

STATE OF NORTH DAKOTA  
BEFORE THE NORTH DAKOTA PUBLIC SERVICE COMMISSION

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

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Case No. PU-21-381

**DIRECT TESTIMONY OF  
KARL R. PAVLOVIC**

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

March 1, 2022

1 **DIRECT TESTIMONY OF**  
2 **KARL R. PAVLOVIC**

3 **QUALIFICATIONS**

4 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

5 A. My name is Karl Richard Pavlovic. My business address is 22 Brookes Avenue,  
6 Gaithersburg, MD 20877. I am a Senior Consultant with and the Managing Director of  
7 PCMG and Associates LLC.

8 **Q. PLEASE DESCRIBE PCMG.**

9 A. PCMG and Associates LLC (PCMG) is an association of experts in economics, accounting,  
10 finance, and utility regulation and policy, with over 75 years collective experience  
11 providing assistance to counsel and expert testimony regarding the regulation of electric,  
12 gas, water, and wastewater utilities. PCMG began operation on January 1, 2015. During  
13 its most recent year of operation, PCMG has provided assistance to counsel and/or  
14 testimony in regulatory proceedings before Federal Energy Regulatory Commission, the  
15 Pennsylvania Public Service Commission, the Maine Public Utilities Commission, the  
16 Massachusetts Department of Public Utilities, the New Jersey Board of Public Utilities,  
17 and the Hawaii Public Utilities Commission. PCMG is currently providing assistance to  
18 the Hawaii Division of Consumer Advocate, the Maine Office of the Public Advocate, the  
19 Massachusetts Office of the Attorney General, the New Jersey Division of Rate Counsel,  
20 and the Pennsylvania Office of Consumer Advocate.

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

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

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,

1 and in Case PU-20-441 Application of Northern States Power Company for Authority to  
2 Increase Rates for Electric Service in North Dakota

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

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

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

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

18 **I. PURPOSE AND ORGANIZATION**

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

20 A. I have been asked by the Commission's Advocacy Staff to address Northern States Power  
21 (NSP) assertions and proposals in this proceeding regarding (1) depreciation, (2) North  
22 Dakota class cost of service study, (3) North Dakota class revenue responsibility  
23 distribution, and (4) North Dakota rate design.

1 **Q. HAVE YOU PREPARED ANY EXHIBITS IN SUPPORT OF YOUR**  
2 **RECOMMENDATIONS?**

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

4 Exhibit No. KRP-1: Qualifications

5 Exhibit No. KRP-2: Corrected NDPSC-2-001 Att A CCOSS TRADE SECRET IN  
6 ENTIRETY

7 Exhibit No. KRP-3: Corrected Exhibit CJB-1, Schedule 4

8 Exhibit No. KRP-4: Corrected Exhibit CJB-1, Schedule 5

9

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

11 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

12 A. My testimony finds the following.

- 13
- 14 • NSP's proposed depreciation rates are reasonably well supported by the dismantling  
and depreciation studies.
  - 15 • The NSP CCOSS' use of a minimum size study to classify a portion of  
16 distribution mains as customer-related is inconsistent with the principle of cost  
17 causation.
  - 18 • The NSP CCOSS' use of average and peak demand to allocate transmission,  
19 regulator station costs and average and excess demand to allocate distribution mains  
20 is inconsistent with the principle of cost causation.

21 I recommend that the Commission:

- 22
- 23 • Direct that NSP's distribution mains be classified as wholly demand-related with  
no customer-related component, consistent with the CCOSS' classification of

1 production plant, storage plant, transmission plant and regulator stations as only  
2 demand-related.

- 3 • Direct that NSP’s transmission, regulator stations and distribution mains costs be  
4 allocated using the Design Day demand method, consistent with the CCOSS’  
5 allocation of production and storage costs.

