



2302 Great Northern Drive
Fargo, ND 58102

October 27, 2023

– VIA ELECTRONIC MAIL AND U.S. MAIL –

Steven M. Kahl, Executive Director
North Dakota Public Service Commission, Dept. 408
State Capitol, 600 East Boulevard
Bismarck, ND 58504-0480

RE: PROPOSED TARIFF MODIFICATIONS TO THE CONTROLLED AIR
CONDITIONING AND WATER HEATING RIDERS (RESIDENTIAL &
COMMERCIAL)
CASE NO. PU-23-_____

Dear Mr. Kahl:

Northern States Power Company, doing business as Xcel Energy, submits the enclosed original and seven copies of the application to the North Dakota Public Service Commission for approval of modifications to the Residential Controlled Air Conditioning and Water Heating Rider and the Commercial and Industrial Controlled Air Conditioning Rider (collectively “Saver’s Switch”):

North Dakota Electric Rate Book – NDPSC No. 2

- Section 5, 10th Revised Sheet No. 78
- Section 5, 10th Revised Sheet No. 80

We request these modifications to provide additional flexibility during a control event. An electronic copy of this filing is also being sent to you for your convenience. Please contact me at alex.j.nisbet@xcelenergy.com if you have any questions regarding this filing.

Sincerely,

ALEX NISBET
REGULATORY POLICY SPECIALIST

c: Victor Schock
Enclosures

STATE OF NORTH DAKOTA
BEFORE THE
NORTH DAKOTA PUBLIC SERVICE COMMISSION

PETITION FOR PROPOSED TARIFF
MODIFICATIONS TO THE CONTROLLED
AIR CONDITIONING AND WATER
HEATER RIDERS (RESIDENTIAL &
COMMERCIAL)

CASE NO. PU-23-___

APPLICATION

I. INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, submits to the North Dakota Public Service Commission this application for approval of modifications to the Residential Controlled Air Conditioning and Water Heating Rider and the Commercial and Industrial Controlled Air Conditioning Rider (collectively “Saver’s Switch”).

Specifically, the Company seeks to increase the maximum amount of load that can be controlled during a demand event by cycling a participant’s air conditioning load from 50 percent to 60 percent. In addition, in the case of a NERC Level 2 system emergency, the Company requests the right to cycle up to a 80% reduction. The 80% cycling strategy could be used as a last resort for certain areas of our grid if all other demand response efforts have been deployed and additional load relief is necessary. As the resource with the most load availability, the Company wants to prepare for the ability to utilize this source as intended, the avoidance of system failures. The interruptions as described above may occur up to a maximum of 300 hours per calendar year.

The Company proposes these changes in an effort to increase the amount of available demand response from our Saver’s Switch customers in North Dakota, South Dakota, and Minnesota and to be consistent across our jurisdictions for operational simplicity. The Company’s experience operating Saver’s Switch for more than 30 years indicates that there is a low risk to customers and through activation of smaller groups of customers, the Company can minimize the time allotment to limit any potential risk to customer comfort. In the past decade, the company has conducted an average of 1-2 control events per year in North Dakota.

II. FILING INFORMATION

Pursuant to Section 69-02-02-04 of the North Dakota Administrative Code, the following information is provided:

A. Contact information for utility making the filing

Lauren Steinhaeuser
Assistant General Counsel
Xcel Energy Services Inc.
414 Nicollet Mall – 401, 8th Floor
Minneapolis, MN 55401
(612) 216-8274
lauren.steinhaeuser@xcelenergy.com

Alex Nisbet
Regulatory Policy Specialist
Xcel Energy
2302 Great Northern Drive
PO Box 2747
Fargo, ND 58108-2747
(701) 241-8632
alex.j.nisbet@xcelenergy.com

We request that all communications regarding this proceeding, including data requests, also be directed to:

Christine Schwartz
Regulatory Administrator
Xcel Energy
414 Nicollet Mall – 401, 7th Floor
Minneapolis, MN 55401
regulatory.records@xcelenergy.com

B. Date of filing and proposed effective date

The date of this filing is October 27, 2023. The Company proposes that the tariff modification be effective upon Commission approval of the proposed modifications.

