LPSC, ex parte
85. In re: 2013 Integrated Resource Planning Process for Southwestern Electric Power Company Pursuant to General Order Dated April, 20, 2012 (2014-2015 - (Analysis and Advice to Counsel: IRP design and evaluation on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No. I-33013 SWEPCO, ex parte
86. In the Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Adopt an Infrastructure Replacement Surcharge Mechanism (2013-2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9332

87. In the Matter of the Application of Baltimore Gas and Electric Company for Approval of a Gas System Strategic Infrastructure Development and Enhancement Plan and Accompanying Cost Recovery Mechanism (2013-2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9331
88. In the Matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates and Miscellaneous Tariff Changes (2013-2014) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Delaware Public Service Commission Staff)
DE Public Service Commission Docket No. 13-115
89. In the Matter of the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in North Dakota (2013) - (Appearance: cost allocation and rate design on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-12-813
90. In the Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2013) - (Appearance: expense tracker design/rates and evaluation on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9316

SUMMARY

Rate Base	ND	Res	C&I	Sm Int	Lg Int	
1 Production		11,445	4,619	6,825	0	0
2 Storage		14,311	5,776	8,535	0	0
3 Transmission		4,006	1,541	2,286	43	136
4 Distribution		214,184	108,606	99,025	1,881	4,672
5 General		35,889	17,734	17,164	283	707
6 Common		0	0	0	0	0
7 Total Plant In Service		279,835	138,277	133,836	2,208	5,515
8 Production		2,944	1,188	1,756	0	0
9 Storage		8,376	3,380	4,995	0	0
10 Transmission		1,823	701	1,040	20	62
11 Distribution		66,906	37,258	27,986	532	1,129
12 General		15,955	7,884	7,631	126	314
13 Common		0	0	0	0	0
14 Total Depreciation Reserve		96,003	50,412	43,408	678	1,506
15 Net Plant		183,832	87,865	90,428	1,530	4,009
16 Deductions (Accum Def Inc Tax)		22,872	12,867	9,453	180	372
17 Additions		7,011	2,421	3,762	199	629
18 Rate Base		167,970	77,419	84,736	1,549	4,266

Income Statement	ND	Res	C&I	Sm Int	Lg Int	
19 Present Retail Revenue		89,990	35,610	45,208	2,472	6,700
20 Present Other Oper Rev		469	338	131	1	0
21 Present Total Operating Rev		90,459	35,948	45,338	2,473	6,700
Operating & Maint Expenses						
22 Purchased Gas Expense		58,155	20,516	30,498	1,808	5,333
23 Other Purch Gas Exp		0	0	0	0	0
24 Other Production		2,300	829	1,253	55	164
25 Transmission		295	114	169	3	10
26 Distribution		5,282	2,940	2,184	41	116
27 Customer Accounting		1,354	1,084	218	36	16
28 Customer Service and Information		126	97	21	6	1
29 Administrative and General		3,474	1,818	1,496	43	118
30 Amortizations; Sales Expense		602	345	235	6	17
31 Total Operating & Maint Exp		71,587	27,742	36,074	1,997	5,773
32 Book Depreciation		9,370	4,725	4,419	67	158
33 Taxes Other Than Income Taxes		2,415	1,013	1,310	22	70
34 Prov For Deferred Inc Taxes		1,277	632	612	9	23
35 Net Investment Tax Credit		0	0	0	0	0
36 Total Operating Expense		84,649	34,112	42,416	2,096	6,024
37 State and Federal Income Taxes		-423	-379	-258	83	131
38 Total Expense		84,226	33,733	42,158	2,179	6,155
39 AFUDC (Rev Credit)		0	0	0	0	0
40 Total Operating Income		6,234	2,215	3,180	294	546
41 Rate Base		167,970	77,419	84,736	1,549	4,266
42 Present Return on Rate Base		3.71%	2.86%	3.75%	18.96%	12.79%
43 Present Return on Common Equity		2.95%	1.33%	3.03%	31.99%	20.25%
44 Required Return on Rate Base		7.52%	7.52%	7.52%	7.52%	7.52%
45 Required Operating Income		12,631	5,822	6,372	116	321
46 Income Deficiency		6,398	3,607	3,192	-177	-225
47 Revenue Deficiency		8,463	4,797	4,230	-246	-318
48 Deficiency / Pres Retail Revenue		9.40%	13.47%	9.36%	-9.95%	-4.74%