6  
7 **III. DISCUSSION**

8 **A. NORTH DAKOTA DEPRECIATION**

9 **Q. PLEASE SUMMARIZE NSP'S NORTH DAKOTA DEPRECIATION PROPOSALS.**

10 A. NSP proposes changes to the depreciation parameters (service life and net salvage) for three  
11 groups of assets: (1) gas production and storage, (2) gas transmission, distribution and  
12 general, and (3) allocated common.<sup>1</sup> The proposed changes to asset service life and net  
13 salvage parameters result in reductions to production and storage depreciation expense of  
14 \$31,918 and allocated common depreciation expense of \$49,561 and an increase in  
15 transmission, distribution and general depreciation expense of \$62,411, producing an overall  
16 net reduction of North Dakota test year expense of \$19,038.<sup>2</sup> The depreciation proposals  
17 rest upon a 2020 dismantling cost study<sup>3</sup> and a depreciation study of NSP’s gas and  
18 common plant account historical data and balances as of January 1, 2017.<sup>4</sup> The depreciation  
19 study was performed using the straight-line, broad group life, remaining life procedure.<sup>5</sup>

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<sup>1</sup> Direct Testimony of Laurie J. Wold, page 2, lines 14-15 and Table 1 2022 Test Year Depreciation Expense Changes.

<sup>2</sup> Direct Testimony of Laurie J. Wold, page 2 Table 1; see also page 11 Table 2.

<sup>3</sup> Direct Testimony of Laurie J. Wold, Exhibit LJW-1, Schedule 5.

<sup>4</sup> Direct Testimony of Laurie J. Wold, Exhibit LJW-1, Schedule 8.

<sup>5</sup> Direct Testimony of Laurie J. Wold, Exhibit LJW-1, Schedule 8, page 10.

1 **Q. WHAT IS YOUR ASSESSMENT OF NSP'S PROPOSED DEPRECIATION**  
2 **RATES?**

3 A. The parameters underlying the calculation of NSP's proposed depreciation rates are  
4 reasonably well supported by the dismantling study and the depreciation study's life, net  
5 salvage, and remaining life analyses.<sup>6</sup> I have no proposed changes to the depreciation rates.

6

7 **B. NORTH DAKOTA COST OF SERVICE AND RATE DESIGN**

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

10 A. Based on a forecasted 2022 calendar year embedded class cost of service study<sup>7</sup> and a  
11 revenue requirement distribution to classes based on the ratemaking principles of cost  
12 causation, competitive service pricing and moderation of rate increases,<sup>8</sup> and the cost study's  
13 class customer cost results, NSP proposes the following changes in customer rates in Table  
14 1.

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<sup>6</sup> Direct Testimony of Laurie J. Wold, Exhibit LJW-1, Schedule 9.

<sup>7</sup> Direct Testimony of Christopher J. Barthol, page 1, lines 24-26.

<sup>8</sup> Direct Testimony of Christopher J. Barthol, page 28, lines 1-5.

1 **Table 1: NSP Rate Design Proposals**

<b>Residential (RC 401):</b> 15.0% revenue increase with Delivery Service Charge increased 31% from \$18.48/month to \$24.28/month; <sup>9</sup>
<b>Commercial and Industrial (RC 403, 410):</b> 10.5% revenue increase with (a) Basic Service Charge increased 16.7% from \$30.00/month to \$35.00/month and (b) Distribution Charge increased 35.4% from \$0.10800/therm to \$0.14627/therm; <sup>10</sup>
<b>Small Interruptible (RC 404):</b> 10.0% revenue increase with (a) Basic Service Charge increased 33.3% from \$75.00/month to \$100.00/month and (b) Distribution Charge increased 28.2% from \$0.08800/therm to \$0.111279/therm; <sup>11</sup>
<b>Large Interruptible (RC 405):</b> 10.0% revenue increase with (a) Basic Service Charge increased 0.0% from \$275.00/month to \$275.00/month and (b) Distribution Charge increased 52.58% from \$0.05120/therm to \$0.07812/therm; <sup>12</sup>

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3

**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 multi-tabbed Excel spreadsheet file<sup>13</sup> 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.<sup>14</sup>

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8

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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

<sup>9</sup> Direct Testimony of Christopher J. Barthol, page 31, Table 6; Exhibit CJB-1, Schedule 7.

<sup>10</sup> Direct Testimony of Christopher J. Barthol, page 31, Table 6; Exhibit CJB-1, Schedule 7.

<sup>11</sup> Direct Testimony of Christopher J. Barthol, page 31, Table 6; Exhibit CJB-1, Schedule 7.

