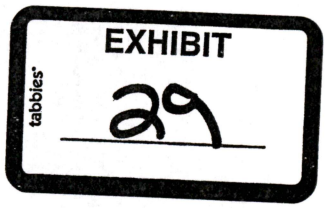

STATE OF NORTH DAKOTA

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-21-381

SURREBUTTAL TESTIMONY OF KARL R. PAVLOVIC

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

April 22, 2022

DIRECT TESTIMONY OF
KARL R. PAVLOVIC

QUALIFICATIONS

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

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

Q. ARE YOU THE SAME KARL RICHARD PAVLOVIC WHO SUBMITTED DIRECT TESTIMONY ON BEHALF OF ADVOCACY STAFF ON MARCH 1, 2022 IN THIS PROCEEDING?

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

I. PURPOSE AND ORGANIZATION

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. I have been asked by the Commission's Advocacy Staff (1) to address the rebuttal testimony of NSP Witness Barthol regarding my direct testimony critique of NSP's proposed North Dakota Class Cost of Service Study (CCOSS)[1] and (2) revise my direct testimony recommended class revenue allocation and recommended rate design in light of Advocacy Staff Witness Mugrace's surrebuttal revenue requirement. Section III.A addresses Witness Barthol's rebuttal CCOSS testimony and Section III.B presents my revised revenue allocation and rate design.

[1] Rebuttal Testimony of Christopher J. Bathol, Exhibit CJB-2, pages 2-9.

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

A. Yes. I have included the following exhibits:

Exhibit No. KRP-S1: Revised Corrected Exhibit CJB-1, Schedule 4

Exhibit No. KRP-S2: Revised Corrected Exhibit CJB-1, Schedule 5

II. SUMMARY OF TESTIMONY AND CONCLUSIONS

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. My testimony finds that Witness Barthol's rebuttal testimony provides no reason to modify or withdraw my direct testimony recommendations that the Commission:

- Direct that NSP's distribution mains be classified as wholly demand-related with no customer-related component, consistent with the CCOSS' classification of production plant, storage plant, transmission plant and regulator stations as only demand-related.
- Direct that NSP's transmission, regulator station and distribution mains costs be allocated using the Design Day demand method, consistent with the CCOSS' allocation of production and storage costs.

III. DISCUSSION

A. NSP~~S~~ NORTH DAKOTA CLASS COST OF SERVICE STUDY

Q. PLEASE SUMMARIZE YOUR DIRECT TESTIMONY CRITIQUE OF NSP'S CLASS COST OF SERVICE STUDY.

A. In my direct testimony I explained that NSP's proposed CCOSS (1) erroneously classifies a portion of mains cost as customer-related using the minimum system method of classification, contrary to the fact that customer-related costs are those costs that vary directly with the number of customers per both Principles of Public Utility Rates and the NARUC Gas Manual [2] and (2) erroneously allocates demand-related transmission, regulator station and mains costs using the average and peak demand method rather than the design day demand method, contrary to the fact that demand-related costs are those costs that vary directly with the maximum demand on the system per both Principles of Public Utility Rates and the NARUC Gas Manual.[3]

Regarding the first point, I noted that customer-related classification of mains costs results in over-allocation of mains costs to the residential class, i.e., an interclass subsidy of the commercial & industrial classes. On that basis I recommended that mains costs be classified as wholly demand-related.

Regarding the second point, I noted that the use of the average and peak method of allocation results in the over-allocation of transmission, regulator stations and mains costs to the commercial & industrial classes, i.e., an interclass subsidy of the residential class. On that basis I recommended that the design day method of allocation be used, consistent with NSP's design day allocation of production and storage costs.

Q. PLEASE SUMMARIZE WITNESS BARTHOL'S REBUTTAL OF YOUR DIRECT TESTIMONY.

[2] Direct Testimony of Karl R. Pavlovic, pages 7-9.
[3] Pavlovic Direct, pages 9-11.

A. Witness Barthol's rebuttal testimony responds to my testimony separately regarding the classification and allocation of mains and the allocation of transmission and regulator stations.