SUMMARY

	ND	Res	C&I	Sm Int	Lg Int
Equal Return vs Present					
Operating Revenue Requirement					
1 Return On Rate Base		7.52%	7.52%	7.52%	7.52%
2 Equalized Total Retail Rev		98,453	40,406	49,438	2,226
3 Present Total Retail Revenue		89,990	35,610	45,208	2,472
4 Revenue Deficiency		8,463	4,797	4,230	-246
5 Deficiency / Pres Total Retail Rev		9.40%	13.47%	9.36%	-9.95%
Internal Retail Revenue Req					
6 Customer Retail Revenue Requirement		21,356	16,698	4,505	103
7 Average Monthly Customers		64,674	54,948	9,648	54
8 Revenue Requirement \$ / Mo / Cust		27.52	25.32	38.91	157.72
9 Capacity Retail Revenue Requirement		16,111	6,256	9,338	125
10 Annual Dkt Sales		14,337,878	4,285,129	7,990,310	497,468
11 Revenue Requirement \$ / Dkt		1.12	1.46	1.17	0.25
Capacity - Sub Classification					
12 Capacity - Base Revenue Requirement		3,532	1,050	1,966	125
13 Capacity - Seasonal Revenue Requirement		7,816	3,301	4,515	0
14 Peak Shaving Revenue Requirement		4,762	1,906	2,857	0
15 Base Rev Requirement \$ / Dkt		0.25	0.24	0.25	0.25
16 Seasonal Rev Requirement \$ / Dkt		0.55	0.77	0.57	0.00
17 Peak Shave Rev Requirement \$ / Dkt		0.33	0.44	0.36	0.00
18 Energy Retail Revenue Requirement		2,789	859	1,509	104
19 Revenue Requirement \$ / Dkt		0.19	0.20	0.19	0.21
20 Total Internal Retail Revenue Requirement		40,255	23,813	15,352	332
21 Revenue Requirement \$ / Dkt		2.81	5.56	1.92	0.67
22 Revenue Requirement \$ / Mo / Cust		51.87	36.11	132.61	509.04
External Retail Revenue Req					
23 Capacity Revenue Requirement		12,118	4,945	7,173	0
24 Energy Revenue Requirement		46,037	15,571	23,325	1,808
25 Total External Revenue Requirement		58,155	20,516	30,498	1,808
26 Cap Revenue Requirement \$ / Dkt		0.85	1.15	0.90	0.00
27 Ener Revenue Requirement \$ / Dkt		3.21	3.63	2.92	3.63
28 Tot Revenue Requirement \$ / Dkt		4.06	4.79	3.82	3.63
Total Retail Revenue Req					
29 Customer Revenue Requirement		21,356	16,698	4,505	103
30 Capacity Revenue Requirement		28,228	11,200	16,511	125
31 Energy Revenue Requirement		48,825	16,430	24,834	1,912
32 Total Revenue Requirement		98,410	44,329	45,851	2,140
33 Customer Revenue Req \$ / Dkt		1.49	3.90	0.56	0.21
34 Demand Revenue Req \$ / Dkt		1.97	2.61	2.07	0.25
35 Energy Revenue Req \$ / Dkt		3.41	3.83	3.11	3.84
36 Total Revenue Req \$ / Dkt		6.86	10.34	5.74	4.30
Proposed Return vs Present					
37 Proposed Total Retail Revenue		98,453	40,076	48,472	2,662
38 Revenue Deficiency		8,463	4,466	3,265	190
39 Deficiency / Pres Total Oper Revenue		9.40%	12.54%	7.22%	7.67%
Proposed Return vs Equal					
40 Revenue Difference		0	-330	-965	436
41 Difference / Tot Equal Revenue*		0.00%	-0.82%	-1.95%	19.58%

Northern States Power Company
 State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