<sup>12</sup> Direct Testimony of Christopher J. Barthol, page 31, Table 6; Exhibit CJB-1, Schedule 7.

<sup>13</sup> PU-21-381 NDPSC-2-001 Att A\_Class Cost of Service Study TRADE SECRET IN ENTIRETY.xlsx.

<sup>14</sup> 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 minimum system study to classify NSP's distribution mains  
4 costs as 66.1% customer-related and the remaining 33.9% classified as 11.7% sales-  
5 related and 22.2% excess demand-related.<sup>15</sup> NSP's minimum system study is based on  
6 the minimum size main theory which "assumes that there is a ... minimum size main  
7 necessary to connect the customer to the system" (emphasis added)<sup>16</sup> Under the  
8 minimum size theory, "all distribution mains are priced out at the historic unit cost of the  
9 smallest main installed, and assigned as customer costs."<sup>17</sup> The NARUC manual noted in  
10 1989, the date of publication, that the minimum size main theory was controversial.<sup>18</sup>  
11 While this method of distribution mains classification was once, but no longer is,  
12 widespread among gas distribution utilities, there is, from the perspective of cost  
13 causation, no theoretical or practical justification for minimum size mains classification.

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

16 A. As clearly articulated in Bonbright's Principles of Public Utility Rates,<sup>19</sup> under the  
17 principle of cost causation, customer-related costs are "those operating and capital costs  
18 found to vary with number of customers."<sup>20</sup> Operationally defined, customer-related  
19 costs are the "costs of connecting another customer or the savings in costs of not

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<sup>15</sup> Direct Testimony of Christopher J. Barthol, page 14, line 11 to page 15, line 17.

<sup>16</sup> NARUC Gas Manual, page 22.

<sup>17</sup> NARUC Gas Manual, page 22; Direct Testimony of Christopher J. Barthol, page 14, lines 11-13.

<sup>18</sup> NARUC Gas Manual, page 22.

<sup>19</sup> Bonbright et al, Principles of Public Utility Rates, 1988.

<sup>20</sup> 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 connecting the customer.”<sup>21</sup> Per the NARUC Gas Manual, customer costs are those  
2 operating capital costs found to vary directly with the number of customers served rather  
3 than with the amount of utility service supplied ... [t]hey include the expenses of  
4 metering, reading, billing, collecting, and accounting, as well as those cost associated  
5 with the capital investment in metering and in customers’ service connections.”<sup>22</sup> NSP’s  
6 CCOSS properly classifies the costs of services, meters and house regulators as  
7 customer-related. The CCOSS errs only in classifying a portion of the distribution mains  
8 costs as customer-related, rather than properly as demand-related.

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

11 A. As Bonbright also explains, it is theoretically impossible for the capital costs of  
12 distribution system facilities upstream of the facilities properly classified as customer-  
13 related because the connection of a new customer (or disconnection of an existing  
14 customer) has no measurable impact on the costs of those facilities.<sup>23</sup> Since the costs of  
15 the distribution facilities upstream of distribution facilities upstream of customer-related  
16 facilities do not and cannot vary with the number of customers connected to the  
17 distribution system, for the purposes of embedded cost analysis, those costs are properly  
18 classified as demand-related, because those costs “var[y] continuously (and, perhaps,  
19 even more or less directly) with the maximum demand imposed on this system as  
20 measured by peak load.”<sup>24</sup> Per the NARUC Gas Manual, demand related costs “are

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<sup>21</sup> Bonbright, page 490.

<sup>22</sup> 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.”

<sup>23</sup> Bonbright, page 491.

<sup>24</sup> 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 related to maximum system requirements which the system is designed to to serve during  
2 short intervals and do not directly vary with the number of customers or their annual  
3 usage.”<sup>25</sup> NSP’s CCOSS properly classifies the costs of production plant, storage plant,  
4 transmission plant and regulator stations as demand-related. The CCOSS errs only in  
5 classifying a portion of the distribution mains costs as customer-related, rather than  
6 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 production plant, storage plant, transmission plant and regulator stations  
12 as only demand-related.