Regarding the classification of mains costs, Witness Barthol asserts (a) that the NARUC Gas Manual references the minimum system classification of mains,[4] (b) that the North Dakota, Minnesota and Wisconsin Commissions have all accepted the minimum system method for classification of mains,[5] (c) that an example of mains costs that is not driven by capacity is the cost of mains trenching,[6] and (d) that the engineering and design costs of a new main and the upsizing of pipelines upstream of a new main are based on the number of customers to be served off the new main.[7]

Regarding NSP's Average and Peak method of allocating demand-related mains costs, Witness Barthol asserts (a) that capacity-related, i.e., not customer-related, costs of mains are associated with plant that is designed, installed and operated for two purposes: (1) to deliver gas all year to customers and (2) to meet design day demand,[8] (b) that therefore capacity-related costs should be split into Average Capacity costs and Excess Capacity costs and allocated on daily average sales and excess design day demand, respectively,[9] and (c) that design day allocation of mains makes no sense because it does not allocate any mains costs to interruptible customers.[10]

Regarding NSP's Average and Peak method of allocating transmission and regulator station costs, Witness Barthol asserts (a) that Average and Peak allocation of transmission

[4] Barthol Rebuttal, page 3, lines 1-20.
[5] Barthol Rebuttal, page 3, lines 22-30.
[6] Barthol Rebuttal, page 5, lines 1-11.
[7] Barthol Rebuttal, page 5, lines 13-22.
[8] Barthol Rebuttal, page 4, lines 10-15 and page 7, lines 1-11.
[9] Barthol Rebuttal, page 4, lines 16-22.
[10] Barthol Rebuttal, page 5, line 24 to page 6, line 4.

and regulator station costs is longstanding practice for NSP in North Dakota,[11] (b) that the commissions in Minnesota and Wisconsin have accepted Average and Peak allocation of transmission and regulator stations,[12] (c) that Average and Peak allocation is appropriate for transmission and regulator station costs for the same reasons as for mains costs,[13] and (d) that design day allocation of transmission and regulator station costs violates the fundamental principle of cost causation, because it does not allocate any costs to the interruptible classes.[14]

Q. WHAT IS YOUR RESPONSE TO WITNESS BARTHOL'S REBUTTAL TESTIMONY REGARDING MINIMUM SYSTEM CLASSIFICATION OF MAINS AND AVERAGE AND PEAK ALLOCATION OF TRANSMISSION, REGULATOR STATIONS AND MAINS?

A. As a fundamental matter, whether the North Dakota, Minnesota and Wisconsin commissions have or have not accepted minimum system classification of mains costs and average and peak allocation of transmission, regulator station and mains costs is not germane to the question of whether these methods are consistent with the principle of cost causation. Specifically regarding minimum system classification of NSP's mains, Witness Barthol provides no empirical evidence that any components of NSP's mains costs vary directly with number of customers. Specifically regarding Average and Peak allocation, Witness Barthol provides no empirical evidence that there is any component of NSP's transmission, regulator station and mains costs that is a function of "average capacity" rather than maximum demand on the system. Specifically regarding interruptible customers,

[11] Barthol Rebuttal, page 6, lines 20-26.
[12] Barthol Rebuttal, page 7, lines 4-7.
[13] Barthol Rebuttal, page 7, lines 7-11.
[14] Barthol Rebuttal, page 7, lines 20-24,

NSP's interruptible customers' maximum demand on the system is not accounted for in the design, installation and operation of NSP's gas distribution system and is therefore not a cost causative factor of NSP's production, storage, transmission, regulator station and mains costs. I address the latter three points in detail below.

III.A.1. NSP's Minimum System Classification of Mains

Q. IS THE MINIMUM SIZE METHOD OF MAINS CLASSIFICATION CONSISTENT WITH THE PRINCIPLE OF COST CAUSATION?

A. No. As I pointed out in my direct testimony[15] and as Witness Barthol acknowledges in his rebuttal testimony,[16] the minimum size method applied to mains rests on a theory that "assumes that there is a … minimum size main necessary to connect the customer to the system" (emphasis added).[17] As I noted in my direct testimony, the NARUC Gas Manual also observes that the minimum size theory and assumption are controversial.[18] The theory and assumption are controversial because they contradict the NARUC Gas Manual's cost-causative definition and enumeration of customer-related costs, viz.,

> "those operating costs found to vary directly with the number of customers served … the expenses of metering, reading, billing collecting, and accounting, as well as those costs associated with the capital investment in metering equipment and in customer service connections."[19]

[15] Pavlovic Direct, page 8, lines 5-7.
[16] Barthol Rebuttal, page3, lines 15-20.
[17] NARUC Gas Manual, page 22.
[18] NARUC Gas Manual, page 22.
[19] NARUC Gas Manual, page 22.