C. Statutory Authority

We submit this application pursuant to N.D.C.C. Section 49-02-03 which establishes Commission authority to supervise rates and N.D.C.C. 49-05-05 which allows a utility to make changes to its tariffs upon 30 days' notice to the Commission.

D. Articles of Incorporation

Pursuant to Section 69-02-02-04 of the North Dakota Administrative Code, a certified copy of Xcel Energy's Articles of Incorporation is on file with the Commission, as is an original Certificate of Good Standing.

III. BACKGROUND

Saver's Switch is a demand response program that customers can participate in to allow utility control of their load during a demand event. The types of demand events can be an emergency event (in which demand reduction is needed for the system during a hot summer day by either the utility or the Midwestern Independent System Operator) or an economic event (in which demand reduction can provide an economic benefit to all customers on the system). The program is a typical load control program that sheds customer demand by reducing it during an event and shifting it to another time of day by directly cycling air-conditioning load. Under the program, customers receive a discount on their summer utility bills in exchange for authorizing the Company to control their central air-conditioning units during demand events. Over time, the program's participation has expanded to over 50 percent of the residential single-family homes with central air conditioning in the Company's service territory. The Residential program has had an historical annual attrition rate of less than two percent.

With over 12,000 residential and 600 commercial North Dakota customers with switches on their central air-conditioners, the Company can currently achieve almost 10 MW of peak load reduction during a demand response control event. Of all the Company's demand response programs, this option has by far the most customers and load availability during an event, making it an essential part of our demand response portfolio.

IV. PURPOSE OF FILING

The Company proposes this change in an effort to increase the amount of available demand response from our Saver's Switch customers and to be consistent across our jurisdictions for operational simplicity.

Technology has changed significantly since the Company established its 50 percent time-based cycling strategy in the early 90s. First, air conditioning units have changed substantially over the last 30 years. Newer models of central air-conditioning units use less energy to lower the temperature of a home or business. Every air conditioner comes with a Seasonal Energy-Efficiency Ratio (SEER) which measures how much

cooling capacity a particular air conditioner produces compared to the amount of energy it uses. Higher SEER rates equate to a more efficient unit; usually as a result of the compressor's ability to change motor speed based on weather conditions or a home's temperature setting. In 1992, the minimum rating for an air conditioner was 10. Comparatively, the minimum rating for newly installed air conditioners will increase to SEER 14 beginning in 2023 based on new Department of Energy standards. As equipment becomes more efficient, the load available for control during a hot summer day decreases.

While these technology improvements have provided many benefits, they have reduced the amount of flexible load the Company can obtain from Saver's Switch participants. The load availability per switch has decreased over time. We base this decrease on yearly measurement and verification using observed AC unit demand and switch signal reception rates. For residential Smart Switches, the per kW has declined by a third in the last fifteen years from 1.04 per kW to 0.69 per kW.

The Company began to install Smart Switches in the field beginning in 2004 that allowed for adaptive algorithms. These adaptive switches cycle customer air conditioner units off and on based on usage, aimed at achieving a 50 percent reduction in load compared to the traditional switches, which use a 50 percent time-based cycling strategy running 15 minutes on /15 minutes off. The adaptive switches increase overall kW reductions by minimizing free ridership by "smartly" determining how often an air conditioner runs normally and cycling at 50 percent that time. The change from the original cycling strategy to the adaptive algorithm had no discernable impact on program participant attrition. Approximately 50% of our deployed switches in North Dakota are now equipped with adaptive algorithms. All new residential and business participants, as well as all switches replaced for maintenance purposes, received the adaptive algorithm switch.

The result of these technology changes is that we are maximizing the amount of demand response we can receive from our existing program. We now seek to increase the available demand response available with this Petition.