RATE BASE

Case No. PU-23-___
 Exhibit ___(CIB-1), Schedule 3
 Page 3 of 12

Plant in Service	FERC Accounts	Allocator	ND	Res	C&I	Sm Int	Lg Int
1 Production Plant (LPG)	304, 305, 311	Design Day		11,445	4,619	6,825	0
2 Storage Plant (LNG)	360, 361, 362, 363	Design Day		14,311	5,776	8,535	0
3 Transmission Plant	365, 366, 367, 368, 369, 370, 371	Average and Peak		4,006	1,541	2,286	43
Distribution Plant							
4 Regulator Stations	374, 375, 378, 379	Average and Peak		151	58	86	2
5 Mains - Minimum System	376	Customers	49.2%	63,898	54,288	9,532	54
6 Mains - Average Capacity	Split of 376	Sales, W/ Transp	15.8%	20,467	6,117	11,406	710
7 Mains - Excess Capacity	Split of 376	Excess Design Day	35.0%	45,438	19,237	26,201	0
8 Mains - Total	376	Average and Peak		129,802	49,935	74,069	1,399
9 Services	380	Service Study		67,913	47,572	19,888	323
10 Meters	381	Meter & Regul Study		12,866	8,706	3,928	125
11 House Regulators	383	Meter & Regul Study		3,451	2,335	1,054	34
12 Total Distribution Plant	Subtotal			214,184	108,606	99,025	1,881
13 General Plant	390-399	Prod-Stor-Tran-Dis		35,889	17,734	17,164	283
14 Common Plant	390-399	Prod-Stor-Tran-Dis		0	0	0	0
15 Gas Plant in Service	Total			279,835	138,277	133,836	2,208
Accum Depr Reserve							
16 Production Plant (LPG)	108(1)	Design Day		2,944	1,188	1,756	0
17 Storage Plant (LNG)	108(5)	Design Day		8,376	3,380	4,995	0
18 Transmission Plant	108(7)	Average and Peak		1,823	701	1,040	20
Distribution Plant							
19 Regulator Stations	108(8)	Average and Peak		0	0	0	0
20 Mains	108(8)	Mains, Overall		29,905	11,504	17,064	322
21 Services	108(8)	Service Study		30,064	21,059	8,804	143
22 Meters	108(8)	Meter & Regul Study		6,047	4,092	1,846	59
23 House Regulators	108(8)	Meter & Regul Study		891	603	272	9
24 Total Distribution Plant	Sub-total			66,906	37,258	27,986	532
25 General Plant	108(9)	Prod-Stor-Tran-Dis		15,955	7,884	7,631	126
26 Common Plant	108(9)	Prod-Stor-Tran-Dis		0	0	0	0
27 Total Accum Depr	Sub-total			96,003	50,412	43,408	678
28 Net Plant	Total			183,832	87,865	90,428	1,530
Subtractions to Net Plant							
Accum Deferred Inc Tax							
29 Production Plant (LPG)	190, 281, 282, 283 Net	Design Day		-17	-7	-10	0
30 Storage Plant (LNG)	190, 281, 282, 283 Net	Design Day		-117	-47	-70	0
31 Transmission Plant	190, 281, 282, 283 Net	Average and Peak		618	238	353	7
Distribution Plant							
32 Regulator Stations	190, 281, 282, 283 Net	Average and Peak		0	0	0	0
33 Mains	190, 281, 282, 283 Net	Mains, Overall		7,528	2,896	4,296	81
34 Services	190, 281, 282, 283 Net	Service Study		9,487	6,646	2,778	45
35 Meters	190, 281, 282, 283 Net	Meter & Regul Study		2,306	1,561	704	22
36 House Regulators	190, 281, 282, 283 Net	Meter & Regul Study		254	172	78	2
37 Total Distribution Plant	Sub-total			19,576	11,274	7,856	151
38 General Plant	190, 281, 282, 283 Net	Prod-Stor-Tran-Dis		2,594	1,282	1,241	20
39 Common Plant	190, 281, 282, 283 Net	Prod-Stor-Tran-Dis		0	0	0	0
Accumulated Deferred Tax							
40 Accumulated Deferred Tax	283	Net Plant		0	0	0	0
41 Non-Plant Related	190 & 282 Net	Labor		217	127	83	2
42 Total Subtractions	Total			22,872	12,867	9,453	180

Northern States Power Company
 State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

Case No. PU-23-___
 Exhibit ___(CIB-1), Schedule 3
 Page 4 of 12

RATE BASE

Additions to Net Plant		FERC Accounts	Allocator	ND	Res	C&I	Sm Int	Lg Int
1	Production Plant (LPG)		Design Day		127	51	76	0
2	Storage Plant (LNG)		Design Day		263	106	157	0
3	Transmission Plant		Average and Peak		0	0	0	0
4	Regulator Stations	107	Mains Overall		0	0	0	0
5	Mains	107	Service Study		83	32	48	1
6	Services		Meter & Regul Study		0	0	0	0
7	Meters		Meter & Regul Study		0	0	0	0
8	House Regulators	107	Prod-Stor-Tran-Dis		0	0	0	0
9	General & Common Plant	Sub-total			205	101	98	2
10	Total CWIP	Sub-total			678	291	378	3
11	Materials & Supplies	154, 155, 156	Tran & Distrib		306	154	142	3
	Gas In Storage							
12	LPG In Storage	164.2	Sales, W/ Transp		0	0	0	0
13	LNG In Storage	164	Sales, W/ Transp		0	0	0	0
14	NatGas Underground	164	Sales, W/ Transp		0	0	0	0
12	Total Gas in Storage	Total	Sales, W/ Transp		6,008	1,796	3,348	208
13	Non-Plant Assets & Liab	Total	Labor		1,049	613	401	9
	Miscellaneous	FERC Accounts						
14	Prepay; Insurance	165	Tran & Distrib		0	0	0	0
15	Prepay; Miscellaneous	165	Tran & Distrib		-304	-153	-141	-3
16	Fuel	176	Sales, W/o Transp		0	0	0	0
17	Customer Advances	252	Sales, W/ Transp		0	0	0	0
18	Other Working Capital	131, 135, 143, 182.3, 184, 185, 186, 232, 253, 254	Pres Rev; Mod Pres Rev		0	0	0	0
17	Total Miscellaneous				-304	-153	-141	-3
	Working Cash							
18	Purch Gas Exp - Commodity	N / A	Sales, W/ Transp		0	0	0	0
19	Purch Gas Exp - Demand	N / A	Design Day		0	0	0	0
20	Labor - Regular	N / A	Modified O&M Expense		0	0	0	0
21	Labor - Incentive Compen'h	N / A	Modified O&M Expense		0	0	0	0
22	Pension and Benefits	N / A	Labor		0	0	0	0
23	Payroll Taxes	N / A	Labor		0	0	0	0
24	Other Operating Expenses	N / A	Modified O&M Expense		0	0	0	0
25	Property Taxes	N / A	Gas Plant In Service		0	0	0	0
26	Gross Receipts Tax	N / A	Gr Rcpts; Mod Pres Rev		0	0	0	0
27	Federal Income Tax	N / A	Rt Base, w/o Work Cash		0	0	0	0
28	State Income Tax	N / A	Rt Base, w/o Work Cash		0	0	0	0
29	State Sales Tax	N / A	Present Retail Revenue		0	0	0	0
30	Total Working Cash	Total	Modified O&M Expense		-726	-280	-366	-20
31	Total Additions	Sub-total			7,011	2,421	3,762	199
32	Total Rate Base	Sub-Total			167,970	77,419	84,736	1,549
33	Common Rate Base (@ 52.50%)				88,184	40,645	44,487	813
34	Customer Component				91,802	71,646	19,728	278
35	Demand Component				70,567	27,463	40,700	580
36	Energy Component				5,601	1,657	3,143	192