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

15 A. Yes. NSP’s CCOSS errs in allocating transmission and regulator station costs using the  
16 average and peak demand method<sup>26</sup> and demand-related mains costs using the average and  
17 excess demand method.<sup>27</sup> Both of these methods use the average class commodity volume  
18 to allocate a portion of the costs, rather than the maximum demand on the system as noted  
19 by both Bonbright and the Naruc Gas Manual. The Design Day (coincident demand)

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<sup>25</sup> NARUC Gas Manual, pages 23 and 24.

<sup>26</sup> See NDPSC Data Request No. 2-001, Attachment A TRADE SECRET, Tot tab, col. E, rows 140 and 143 and col. C, row 571.

<sup>27</sup> See NDPSC Data Request No. 2-001, Attachment A TRADE SECRET, Tot tab, col. E, rows 145 and 146 and col. C, rows 649 and 659.

1 method,<sup>28</sup> which NSP's CCOSS uses to allocate production and storage costs, does reflect  
2 the maximum demand on the system.

3 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE ALLOCATION OF**  
4 **NSP'S GAS COSTS?**

5 A. For reason given above I recommend that NSP's transmission, regulator station and  
6 distribution mains costs be allocated using the Design Day demand method, consistent  
7 with the CCOSS' allocation of production and storage costs.

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

10 A. Regarding distribution mains classification, NSP's residential rate class have  
11 proportionately more customers than its commercial rate classes and significantly less  
12 aggregate demand than the commercial classes. Consequently, the CCOSS' class  
13 customer allocation of distribution mains costs that the CCOSS erroneously classifies as  
14 customer-related results in an unsupported and unjustified over allocation of distribution  
15 costs to NSP's residential rate class, which constitutes a interclass subsidization of the  
16 commercial & industrial rate classes. Classifying the entirety of NSP's distribution  
17 mains costs as demand-related corrects the over allocation.

18 Regarding allocation of transmission, regulator station and distribution mains costs, the  
19 average and peak demand method over allocates costs to the commercial & industrial rate  
20 classes, which constitutes an interclass subsidization of the residential rate class.

21 Allocating transmission, regulator stations and distribution mains using the Design Day  
22 demand method, corrects the overallocation.

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<sup>28</sup> See NDPSC Data Request No. 2-001, Attachment A TRADE SECRET, Tot tab, col. E, rows 138 and 139 and col. C, row 658.

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

2 A. Yes. NSP's CCOSS calculates the customer class costs of service in shown in column B  
3 Table 1 below. My correction of the classification and allocation errors in NSP's CCOSS  
4 described above results in the customer class costs of service shown in column C of Table 2.

5 **Table 2: Comparison of Class Costs of Service (\$000)**

Rate Class (A)	NSP CCOSS <sup>29</sup> (B)	Corrected CCOSS <sup>30</sup> (C)	Increase (Decrease)
Residential	\$35,833	\$32,382	(\$3,451)
C&I Firm	\$32,063	\$36,114	\$4,051
Small & Large Interruptible	\$7,715	\$7,116	(\$599)
Total	\$75,612	\$75,612	-

6  
7 As can be readily seen in the table, the net impact of correcting the classification and  
8 allocation errors and interclass subsidizations is significant decrease in the residential and  
9 interruptible rate classes' costs of service and a significant increase in the commercial &  
10 industrial rate classes' cost of service.

11  
12 **NORTH DAKOTA CLASS REVENUE REQUIREMENT APPORTIONMENT**

13 **Q. WHAT IS NSP'S PROPOSAL REGARDING CLASS REVENUE REQUIREMENT**  
14 **APPORTIONMENT?**

15 A. NSP proposes to apportion or distribute the revenue requirement to customer classes based  
16 on cost service adjusted with regard to competitive services and moderation in rate  
17 increase.<sup>31</sup>

<sup>29</sup> Direct Testimony of Christopher J. Barthol, page 31, Table 6 CCOSS Costs of Service.

<sup>30</sup> Exhibit KRP-2 Corrected NDPSC-2-001 Att A CCOSS TRADE SECRET IN ENTIRETY

<sup>31</sup> Direct Testimony of Christopher J. Barthol, page 28, lines 1-3; page, 31, Table 6 Proposed Revenue.