The Company proposes to adjust the cycling scheme to allow the Company to cycle for a 60% reduction. Notably, the Company would not use this "maximum" capability unless it is needed. Building in this flexibility allows the program to be utilized at a higher level of load relief for the future. This flexibility allows us to continue to control by substation for distribution efforts with more certainty of load relief and provides the flexibility allowed under tariff to control during any potential emergency event.

Over the last several years, we have seen an increase in need to control more load for shorter periods of time to account for the changing needs of our system. We anticipate that increasing the cycling option will allow us to match the practices we have seen in Colorado to match load more efficiently without significant impact to customer comfort as the time frame is likely to be shortened.

V. TARIFF MODIFICATIONS

Xcel Energy proposes to strike and replace the tariff language found on our Electric Rate Book at Section No. 5, 10th Revised Sheet No. 78 and 80 as follows:

TERMS AND CONDITIONS - 10th Revised Sheet No. 78

1. The duration and frequency of interruptions will be determined by Company. Customer's air conditioning equipment will normally be cycled on a schedule designed to achieve a 60% reduction in the home's air conditioning requirements during load management period. The Company reserves the right to cycle on a schedule designed to achieve 80% reduction for additional load relief. Air conditioning interruptions will normally occur on high demand days during summer months. Water heating interruptions will normally occur on high demand days during summer and winter months. Interruption will normally be based on meeting peak demands and system economic dispatch requirements of Company. However, interruption may also occur at times when, in the Company's opinion, the reliability of the system may be at risk. Air conditioning and water heating interruptions will not normally occur during the observation day of the following holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. The interruptions as described above, will be made so as to benefit native load and may occur up to a maximum of 300 hours per calendar year.

TERMS AND CONDITIONS - 10th Revised Sheet No. 80

1. The duration and frequency of interruptions will be determined by the Company. Customer's air conditioning equipment will normally be cycled on a schedule designed to achieve up to a 60% reduction in the building's air conditioning requirements during load management period. The Company reserves the right to cycle on a schedule designed to achieve 80% reduction for additional load relief. Air conditioning interruptions will normally occur on high demand days during summer months. Interruption will normally be based on meeting peak demands and system economic dispatch requirements of Company. However, interruption may also occur at times when, in the

Company's opinion, the reliability of the system may be at risk. Air conditioning and water heating interruptions will not normally occur during the observation day of the following holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. The interruptions as described above, will be made so as to benefit native load and may occur up to a maximum of 300 hours per calendar year.

We provide the redlined and clean tariff sheets as Attachment A to this filing.

North Dakota Electric Rate Book

Sec. 5, 10th Revised Sheet No. 78

Sec. 5, 10th Revised Sheet No. 80

VI. CUSTOMER NOTICES

To ensure compliance with the customer information provisions of Section 69-09-02-02.1 of the North Dakota Administrative Code, the Company's North Dakota customers who are enrolled in the Saver's Switch program will see on their bills one of the following notices (depending on customer class) no later than 60 days after Commission approval of the proposed tariff revisions:

A. Residential

The residential customer notice only reaches customers currently participating in Saver's Switch.

Xcel Energy has recently implemented changes to the cycling strategies of the Saver's Switch program. For more information on this see www.xcelenergy.com/Saversswitch.

B. Small Commercial

The small commercial customer notice only reaches customers currently participating in Saver's Switch.

Xcel Energy has recently implemented changes to the cycling strategies of the Saver's Switch program. For more information on this see www.xcelenergy.com/Saversswitch.

C. Large Commercial

The large commercial customer notice only reaches customers currently participating in Saver's Switch.

Xcel Energy has recently implemented changes to the cycling strategies of the Saver's Switch program. For more information on this see www.xcelenergy.com/Saversswitch.

The Company commits to working collaboratively with Commission Staff if there are any suggested modifications of these customer notifications.

VII. CONCLUSION

Xcel Energy respectfully requests that the Commission approves the proposed tariff modification to the Residential Controlled Air Conditioning and Water Heating Rider and Commercial Residential Controlled Air Conditioning Rider.