Case No. PU-23-___

State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

INCOME STATEMENT

Exhibit__(CIB-1), Schedule 3
 Page 5 of 12

Operating Revenue (Cal Month)

		Allocators	ND	Res	C&I	Sm Int	Lg Int	
Retail Revenue		Direct Assign		89,990	35,610	45,208	2,472	6,700
1a	Present Retail Rev	480,481,482,484		98,436	40,061	48,471	2,662	7,242
1b	Proposed Retail Rev			8,446	4,451	3,263	190	542
2	Retail Rev Increase							
Other Retail Revenue		Dir Assign; Mod Pres Rev						
3	Interdepartmental Generation	Dir Assign; Mod Pres Rev						
4	Transportation							
5	Tot Other Retail Rev							
Other Operating Revenue								
3	Late Pay Penalties	Late Pay; Mod Pres Rev		181	163	17	1	0
4	Connection Charges	Customers		120	102	18	0	0
5	Return Check Charges	Customers		7	6	1	0	0
6	Connect Smart	Customers		4	3	1	0	0
7	Interchange Gas	Design Day		66	27	39	0	0
8	Other Gas Revenue	Design Day		65	26	39	0	0
9	Ltd Firm Sales - Rsvs & Vols	Design Day		27	11	16	0	0
10	Other Gas Revenue - Distr	Design Day		3	1	2	0	0
11	Confr In Aid Cons Tax Gr-Up	CWIP		0	0	0	0	0
12	Other - Miscellaneous	1/2 Dsgn Day, 1/2 Ener		-3	-1	-2	0	0
13	Tot Other Oper Rev - Pres	Sub-total		469	338	131	1	0
14	Incr Misc Serv	Customers		0	0	0	0	0
15	Incr Late Pay - Proposed	Late Pay; Mod Pres Rev		17	15	2	0	0
16	Low Income Admin Cost	Pres Rev; Mod Pres Rev		0	0	0	0	0
16	Tot Other Oper Rev - Prop			486	353	132	1	0
16a	Total Oper Rev - Present	Total		90,459	35,948	45,338	2,473	6,700
16b	Total Oper Rev - Proposed			98,922	40,414	48,603	2,663	7,243
17	Operating Rev Increase			8,463	4,466	3,265	190	542

Operation & Maintenance (Pg 1 of 2)

		Alloc						
Purchased Gas Expense		FERC Accounts						
18	Commodity	728, 804, 805, 808, 858		46,037	15,571	23,325	1,808	5,333
19	Demand	804, 808, 858		12,118	4,945	7,173	0	0
20	Propane			0	0	0	0	0
21	Limited Firm	728		0	0	0	0	0
22	Total Purchases	Sub-total		58,155	20,516	30,498	1,808	5,333
Other Production Expense								
23	Other Purchased Gas			186	75	111	0	0
24	Misc. LPG Op Exp	710, 733, 735, 736, 742, 759		520	210	310	0	0
25	MGP	735		1,250	423	633	49	145
26	Misc. LNG Op Exp	840, 841, 842, 843		344	121	198	6	19
27	Tot Other Production Expense			2,300	829	1,253	55	164
28	Transmission Expense	850-865		295	114	169	3	10
Distribution Expense								
29	Regulator Stations	875, 877, 889, 891		111	43	64	1	4
30	Mains	874, 887		2,072	797	1,182	22	70
31	Services	892		509	357	149	2	1
32	Meters	878, 893		-750	-508	-229	-7	-6
33	House Regulators	878, 893		861	583	263	8	7
34	Other Property & Equipment	881		167	142	25	0	0
35	Dispatching	871		380	133	219	7	21
36	Customer Installations	879		313	266	47	0	0
37	Other Distribution	880		774	657	115	1	0
38	Supervision & Engineering	870, 885		844	470	349	7	18
39	Total Distribution Expense	Sub-total		5,282	2,940	2,184	41	116