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

3 A. I find no errors in NSP’s proposed method of revenue requirement distribution to customer  
4 classes, but disagree with the customer class costs of service on which the proposed revenue  
5 requirement distribution is based. See Table 2 above.

6 **Q. HAVE YOU DEVELOPED A CLASS REVENUE RESPONSIBILITY BASED ON**  
7 **THE MINIMUM SYSTEM CCOSS AND ADVOCACY STAFF WITNESS**  
8 **MUGRACE’S PROPOSED REVENUE REQUIREMENT?**

9 A. Yes. I have developed customer class revenue requirement distributions based on the  
10 corrected class costs of service and Staff Witness Mugrace’s recommended revenue  
11 requirement. Table 3 compares that class revenue requirement distribution to NSP’s  
12 proposed class revenue requirement distribution.

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

Rate Class (A)	NSP Proposed Revenue <sup>32</sup> (B)	Corrected Proposed Revenue <sup>33</sup> (C)	Increase (Decrease)
Residential	\$30,817	\$26,462	(\$4,355)
C&I Firm	\$35,256	\$34,638	(\$618)
Small & Large Interruptible	\$9,464	\$9,167	(\$297)
Total	\$75,536	\$70,267 <sup>34</sup>	(\$5,269)

14

15 As one can see from Table 3, the net impact of the corrected class cost of service and Staff

16 Witness Mugrace’s recommended revenue requirement is reductions in the revenue

<sup>32</sup> Direct Testimony of Christopher J. Barthol, page 31, Table 6 Proposed Revenue.

<sup>33</sup> Exhibit KRP-3 Corrected Exhibit CJB-1, Schedule 4.

<sup>34</sup> Direct Testimony of Dante Mugrace, Schedule DM-1.

1 requirement apportioned to all NSP's rate classes, with the majority of the reduction going  
2 to the residential class.

3  
4 **NORTH DAKOTA RATE DESIGN**

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

6 A. NSP is proposing no structural changes to its customer class rate structure.<sup>35</sup> Regarding  
7 class tariff charges proposals see Table 1 above.

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

9 A. My only criticism is that they are based on NSP's proposed class revenue requirement  
10 distribution. I note that the absence of a volumetric distribution charge for the residential  
11 rate class eliminates intraclass subsidization of low volume customers by high volume  
12 customers. Table 4 shows my recommended class tariff charges based on the corrected  
13 revenue requirement distribution in Table 3 above.

14 **Table 4: Recommended Class Rates**<sup>36</sup>

<b>Residential (RC 401):</b> 1.2% revenue decrease with Delivery Service Charge decreased 6.4% from \$18.48/month to \$17.30/month;
<b>Commercial and Industrial (RC 403, 410):</b> 8.6% revenue increase with (a) Basic Service Charge increased 27.3% from \$30.00/month to \$38.20/month and (b) Distribution Charge increased 21.8% from \$0.10800/therm to \$0.13157/therm;
<b>Small Interruptible (RC 404):</b> 4.8% revenue increase with (a) Basic Service Charge increased 33.3% from \$75.00/month to \$100.00/month and (b) Distribution Charge increased 5.6% from \$0.08800/therm to \$0.09292/therm;
<b>Large Interruptible (RC 405):</b> 7.2% revenue increase with (a) Basic Service Charge increased 9.1% from \$275.00/month to \$300/month and (b) Distribution Charge increased 40.3% from \$0.05120/therm to \$0.07182/therm;

15  
<sup>35</sup> Direct Testimony of Christopher J. Barthol, page 33,

<sup>36</sup> Exhibit KRP-4 Corrected Exhibit CJB-1, Schedule 5.

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

2 A. Yes.

PCMG and Associates LLC

**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

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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.