Dated: October 27, 2023

Northern States Power Company

Legislative

**RESIDENTIAL CONTROLLED
AIR CONDITIONING AND WATER HEATING RIDER**

Section No. 5
~~9th~~10th Revised Sheet No. 78

AVAILABILITY

Available to Residential Service customers with 1) Company controlled central air conditioning or heat pumps, or 2) Company controlled heat pumps receiving Energy-Controlled Service (Non-Demand Metered) with optional non-interruptible service during June through September. Company controlled electric water heating is also available to residential customers with a controlled central air conditioner or heat pump, except electric water heaters served with the Energy-Controlled Service (Non-Demand Metered) rate schedule. Availability is limited to customers located in areas which are within the operating range of radio controlled transmitters.

RIDER

Residential Central Air Conditioning. A \$10.00 discount will apply to the energy and fuel cost charges during the billing months of June through September. €

Residential Electric Water Heating. A \$2.00 discount will apply to energy and fuel cost charges during each billing month provided total energy use is not less than 300 kWh. €

TERMS AND CONDITIONS

1. The duration and frequency of interruptions will be determined by Company. Customer's air conditioning equipment will normally be cycled on a schedule designed to achieve a 60% reduction in the home's air conditioning requirements during a load management period. The Company reserves the right to cycle on a schedule designed to achieve 80% reduction for additional load relief. Air conditioning will be cycled on a schedule of 15 minutes on and 15 minutes off in any 30 minute portion of a load management period. Air conditioning interruptions will normally occur on high demand days during summer months. Water heating interruptions will normally occur on high demand days during summer and winter months. Interruption will normally be based on meeting peak demands and system economic dispatch requirements of Company. However, interruption may also occur at times when, in the Company's opinion, the reliability of the system may be at risk. Air conditioning and water heating interruptions will not normally occur during the observation day of the following holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. The interruptions as described above, will be made so as to benefit native load and may occur up to a maximum of 300 hours per calendar year. C
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2. Company shall not be liable for any loss or damage caused by or resulting from any interruption of service.
3. To be eligible for this service, customer must agree to Company load control for a minimum term of one year.
4. The storage capacity of the water heater shall be 40 gallons or more in order to be eligible for this service.
5. The Residential Central Air Conditioning energy charge discount for Energy-Controlled Service (Non-Demand Metered) customers will also apply to their standard service energy charge.
6. Rider availability for heat pump installations is limited to those sized for summer cooling requirements, as determined by Company. Customers with heat pumps not receiving Energy-Controlled Service (Non-Demand Metered) will not be controlled during the billing months of October through May.

**COMMERCIAL AND INDUSTRIAL CONTROLLED
AIR CONDITIONING RIDER**

Section No. 5
9th10th Revised Sheet No. 80

AVAILABILITY

Available to Small General Service, Small General Time of Day Service, General Service or General Time of Day Service customers with:

1. Company controlled central air conditioning, or
2. Company controlled heat pumps receiving Energy-Controlled Service (Non-Demand Metered) with optional non-interruptible service during June through September.

Availability is restricted to customers with single and/or dual air conditioning units.

RIDER

A \$5.00 per ton per month credit shall be applied to customer's bill during each of the four summer billing months (June through September).

TERMS AND CONDITIONS OF SERVICE

1. The duration and frequency of interruptions will be determined by the Company. Customer's air conditioning equipment will normally be cycled on a schedule designed to achieve up to a 60% reduction in the building's air conditioning requirements during a load management period. The Company reserves the right to cycle on a schedule designed to achieve 80% reduction for additional load relief. Single stage air conditioners will be cycled on a schedule of 15 minutes on and 15 minutes off in any 30 minute portion of a load management period. Dual stage air conditioners will be allowed to have the first stage run without interruptions while the second stage will be shut off for the entire load management period. Air conditioning interruptions will normally occur on high demand days during summer months. Interruption will normally be based on meeting peak demand and system economic dispatch requirements of Company. However, interruption may also occur at times when, in the Company's opinion, the reliability of the system may be at risk. Air conditioning interruptions will not normally occur during the observation day of the following holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. The interruptions as described above, will be made so as to benefit native load and may occur up to a maximum of 300 hours per calendar year.
2. Company shall not be liable for any loss or damage caused by or resulting from any interruption
3. To be eligible for this service, customer must agree to allow Company load control for a minimum term of one year.
4. Rider will not be available to customers that have an air conditioning system which significantly exceeds summer cooling requirements, as determined by Company.
5. Company will normally control every air conditioning unit at the customer's building. Customers may nominate certain units to be excluded from the program, but Company retains final authority to approve exclusions. Company may also unilaterally exclude units that will not provide cost-effective load relief.
6. Availability is limited to customers located within the operating range of radio control transmitters.
7. Those air conditioning units that the Company is not able to install control equipment on will be excluded.