Northern States Power Company
 State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

Case No. PU-23—
 Exhibit (C)B-1, Schedule 3
 Page 6 of 12

INCOME STATEMENT

Operation & Maintenance (Pg 2 of 2)		FERC Accounts	Allocatior	ND	Res	C&I	Sm Int	Lg Int
Cust Acctg & Inform			Customers					
1	Acct Superv	901	Customers		4	4	1	0
2	Acct Meter Read	902	Customers		136	115	20	0
3	Acct Recrds & Coll	903	Record & Coll Study		760	588	121	36
4	Acct Uncollect	904	Uncollectibles Study		444	368	75	0
5	Acct Misc	905	Customers		10	9	2	0
6	Asst Expense (w/o CIP)	908	Cust Inform Study		126	97	21	6
7	Serv Instruct Adver	909	Customers		0	0	0	0
8	Tot Cust Acctg & Inform				1,480	1,181	240	42
Admin & General								
9	Property Insurance	924	Net Plant		99	47	49	1
10	Pension & Benefit-Direct	926	Labor		1,002	586	383	9
11	Salaries	920	Labor		976	571	373	8
12	Office & Supplies	921	Labor		643	376	246	5
13	Admin Transfer Credit	922	Labor		-745	-436	-285	-6
14	Outside Services	923	Labor		206	120	79	2
15	Incentive Compensation	920 + other	Labor		0	0	0	0
16	Injuries and Claims	925	1/2 Rt Base, 1/2 Pres Rev;		227	97	114	4
17	Regulatory Comm Exp	928	Present Retail Revenue		35	14	18	1
18	Duplicate Charge Credit	929	Present Retail Revenue		0	0	0	0
19	General Advertising	930	1/2 Rt Base, 1/2 Pres Rev;		5	2	3	0
20	Misc General Exp	930	1/2 Rt Base, 1/2 Pres Rev;		36	15	18	1
21	Rents	931	1/2 Rt Base, 1/2 Pres Rev;		982	421	494	18
22	Maint of Gen Pit	935	1/2 Rt Base, 1/2 Pres Rev;		8	3	4	0
23	Total A & G Expense				3,474	1,818	1,496	43
Cust Service & Info								
24	CIP/DSM & Amortizations	407.3 + CIP	Sales, W/o CIP Exempt		0	0	0	0
25	MN Energy Policy Rider	407	Sales, W/ Transp		0	0	0	0
26	Instructional Advertising	407	Present Retail Revenue		25	10	13	1
27	Total Customer Service Info	Sub-total			25	10	13	1
28	Amortizations		Labor		567	332	217	5
Sales Expense								
29	Sales, Econ Dvlp & Other	912	Sales, W/ Transp		9	3	5	0
30	Total Sales Expense	Sub-total			9	3	5	0
31	Total O&M Expense				71,587	27,742	36,074	1,997
Book Depreciation		FERC Accounts						
32	Production Plant (LPG)	403	Design Day		732	295	436	0
33	Storage Plant (LNG)	403	Design Day		525	212	313	0
34	Transmission Plant	403	Average and Peak		79	30	45	1
Distribution Plant								
35	Regulator Stations	403	Average and Peak		0	0	0	0
36	Mains	403	Mains, Overall		2,920	1,123	1,666	31
37	Services	403	Service Study		2,142	1,500	627	10
38	Meters	403	Meter & Regul Study		430	291	131	4
39	House Regulators	403	Meter & Regul Study		92	62	28	1
40	Total Distribution Plant				5,583	2,976	2,452	47
41	General Plant	403	Prod-Stor-Tran-Dis		2,450	1,211	1,172	19
42	Common Plant	403, 404	Prod-Stor-Tran-Dis		0	0	0	0
43	Total Book Deprec	Sub-total			9,370	4,725	4,419	67

Northern States Power Company
 State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