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*Regulatory Projects and Appearances*

1. In re: the Application of Northern States Power Company for Authority to Increase Rates for Natural Gas Service in North Dakota (2021) - (Appearance: depreciation, cost of service and rate design on behalf of the North Dakota Public Service Commission Advocacy Staff)  
ND PSC Case No. PU-21-381
2. 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
3. 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
4. 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
5. 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
6. 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
7. 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

**PCMG and Associates LLC**

8. 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
9. 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
10. 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
11. 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
12. 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
13. 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
14. 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
15. 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

**PCMG and Associates LLC**

16. 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
17. 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
18. 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
19. 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
20. 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
21. 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
22. 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

**PCMG and Associates LLC**

23. 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
24. 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
25. 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
26. 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
27. 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
28. 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
29. 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
30. 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
31. 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

**PCMG and Associates LLC**

32. 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
33. 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
34. 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
35. 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
36. 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
37. 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
38. 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
39. 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

PCMG and Associates LLC

40. 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
41. 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
42. 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
43. 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
44. 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
45. 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
46. 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
47. 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

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48. 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
49. 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
50. 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
51. 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
52. 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
53. 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
54. 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

**PCMG and Associates LLC**

55. 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
56. 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
57. 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
58. 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
59. 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
60. 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
61. 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
62. 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

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63. 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
64. 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
65. 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
66. 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
67. In the Matter of the Application of Baltimore Gas and Electric Company for Adjustment in its Electric and Gas Base Rates (2012) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Maryland Office of People's Counsel)  
MD Public Service Commission Case No. 9299
68. In the Matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates and Miscellaneous Tariff Changes (2012) - (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. 11-528
69. ENMAX Energy Corporation (EEC) 2012-2014 Regulated Rate Option Non-Energy Tariff Application (2012-2013) - (Analysis and Advice to Counsel: rate design and non-energy risk on behalf of the Alberta Utilities Consumer Advocate)  
Alberta Utilities Commission Application #1608745 Proceeding 2069

**PCMG and Associates LLC**

70. In the Matter of the Petition of Atlantic City Electric Company for Approval of Amendments to Its Tariff to Provide for an Increase in Rates and Charges for Electric Service Pursuant to *N.J.S.A.* 48:2-21 and *N.J.S.A.* 48:2-21.1 and for Other Appropriate Relief (2011) - (Analysis and Advice to Counsel: depreciation on behalf of the New Jersey Division of Rate Counsel)  
NJ Board of Public Utilities Docket No. ER11080469
71. In the Matter of the Application of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service (2011) - (Appearance: investment tracker design/rates, cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)  
D.C. Public Service Commission Formal Case No. 1087
72. Electric Transmission Formula Rate Annual Informational Filing of Central Maine Power Company (2011) - (Advice to Counsel: formula transmission rates, cost allocation and rate design on behalf of the Maine Attorney General)  
Federal Energy Regulatory Commission Docket No. ER09-934-000 (2011)
73. Electric Transmission Formula Rate Annual Informational Filing of Bangor Hydro Electric Company (2011) - (Analysis, Report and Advice to Counsel: formula rate on behalf of the Massachusetts Attorney General)  
Federal Energy Regulatory Commission Docket No. ER09-938-000
74. Pennsylvania Public Utility Commission Office of Consumer Advocate Office of Small Business Advocate v. City of Bethlehem – Bureau of Water (2011) - (Appearance: cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate)  
Pennsylvania PUC Docket Nos. R-2011-2244756, C-2011-2246910, and C-2011-2248241
75. Southern California Edison Company Transmission Owners Tariff (2011) - (Analysis and Advice to Counsel: depreciation on behalf of M-S-R Public Power Agency)  
Federal Energy Regulatory Commission Docket No. ER11-2061-000
76. In the Matter of the Petition of Kansas City Power & Light Company for Determination of the Ratemaking Principles and Treatment that Will Apply to the Recovery in Rates of the Cost to be Incurred by KCP&L for Certain Electric Generation Facilities under K.S.A. 66- 1239 (2011) - (Appearance: advance determination of prudence on behalf of the Kansas Citizens' Utility Ratepayer Board)  
Kansas Corporation Commission Docket No. 11-KCPE-581-PRE
77. Midwest Independent Transmission System Operator, Inc., and Ameren Illinois Company (2011) - (Analysis and Advice to Counsel: depreciation on behalf of the Wholesale Distribution Service Customer Group)  
Federal Energy Regulatory Commission Docket No. ER11-2788-000

	Rate Code	Avg Cust.	Dkt Sales	Present Revenues			Proposed Revenue			Increase					
				Base	Fuel	Total	Base	Fuel	Total	Base	Fuel	Total	%	%	%
<b>Firm Service</b>															
Residential	401	51,811	3,969,079	11,489,515	15,307,684	\$26,797,199	\$10,752,937	\$15,720,345	\$26,473,282	-\$736,578	-6.4%	\$412,661	2.7%	-\$323,917	-1.2%
Commercial and Industrial	410	9,092	6,494,932	9,843,987	22,057,904	\$31,901,891	\$11,992,204	\$22,657,878	\$34,650,082	\$2,148,217	21.8%	\$599,974	2.7%	\$2,748,191	8.6%
Total Firm Service		60,903	10,464,011	21,333,502	37,365,588	\$58,699,090	\$22,745,141	\$38,378,223	\$61,123,364	\$1,411,638	6.6%	\$1,012,635	2.7%	\$2,424,273	4.1%
<b>Interruptible Service</b>															
Small C&I	404	63	569,913	558,374	1,636,515	\$2,194,889	\$605,355	\$1,695,768	\$2,301,123	\$46,981	8.4%	\$59,253	3.6%	\$106,234	4.8%
Large C&I	405	25	2,993,984	1,476,382	4,932,326	\$6,408,708	\$1,757,621	\$5,110,911	\$6,868,532	\$281,239	19.0%	\$178,585	3.6%	\$459,824	7.2%
Total Interruptible Service		88	3,563,897	2,034,756	6,568,841	\$8,603,597	\$2,362,976	\$6,806,679	\$9,169,655	\$328,220	16.1%	\$237,838	3.6%	\$566,058	6.6%
Total Retail		60,991	14,027,908	23,368,258	43,934,429	\$67,302,687	\$25,108,117	\$45,184,902	\$70,293,019	\$1,739,859	7.4%	\$1,250,473	2.8%	\$2,990,332	4.4%
<b>Other Gas Revenues</b>															
Late Pay Penalties						\$155,340			\$174,344					\$19,004	12.2%
Connection Charges						\$113,904			\$170,177					\$56,273	49.4%
Return Check Charges						\$6,516			\$6,516					\$0	0.0%
Connect Smart						\$3,011			\$3,011					\$0	0.0%
Interchange Gas						\$63,229			\$63,229					\$0	0.0%
Other Gas Revenue						\$90,112			\$90,112					\$0	0.0%
Ltd Firm Sales - Rsrvs & Vols						\$120,420			\$120,420					\$0	0.0%
LP Sales to Others - MN						\$0			\$0					\$0	0.0%
Contr In Aid Cons Tax Gr-Up						\$0			\$0					\$0	0.0%
Other - Miscellaneous						-\$2,148			-\$2,148					\$0	0.0%
Total Other Gas Revenues						\$550,384			\$625,660					\$75,277	13.7%
<b>Total Retail Sales and Other Revenues</b>						<b>\$67,853,071</b>			<b>\$70,918,679</b>					<b>\$3,065,609</b>	<b>4.5%</b>

Northern States Power Company  
Natural Gas Utility - State of North Dakota  
Detail of Customers, Sales, and Present and Proposed Revenues

Case No. PU-21-\_\_\_\_  
Exhibit\_\_\_\_(CJB-1), Schedule 5  
Page 1 of 1  
Corrected

**Residential Service**

	Units		Present		Proposed		Increase	
	Bills	Therms	Rate	Revenue	Rate	Revenue	Amount	Percent
Delivery Services Charge	621,727		\$ 18.48	\$11,489,515	\$ 17.30	\$ 10,752,937	\$ (736,578)	
Distribution Charge		39,690,789	\$ -	\$ -	\$ -	\$ -	\$ -	
MGP		39,690,789	\$ -	\$ -	\$ 0.01040	\$ 412,661	\$ 412,661	
Cost of Gas Charge								
Summer (Apr-Oct)		8,443,492	\$ 0.33921	\$ 2,864,147	\$ 0.33921	\$ 2,864,147		
Winter (Nov-Mar)		<u>31,247,297</u>	<u>\$ 0.39823</u>	<u>\$12,443,537</u>	<u>\$ 0.39823</u>	<u>\$ 12,443,537</u>		
Total		39,690,789	\$ 0.38567	\$15,307,684	\$ 0.38567	\$ 15,307,684	\$ -	
Average Customers	51,811							
<b>Total</b>				\$26,797,199		\$ 26,473,282	\$ (323,917)	-1.20%

**Commercial and Industrial Service**

	Units		Present		Proposed		Increase	
	Bills	Therms	Rate	Revenue	Rate	Revenue	Amount	Percent
Basic Service Charge	109,101		\$30.00	\$ 3,273,030	\$38.20	\$ 4,167,658	\$ 894,628	
Distribution Charge		64,949,321	\$ 0.10800	\$ 7,014,527	\$ 0.13157	\$ 8,545,281	\$ 1,530,754	
Discount		7,242,210	\$(0.06125)	\$(443,570)	\$(0.09952)	\$(720,767)	\$ (277,197)	
MGP		57,707,111	\$ -	\$ -	\$ 0.01040	\$ 599,974	\$ 599,974	
Cost of Gas Charge								
Summer (Apr-Oct)		15,634,588	\$ 0.33921	\$ 5,303,463	\$ 0.33921	\$ 5,303,463		
Winter (Nov-Mar)		<u>42,072,522</u>	<u>\$ 0.39823</u>	<u>\$16,754,441</u>	<u>\$ 0.39823</u>	<u>\$ 16,754,441</u>		
Cost of Gas Charge		57,707,111	\$ 0.38224	\$22,057,904	\$ 0.38224	\$ 22,057,904	\$ -	
Average Customers	9,092							
<b>Total</b>				\$31,901,891		\$ 34,650,050	\$ 2,748,191	8.60%

**Small Interruptible Service**

	Units		Present		Proposed		Increase	
	Bills	Therms	Rate	Revenue	Rate	Revenue	Amount	Percent
Basic Service Charge	758		\$ 75.00	\$ 56,850	\$ 100.00	\$ 75,800	\$ 18,950	
Distribution Charge		5,699,135	\$ 0.08800	\$ 501,524	\$ 0.09292	\$ 529,564	\$ 28,040	
MGP		5,699,135	\$ -	\$ -	\$ 0.01040	\$ 59,253	\$ 59,253	
Cost of Gas Charge		5,699,135	\$ 0.28715	\$ 1,636,515	\$ 0.28715	\$ 1,636,515	\$ -	
Average Customers	63							
<b>Total</b>				\$ 2,194,889		\$ 2,301,132	\$ 106,243	4.80%

**Large Interruptible Service**

	Units		Present		Proposed		Increase	
	Bills	Therms	Rate	Revenue	Rate	Revenue	Amount	Percent
Basic Service Charge	300		\$ 275.00	\$ 82,500	\$ 300.00	\$ 90,000	\$ 7,500	
Distribution Charge		29,939,839	\$ 0.05120	\$ 1,532,920	\$ 0.07182	\$ 2,150,279	\$ 617,359	
Discount		12,763,099	\$(0.01089)	\$(139,038)	\$(0.03781)	\$(482,620)	\$ (343,582)	
MGP		17,176,740	\$ -	\$ -	\$ 0.01040	\$ 178,585	\$ 178,585	
Cost of Gas Charge		17,176,740	\$ 0.28715	\$ 4,932,326	\$ 0.28715	\$ 4,932,326	\$ -	
Average Customers	25							
<b>Total</b>				\$ 6,408,708		\$ 6,868,570	\$ 459,862	7.20%

**STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION**

**Northern States Power Company  
2021 Natural Gas Rate Increase  
Application**

**Case No. PU-21-381**

**Verification**


State Of  Maryland  )  
 ) ss.  
County Of  Montgomery  )

Karl Richard Pavlovic, being first duly sworn on oath, deposes and states that he has read the testimony and exhibits submitted in the above captioned matters under his name, that they were prepared by him or under his direction, that he knows the contents thereof, and that the same are true and correct to the best of his knowledge and belief.

  
Karl Richard Pavlovic

Subscribed and sworn to before me this  20<sup>th</sup>  day of February, 2022.



  
Notary Public  
My Commission Expires:  3/10/2025

**MICHELLE A. PRICE  
NOTARY PUBLIC STATE OF MARYLAND  
My Commission Expires: March 10, 2025**