Minimum size customer classification of NSP's mains would be consistent with the principle of cost causation only if NSP were to provide empirical evidence that some portion of its mains costs varied directly with the number of customers served.

Q. HAS NSP PROVIDED ANY EVIDENCE THAT A PORTION OF ITS MAINS COSTS VARIES DIRECTLY WITH THE NUMBER OF CUSTOMERS SERVED?

A. No. I specifically requested from Witness Barthol evidence that a quantifiable portion of NPS's mains costs varies directly with the number of customers served.[20] In response Witness Barthol did not provide the requested quantitative evidence.

Q. DOES THE TRENCHING COST EXAMPLE DEMONSTRATE THAT A PORTION OF MAINS COSTS VARIES DIRECTLY WITH THE NUMBER OF CUSTOMERS?

A. No. The main trenching cost example simply purports to identify a mains cost component that is not a function of demand or capacity. The example says nothing about mains costs varying directly with the number of customers.

Q. DOES THE MAINS ENGINEERING AND DESIGN COST EXAMPLE DEMONSTRATE THAT A PORTION OF MAINS COSTS VARIES DIRECTLY WITH THE NUMBER OF CUSTOMERS?

A. No. Despite Witness Barthol's claim that the engineering and design costs of a new main and the upsizing of mains upstream of the new main are a function of the number of customers to be served by the new main, a simple thought experiment demonstrates that this is not the case. The engineering and design costs of a new main and upstream upsizing will

[20] NDPSC-5-2.

be the same whether the new main is to serve the maximum demand of a single customer or the equivalent aggregate maximum demand of several smaller customers.

Q. DOES WITNESS BARTHOL'S REBUTTAL TESTIMONY PROVIDE ANY REASON FOR YOU TO MODIFY OR WITHDRAW YOUR RECOMMENDATION THAT NSP'S CCOSS CLASSIFY MAINS COSTS AS WHOLLY DEMAND RELATED?

A. No.

III.A.2. NSP's Average and Peak Allocation of Transmission, Regulator Station and Mains Costs

Q. IS AVERAGE AND PEAK DEMAND ALLOCATION OF NSP'S TRANSMISSION, REGULATOR STATION AND MAINS COSTS CONSISTENT WITH THE PRINCIPLE OF COST CAUSATION?

A. No. The average and peak demand allocation method assumes a theoretical "average capacity" of NSP's distribution system that cannot be the basis for the design, installation and operation of that system. Were the distribution system to be designed, installed and operated to serve the average demand or capacity of NSP's customers, the distribution system would not be able to serve the aggregate maximum demand of its customers. Design day demand, which is the aggregate maximum demand that all gas utilities, including NSP, use for the design, installation and operation is the allocation method that is consistent with the principle of cost causation.

Q. HAS NSP PROVIDED ANY EVIDENCE THAT A PORTION OF ITS TRANSMISSION, REGULATOR STATION AND MAINS COSTS VARIES

DIRECTLY WITH THE AVERAGE DEMAND OR CAPACITY ON ITS DISTRIBUTION SYSTEM?

A. No. I specifically requested from Witness Barthol evidence that a quantifiable portion of NPS's transmission, regulator station and mains costs varies directly with the average demand or capacity of its customers.[21] In response Witness Barthol did not provide the requested quantitative evidence.

Q. DOES WITNESS BARTHOL'S REBUTTAL TESTIMONY PROVIDE ANY REASON FOR YOU TO MODIFY OR WITHDRAW YOUR RECOMMENDATION THAT NSP'S CCOSS USE DESIGN DAY DEMAND TO ALLOCATE TRANSMISSION, REGULATOR STATION AND MAINS COSTS?

A. No.

III.A.3. NSP's Interruptible Customers and Cost Causation

Q. DO INTERRUPTIBLE CUSTOMERS CAUSE DEMAND-RELATED COSTS OF NSP'S TRANSMISSION, REGULATOR STATION AND MAINS?

A. No. As Witness Barthol states in rebuttal, interruptible customers are curtailed when system demand reaches design day maximum demand.[22] The reason interruptible customers are curtailed is that NSP's system has not been designed to serve the interruptible customers' demand at maximum system demand. That in turn means that interruptible customers demand is not a cause of the demand-related costs of NSP's distribution system. That is why design day allocation of the distribution system's demand-related costs allocates none of those costs to interruptible customers. While interruptible customers make use of the system, they cause none of the demand-related costs. Because the demand of interruptible

[21] NDPSC-5-3.
[22] Barthol Rebuttal, page 6, lines 1-4 and page 7, lines 15-17.

customers is curtailed under design day conditions, they cause only customer-related costs, viz., "those operating costs found to vary directly with the number of customers served … the expenses of metering, reading, billing collecting, and accounting, as well as those costs associated with the capital investment in metering equipment and in customer service connections."[23]

Q. DOES DESIGN DAY DEMAND ALLOCATION OF TRANSMISSION, REGULATOR STATION AND MAINS COSTS VIOLATE THE PRINCIPLE OF COST CAUSATION?

A. No. As I just explained, to allocate NSP's transmission, regulator station and mains demand-related costs to interruptible customers would violate the principle of cost causation, because interruptible customers do not cause the demand-related costs of NSP's transmission, regulator station and mains demand-related costs.

Q. DOES WITNESS BARTHOL'S REBUTTAL TESTIMONY REGARDING INTERRUPTIBLE CUSTOMERS PROVIDE ANY REASON FOR YOU TO MODIFY OR WITHDRAW YOUR RECOMMENDATION THAT NSP'S CCOSS USE DESIGN DAY ALLOCATION FOR TRANSMISSION, REGULATOR STATION AND MAINS COSTS?

A. No.

B. REVISED NORTH DAKOTA CLASS REVENUE ALLOCATION AND RATE DESIGN

[23] NARUC Gas Manual, page 22.

Q. HAVE YOU REVISED YOUR RECOMMENDED REVENUE ALLOCATION AND RATE DESIGN CONSISTENT WITH ADVOCACY STAFF WITNESS MUGRACE'S SURREBUTTAL REVENUE REQUIREMENT?

A. Yes. Table 1 below shows my revised class revenue allocation and Table 2 shows my revised rate design.

Table 1: Comparison of Class Revenue Requirement Apportionment ($000)

Rate Class (A)	NSP Proposed Revenue[24] (B)	Revised Proposed Revenue[25] (C)	Increase (Decrease) (D)
Residential	$30,817	$26,888	($3,929)
C&I Firm	$35,256	$35,113	($143)
Small & Large Interruptible	$9,464	$9,261	($203)
Total	$75,536	$71,262	($4,274)

Table 2: Revised Recommended Class Rates[26]

Residential (RC 401): 0.3% revenue increase with Delivery Service Charge decreased 2.8% from $18.48/month to $17.96/month;
Commercial and Industrial (RC 403, 410): 10.1% revenue increase with (a) Basic Service Charge increased 31.7% from $30.00/month to $39.50/month and (b) Distribution Charge increased 26.5% from $0.10800/therm to $0.13664/therm;
Small Interruptible (RC 404): 5.9% revenue increase with (a) Basic Service Charge increased 33.3% from $75.00/month to $100.00/month and (b) Distribution Charge increased 8.0% from $0.08800/therm to $0.09500/therm;
Large Interruptible (RC 405): 8.2% revenue increase with (a) Basic Service Charge increased 9.1% from $275.00/month to $300/month and (b) Distribution Charge increased 44.9% from $0.05120/therm to $0.07420/therm;

[24] Direct Testimony of Christopher J. Barthol, page 31, Table 6 Proposed Revenue.
[25] Exhibit KRP-S1; Surrebuttal Testimony of Dante Mugrace, Schedule S-DM-1.
[26] Exhibit KRP-S2.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

Northern States Power Company
2021 Natural Gas Rate Increase
Application

Case No. PU-21-381

AFFIDAVIT OF SERVICE BY ELECTRONIC MAIL

STATE OF NORTH DAKOTA
COUNTY OF BURLEIGH

Geralyn R. Schmaltz deposes and says that:

she is over the age of 18 years and not a party to this action and, on the **9th day of May 2022,** she sent an electronic message to **eight** addressees, each including an electronic copy in portable document format of:

- **Revised Surrebuttal Testimony of Karl R. Pavlovic**

The electronic mail was addressed as follows:

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The addresses shown are the respective addressee's last reasonably ascertainable electronic mail addresses.

Geralyn R. Schmaltz

Subscribed and sworn to before me
this **9th day of May 2022.**

Shelly A Bauske
Notary Public

SEAL

SHELLY A BAUSKE
Notary Public
State of North Dakota
My Commission Expires Sep 01, 2022