INCOME STATEMENT

Case No. PU-23-____
 Exhibit ____(C/B-1), Schedule 3
 Page 7 of 12

Real Estate & Prop Taxes	FERC Accounts	Allocator	ND	Res	C&I	Sm Int	Lg Int
1 Production Plant (LPG)	408	Design Day		246	99	147	0
2 Storage Plant (LNG)	408	Design Day		0	0	0	0
3 Transmission Plant	408	Average and Peak		32	12	18	0
Distribution Plant							
4 Regulator Stations	408	Average and Peak		1,741	670	994	19
5 Mains	408	Mains, Overall		0	0	0	0
6 Services	408	Service Study		0	0	0	0
7 Meters	408	Meter & Regul Study		0	0	0	0
8 House Regulators	408	Meter & Regul Study		0	0	0	0
9 Total Distribution Plant	Sub-total			1,741	670	994	19
10 General Plant	408	Prod-Stor-Tran-Dis		0	0	0	0
11 Common Plant	408	Prod-Stor-Tran-Dis		0	0	0	0
12 Total RI Est & Prop Tax	Sub-total			2,020	782	1,159	19
13 Payroll Taxes	408	Labor		396	231	151	3
14 Tot Non-Income Taxes				2,415	1,013	1,310	22
Provision-Defer Inc Tax							
15 Production Plant (LPG)	410.1, 411.1	Design Day		36	14	21	0
16 Storage Plant (LNG)	410.1, 411.1	Design Day		114	46	68	0
17 Transmission Plant	410.1, 411.1	Average and Peak		-10	-4	-6	0
Distribution Plant							
18 Regulator Stations	410.1, 411.1	Average and Peak		0	0	0	0
19 Mains	410.1, 411.1	Mains, Overall		415	160	237	4
20 Services	410.1, 411.1	Service Study		225	158	66	1
21 Meters	410.1, 411.1	Meter & Regul Study		55	37	17	1
22 House Regulators	410.1, 411.1	Meter & Regul Study		16	11	5	0
23 Total Distribution Plant	Sub-total			711	365	325	6
24 General Plant	410.1, 411.1	Prod-Stor-Tran-Dis		433	214	207	3
25 Common Plant	410.1, 411.1	Prod-Stor-Tran-Dis		0	0	0	0
26 Tax Benefit Transfers	410.1, 411.1	Net Plant		0	0	0	0
27 Non-Plant Related	410.1, 411.1	Labor		-7	-4	-3	0
28 Tot Prov Defer Inc Tax	Total			1,277	632	612	9
Investment Tax Credit							
29 Production Plant (LPG)	420	Design Day		0	0	0	0
30 Storage Plant (LNG)	420	Design Day		0	0	0	0
31 Transmission Plant	420	Average and Peak		0	0	0	0
Distribution Plant							
32 Regulator Stations	420	Average and Peak		0	0	0	0
33 Mains	420	Mains, Overall		0	0	0	0
34 Services	420	Service Study		0	0	0	0
35 Meters	420	Meter & Regul Study		0	0	0	0
36 House Regulators	420	Meter & Regul Study		0	0	0	0
37 Total Distribution Plant	Sub-total			0	0	0	0
38 General Plant	420	Prod-Stor-Tran-Dis		0	0	0	0
39 Common Plant	420	Prod-Stor-Tran-Dis		0	0	0	0
40 Net Invest Tax Credit	Sub-total			0	0	0	0
41 Total Operating Exp	Sub-total			84,649	34,112	42,416	2,096
42a Pres Op Inc Before Inc Tax	Total			5,811	1,836	2,922	377
42b Prop Op Inc Before Inc Tax	Total			14,274	6,302	6,187	567

Northern States Power Company
 State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

Case No. PU-23-____
 Exhibit ____ (CJB-1), Schedule 3
 Page 8 of 12

INCOME STATEMENT

Tax Deprec & Removal	FERC Accounts	Allocator	ND	Res	C&I	Sm Int	Lg Int		
1 Production Plant (LPG)	Not Applicable	Design Day		911	368	543	0	0	
2 Storage Plant (LNG)	Not Applicable	Design Day		938	379	559	0	0	
3 Transmission Plant	Not Applicable	Average and Peak		59	23	33	1	2	
Distribution Plant									
4 Regulator Stations	Not Applicable	Average and Peak		0	0	0	0	0	
5 Mains	Not Applicable	Mains, Overall		5,322	2,047	3,037	57	180	
6 Services	Not Applicable	Service Study		2,601	1,822	762	12	5	
7 Meters	Not Applicable	Meter & Regul Study		569	385	174	6	5	
8 House Regulators	Not Applicable	Meter & Regul Study		117	79	36	1	1	
9 Total Distribution Plant	Sub-total			8,610	4,334	4,008	76	191	
10 General Plant	Not Applicable	Prod-Stor-Tran-Dis		0	0	0	0	0	
11 Common Plant	Not Applicable	Prod-Stor-Tran-Dis		0	0	0	0	0	
12 Tax Benefit Transfers	Not Applicable	Net Plant		4,502	2,152	2,214	37	98	
13 Total Tax Depreciation	Total			15,020	7,255	7,359	114	291	
Present Return									
Inc Tax Additions	FERC Accounts								
14 Total Book Depr Exp	from another page			9,370	4,725	4,419	67	158	
15 Provision for Deferred	from another page			1,276.78	632	612	9	23	
16 Net Inv Tax Credit	from another page			0	0	0	0	0	
17 Avoided Tax Interest	Not Applicable	CWIP		235	101	131	1	2	
18 Total Tax Additions	Sub-total			10,881	5,457	5,162	77	184	
Inc Tax Deductions									
19 Tax Depr & Removal Exp	from another page			15,020	7,255	7,359	114	291	
20 Debt Interest Expense	Calculation	; Mod Rate Base		3,628	1,672	1,830	33	92	
21 Other Timing Differences	Not Applicable	Labor		-396	-232	-152	-3	-10	
22 Meals		Labor		14	8	5	0	0	
23 Total Tax Deductions				18,265	8,703	9,043	145	374	
23a Pres Taxable Net Income	Calculation			-1,574	-1,410	-959	309	486	
23b Prop Taxable Net Income				6,889	3,056	2,306	499	1,028	
Note: If the Gas Utility doesn't have any state or Federal tax credits, then the following 22 lines need not be displayed.									
								Tot	
								Tot	
24 Pres State Tax Before Credits				-68	-61	-41	13	21	Fact
25 Prop State Tax Before Credits				297	132	99	22	44	Fact
26 Equal State Tax Before Credits				297	146	141	3	7	
27 Pres State Tax Credits				8	7	5	-2	-2	Diff
28 Prop State Tax Credits				8	4	3	1	1	Diff
29 Equal State Tax Credits				8	4	4	0	0	
30 Pres State Tax After Credits				-75.84	-68	-46	15	23	Int
31 Prop State Tax After Credits				289	128	97	21	43	
32 Equal State Tax After Credits				289	142	137	3	7	Tot

Northern States Power Company
 State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

Case No. PU-23—
 Exhibit (CIB-1), Schedule 3
 Page 10 of 12

ALLOCATORS

Internal Allocators	ND	Res	C&I	Sm Int	Lg Int
1 1/2 Dsgn Day, 1/2 Ener	100.00%	35.12%	57.68%	1.73%	5.46%
2 1/2 Rt Base, 1/2 Pres Rev; (Only for Class allocations)	100.00%	42.83%	50.34%	1.83%	4.99%
3 Average and Peak (Mains)	65,905	25,353	37,607	710	2,234
4 Average and Peak	100.00%	38.47%	57.06%	1.08%	3.39%
5 CWIP	100.00%	42.87%	55.75%	0.37%	1.01%
6 Dist Exp, w/o Sup & Eng	4,437	2,470	1,835	35	97
7 Dist Exp, w/o Sup & Eng	100.00%	55.67%	41.36%	0.78%	2.19%
8 Distribution Plant	100.00%	50.71%	46.23%	0.88%	2.18%
9 Gas Plant In Service	100.00%	49.41%	47.83%	0.79%	1.97%
10 Labor	100.00%	58.51%	38.24%	0.85%	2.40%
11 Mains, Overall	100.00%	38.47%	57.06%	1.08%	3.39%
12 Modified O&M Expense	69,702	26,848	35,194	1,968	5,692
13 Modified O&M Expense	100.00%	38.52%	50.49%	2.82%	8.17%
14 Net Plant	100.00%	47.80%	49.19%	0.83%	2.18%
15 Other Production Exp	100.00%	36.03%	54.47%	2.39%	7.11%
16 Prod-Stor-Tran-Dis	243,946	120,543	116,671	1,925	4,808
17 Prod-Stor-Tran-Dis	100.00%	49.41%	47.83%	0.79%	1.97%
18 Rate Base	100.00%	46.09%	50.45%	0.92%	2.54%
19 Rt Base, w/o Work Cash	168,696	77,699	85,103	1,570	4,325
20 Rt Base, w/o Work Cash	100.00%	46.06%	50.45%	0.93%	2.56%
21 Transmission & Distribution	218,191	110,148	101,311	1,925	4,808
22 Tran & Distrib	100.00%	50.48%	46.43%	0.88%	2.20%
23 Labor w/o A&G	4,545	2,659	1,738	39	109
24 Labor w/o A&G	100.00%	58.51%	38.24%	0.85%	2.40%
Component Allocators					
25 Mod Present Rev	388.92%	106.72%	94.63%	93.52%	94.05%
26 Mod Rate Base	334.45%	130.06%	75.12%	68.20%	61.06%
27 1/2 Mod Rt Bs, 1/2 Mod Pres Rv	361.68%	118.39%	84.88%	80.86%	77.55%

Northern States Power Company
 State of North Dakota Gas Jurisdiction
 CLASS COST OF SERVICE STUDY (\$000); TEST YEAR 2024

Case No. PU-23-____
 Exhibit (CJB-1), Schedule 3
 Page 11 of 12

ALLOCATORS

External Allocators	ND	Res	C&I	Sm Int	Lg Int	
Customer-Related						
1 Bills		776,092	659,380	115,772	652	288
2 Meter & Regul. Weightings			1.00	2.57	14.52	28.07
3 Meter (Wtd Bills)		974,443	659,380	297,508	9,470	8,085
4 Service Weightings			1.00	2.38	6.86	6.33
5 Service (Wtd Bills)		941,329	659,380	275,655	4,472	1,822
6 Records & Collect Weightings			1.00	1.17	61.08	61.08
7 Records & Collect (Wtd Bills)		851,987	659,380	135,188	39,827	17,592
8 Cust Information Weightings			1.00	1.25	63.71	29.86
9 Cust Information (Wtd Bills)		854,319	659,380	144,802	41,537	8,600
10 Customers		100.00%	84.96%	14.92%	0.08%	0.04%
11 Meter & Regul Study		100.00%	67.67%	30.53%	0.97%	0.83%
12 Service Study		100.00%	70.05%	29.28%	0.48%	0.19%
13 Record & Coll Study		100.00%	77.39%	15.87%	4.67%	2.06%
14 Uncollectibles Study		100.00%	82.99%	17.01%	0.00%	0.00%
15 Cust Inform Study		100.00%	77.18%	16.95%	4.86%	1.01%
Energy-Related						
16 Cal Yr Sales Dkt, W/o Trans		12,668,979	4,285,129	6,418,871	497,468	1,467,512
17 Transportation Dkt		1,668,899	0	1,571,440	0	97,460
18 Cal Yr Sales Dkt, W/ Trans	31.1%	14,337,878	4,285,129	7,990,310	497,468	1,564,971
19 CIP Exempt Dkt		0	0	0	0	0
20 Sales Dkt, W/o CIP Exempt		14,337,878	4,285,129	7,990,310	497,468	1,564,971
21 Sales, W/o Transp		100.00%	33.82%	50.67%	3.93%	11.58%
22 Sales, W/ Transp		100.00%	29.89%	55.73%	3.47%	10.91%
23 Sales, W/o CIP Exempt		100.00%	29.89%	55.73%	3.47%	10.91%
Demand-Related						
24 Design Day Demand Dkt		126,491	51,053	75,438	0	0
25 Avg Daily Firm Dkt, W/ Trans		33,631	11,740	21,891	0	0
26 Excess Design Day		92,860	39,313	53,547	0	0
27 Design Day		100.00%	40.36%	59.64%	0.00%	0.00%
28 Excess Design Day		100.00%	42.34%	57.66%	0.00%	0.00%
Miscellaneous (only alloc to class, not component)						
29 Present Retail Revenue		89,990	35,610	45,208	2,472	6,700
30 Gross Receipts Tax		100.00%	56.19%	36.38%	4.35%	2.45%
31 Present Retail Revenue		100.00%	39.57%	50.24%	2.75%	7.45%
32 Late Payment Penalty		100.00%	89.95%	9.50%	0.33%	0.22%

Table 2: Comparison of Class Costs of Service Under Current Rates (\$000)

Rate Class	NSP CCOSS		NSP CCOSS w/o Minimum Size		Increase (Decrease)
	Operating Income	Rate of Return	Operating Income	Rate of Return	
(A)	(B)	(C)	(D)	(E)	(F)
Residential	\$1,075	1.07%	\$2,215	2.86%	(\$3,451)
C&I Firm	\$4,213	6.63%	\$3,180	3.75%	\$4,051
Small Interruptible	\$318	30.28%	\$294	18.96%	(\$599)
Large Interruptible	\$628	24.32%	\$546	12.79%	(\$82)
Total	\$6,234	3.71%	\$6,234	3.71%	\$0

Table 5: Tariff Rate Adjustments

Rate Class	Billing Determinant	NSP Current Revenue	NSP Proposed Class Revenue	PSC Change to Class Revenue	Adjusted Class Revenue	PSC Proposed Rate
(A)	(B)	(C)	(D)	(E)	(F)	(G)
Residential Delivery Service	659,380	\$14,671,197	\$16,484,491	(\$1,813,294)	\$14,671,197	\$22.25
Residential Distribution	42,851,288		\$2,637,497	(\$277,818)	\$2,359,678	\$0.05507
C&I Firm DSC	79,903,103		\$14,913,914	\$223,234	\$15,137,149	\$0.18944
Small Interruptible DSC	4,974,676		\$723,766	\$160,664	\$884,429	\$0.17779
Large Interruptible DSC	15,649,711		\$1,773,125	\$74,214	\$1,847,339	\$0.11804

Table 3: Comparison of Class Revenue Requirement Apportionment (\$000)

Rate Class	NSP				PSC Corrected CCOSS		
	Current Revenue	Proposed Revenue	Increase (Decrease)	Percent Increase (Decrease)	Proposed Revenue	Increase (Decrease)	Percent Increase (Decrease)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Residential	\$35,610	\$40,061	\$4,451	12.50%	\$38,611	\$3,001	8.43%
C&I Firm	\$45,208	\$48,471	\$3,263	7.22%	\$49,516	\$4,308	9.53%
Small Interruptible	\$2,472	\$2,662	\$190	7.69%	\$2,870	\$398	16.11%
Large Interruptible	\$6,700	\$7,242	\$542	8.09%	\$7,440	\$740	11.04%
Total	\$89,990	\$98,436	\$8,446	9.39%	\$98,437	\$8,447	9.39%

Table 4: Comparison of Class Revenue Requirement Apportionment (\$000)

Rate Class	NSP Proposed Revenue	PSC Proposed Revenue	Increase (Decrease)
(A)	(B)	(C)	
Residential	\$40,061	\$37,970	(\$2,091)
C&I Firm	\$48,471	\$48,694	\$223
Small Interruptible	\$2,662	\$2,823	\$161
Large Interruptible	\$7,242	\$7,316	\$74
Total	\$98,436	\$96,803	(\$1,633)