(Continued on Sheet No. 80.1)

Date Filed: 03-26-2410-27-23 By: Christopher B. Clark Effective Date: 10-01-24
President, Northern States Power Company, a Minnesota corporation
Case No. PU-20-44123- Order Date: 08-18-24

Non-Legislative

**RESIDENTIAL CONTROLLED
AIR CONDITIONING AND WATER HEATING RIDER**

Section No. 5
10th Revised Sheet No. 78

AVAILABILITY

Available to Residential Service customers with 1) Company controlled central air conditioning or heat pumps, or 2) Company controlled heat pumps receiving Energy-Controlled Service (Non-Demand Metered) with optional non-interruptible service during June through September. Company controlled electric water heating is also available to residential customers with a controlled central air conditioner or heat pump, except electric water heaters served with the Energy-Controlled Service (Non-Demand Metered) rate schedule. Availability is limited to customers located in areas which are within the operating range of radio controlled transmitters.

RIDER

Residential Central Air Conditioning. A \$10.00 discount will apply to the energy and fuel cost charges during the billing months of June through September.

Residential Electric Water Heating. A \$2.00 discount will apply to energy and fuel cost charges during each billing month provided total energy use is not less than 300 kWh.

TERMS AND CONDITIONS

1. The duration and frequency of interruptions will be determined by Company. Customer's air conditioning equipment will normally be cycled on a schedule designed to achieve a 60% reduction in the home's air conditioning requirements during a load management period. The Company reserves the right to cycle on a schedule designed to achieve 80% reduction for additional load relief. Air conditioning interruptions will normally occur on high demand days during summer months. Water heating interruptions will normally occur on high demand days during summer and winter months. Interruption will normally be based on meeting peak demands and system economic dispatch requirements of Company. However, interruption may also occur at times when, in the Company's opinion, the reliability of the system may be at risk. Air conditioning and water heating interruptions will not normally occur during the observation day of the following holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. The interruptions as described above, will be made so as to benefit native load and may occur up to a maximum of 300 hours per calendar year. C
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5. The Residential Central Air Conditioning energy charge discount for Energy-Controlled Service (Non-Demand Metered) customers will also apply to their standard service energy charge.
6. Rider availability for heat pump installations is limited to those sized for summer cooling requirements, as determined by Company. Customers with heat pumps not receiving Energy-Controlled Service (Non-Demand Metered) will not be controlled during the billing months of October through May. C
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Date Filed: 10-27-23

By: Christopher B. Clark

Effective Date:

President, Northern States Power Company, a Minnesota corporation

Case No. PU-23-

Order Date:

**COMMERCIAL AND INDUSTRIAL CONTROLLED
AIR CONDITIONING RIDER**

Section No. 5
10th Revised Sheet No. 80

AVAILABILITY

Available to Small General Service, Small General Time of Day Service, General Service or General Time of Day Service customers with:

1. Company controlled central air conditioning, or
2. Company controlled heat pumps receiving Energy-Controlled Service (Non-Demand Metered) with optional non-interruptible service during June through September.

Availability is restricted to customers with single and/or dual air conditioning units.

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A \$5.00 per ton per month credit shall be applied to customer's bill during each of the four summer billing months (June through September).

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(Continued on Sheet No. 80.1)

Date Filed: 10-27-23

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Effective Date:

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Order Date: