

1 Montana Public Service Commission  
2 Docket No. 2022.07.078  
3 Electric and Natural Gas General Rate Review  
4  
5  
6

7 PRE-FILED DIRECT TESTIMONY

8 OF DANIE L. WILLIAMS

9 ON BEHALF OF NORTHWESTERN ENERGY  
10

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21

1 **Witness Information**

2 **Q. Please provide your name, employer, and title.**

3 **A.** My name is Danie L. Williams. I am NorthWestern Energy's  
4 ("NorthWestern") Manager of Energy Efficiency/DSM Services in the  
5 Customer Care-Demand Side Management Department.

6  
7 **Q. Please provide a description of your relevant employment  
8 experience and other professional qualifications.**

9 **A.** I joined NorthWestern in March 2009 in the capacity of Demand Side  
10 Management ("DSM") Engineer and assumed my present position in  
11 March 2015. In addition to other departmental activities related to the  
12 support of regulatory filings and proceedings, I am responsible for  
13 providing overall coordination and direction on development,  
14 implementation, and promotion/education of DSM and related Universal  
15 System Benefits ("USB") programs. I graduated from Montana Tech of  
16 the University of Montana with Bachelor of Science degrees in  
17 Mathematical Sciences and General Engineering.

18  
19 **Purpose of Testimony**

20 **Q. What is the purpose of your testimony in this docket?**

21 **A.** I describe the role that electric DSM resources play in NorthWestern's  
22 provision of reliable service and I provide support for NorthWestern's  
23 proposal to include these electric supply resources in NorthWestern's rate

1 base. Specifically, my testimony explains NorthWestern’s current DSM  
2 programs and their related costs, the average useful life of these  
3 resources, and the expectations for these programs in the future.

4

5 **Electric Utility Demand Side Management**

6 **Q. What is DSM?**

7 **A.** Simply put, DSM means managing what is happening on the customer  
8 side of the meter through activities or programs that promote electric  
9 energy efficiency or conservation.

10

11 **Q. Why is DSM important to both NorthWestern and its customers?**

12 **A.** Cost-effective DSM programs are important because they reduce the  
13 need to purchase or build more expensive electric supply resources by  
14 reducing customer energy usage through efficiency gains. In that regard,  
15 DSM is an electric supply resource. DSM strategies that encourage more  
16 efficient energy use generally include customer education and financial  
17 incentives to persuade customers to adopt energy-efficient technologies  
18 and/or change energy usage-related behavior.

19

20 **Q. Is NorthWestern required to offer DSM programs?**

21 **A.** Yes. Montana law and the Montana Public Service Commission’s  
22 (“Commission”) rules on electricity supply resource planning require

1 NorthWestern to include DSM options in its supply resource planning and  
2 procurement processes.

3

4 **Q. Please describe NorthWestern’s current electric DSM programs and**  
5 **resources.**

6 **A.** The following are NorthWestern’s current electric DSM programs and  
7 resources funded through energy supply rates:

8

9 Efficiency Plus (E+) Residential Electric Programs for Existing Homes and  
10 New Construction: Rebates are available to residential customers for  
11 installing qualifying electric energy savings measures in both existing and  
12 new construction homes.

13

14 E+ Residential Lighting Programs: Rebates to residential customers for  
15 qualifying light-emitting diode (“LED”) measures and an LED Manufacturer  
16 Buy-down Program, where residential customers realize a lower price on  
17 qualifying LED products at various retailers throughout NorthWestern’s  
18 Montana service territory.

19

20 E+ Commercial Lighting Program: Rebates to commercial customers for  
21 energy-efficient lighting equipment and controls, including rebates for  
22 prescriptive LED measures.

23

1        E+ Commercial Electric Programs for Existing Facilities and New

2        Construction: Rebates are available to commercial customers for  
3        installing qualifying electric energy savings measures in both existing and  
4        new construction facilities. The E+ Commercial Electric Rebate Program  
5        for Existing Facilities includes incentives for motor rewinding.

6  
7        E+ Business Partners Program: Commercial and industrial customers are  
8        provided customized incentives for electric conservation, based on the  
9        metrics of the customer's specific project(s). Examples of projects include  
10       measures to improve lighting; heating, ventilating, and cooling ("HVAC")  
11       systems; refrigeration; air handling; and pumping systems. New and  
12       existing facilities are eligible.

13  
14       Northwest Energy Efficiency Alliance ("NEEA"): NEEA is a regional non-  
15       profit organization supported by electric utilities, public benefits  
16       administrators, state governments, public interest groups, and energy  
17       efficiency industry representatives. Through regional leveraging, NEEA  
18       encourages "market transformation" or the development and adoption of  
19       energy-efficient products and services in Montana, Washington, Idaho,  
20       and Oregon. NEEA's regional market transformation activities target the  
21       residential, commercial, industrial, and agricultural sectors. NEEA also  
22       funds some of the infrastructure development of ENERGY STAR  
23       Northwest and other above-code new home activities.

1 **Q. How does NorthWestern acquire energy efficiency in the residential**  
2 **and commercial sectors?**

3 **A.** NorthWestern contracts with firms to provide services in support of the  
4 programs described above. NorthWestern's programs implementation  
5 contractor, DNV, provides implementation services for the E+ Residential  
6 and Commercial Electric and Lighting Programs. In addition, DNV also  
7 supports the E+ Business Partners by communication of E+ programs to  
8 commercial/small industrial customers in an effort to identify, qualify, and  
9 cultivate energy saving projects for follow-up by the contractors.

10

11 The following six firms are currently concentrating on the commercial and  
12 small industrial sectors:

- 13 • Associated Construction Engineers (ACE)
- 14 • CLEAResult Consulting, Inc.
- 15 • Cushing Terrell (formerly CTA)
- 16 • Energy Resource Management, Inc. (ERM)
- 17 • McKinstry Essention
- 18 • National Center for Appropriate Technology (NCAT)

19

20 NorthWestern compensates these contractors on a performance basis,  
21 with payment based on a percentage of the energy conservation resource  
22 value of each individual project that is completed with the contractor's  
23 involvement.

24

25 Services provided by these contractors include marketing to  
26 architect/engineering firms and trade/industry associations in Montana,

1 direct contact with candidate businesses with energy savings potential,  
2 surveys and assessments of buildings and facilities, technical assistance  
3 for building owners, assistance with required engineering analysis and  
4 modeling, and assistance to customers with forms, contracts, and other  
5 paperwork used in and necessary for participation in these programs.

6

7 **Q. Does NorthWestern conduct other supporting activities to build**  
8 **customer interest and participation in its DSM programs?**

9 **A.** Yes. NorthWestern staff and contractors sponsor many training seminars  
10 during the year to increase awareness of energy conservation and energy  
11 efficiency opportunities in buildings and facilities. The objectives of these  
12 programs are to educate and inform building operators, designers,  
13 builders, and trade allies about using energy-consuming equipment  
14 efficiently and to promote the E+ programs, services, information  
15 resources, and incentives. Where practical or appropriate, Continuing  
16 Education Units (CEUs) are offered. A blend of DSM and USB funds  
17 cover the costs of these activities.

18

19 In addition, NorthWestern communicates information about its E+  
20 programs to its customers. NorthWestern sustains a presence in Montana  
21 communities through media, events, appearances, meetings, speaking  
22 engagements, booth sponsorships, trade fairs and shows, conferences,  
23 and other special events. NorthWestern maintains networks of retailers,

1 distributors, and other trade allies and provides a steady stream of  
2 information about its E+ programs through print, radio, television,  
3 distribution literature, and personal contact. As with the training seminars  
4 described above, a mix of USB and DSM funding is used. NorthWestern's  
5 ability to have in-person interactions with customers, trade allies, and  
6 contractors was limited beginning in March 2020 due to the COVID-19  
7 pandemic. In-person activities have resumed in 2022.

8

9 **Q. How does NorthWestern evaluate DSM cost effectiveness?**

10 **A.** NorthWestern evaluates DSM opportunities for cost effectiveness where  
11 electric avoided costs are a primary determinant. Consistent with previous  
12 years, NorthWestern uses the Total Resource Cost ("TRC") test to  
13 evaluate DSM cost effectiveness. The TRC test is a ratio of benefits (the  
14 net present energy savings value based on the lifetime avoided energy  
15 and capacity costs) to total DSM program costs (utility program  
16 implementation costs and incremental customer costs). Typically, a TRC  
17 benefit-to-cost ratio of 1.0 or greater indicates that a DSM measure or  
18 program is cost effective.

19

20 **Q. Does NorthWestern plan for DSM acquisitions?**

21 **A.** Yes. NorthWestern's DSM programs are a component of NorthWestern's  
22 electricity supply resource procurement plans. Currently, NorthWestern  
23 invests in DSM pursuant to its 2019 Electricity Supply Resource



1 Procurement Plan (“Plan”), its 20-year 2017 DSM Acquisition Plan, and  
2 the 2020 Supplement to the Plan. NorthWestern’s 2017 DSM Acquisition  
3 Plan and Forecast Expense is included as part of this testimony as Exhibit  
4 DLW-1.

5  
6 NorthWestern has established an annual DSM acquisition goal of 3.90  
7 average megawatts (“aMW”) each year for the first 5 years (2016-2017  
8 through 2020-2021) and 3.35 aMW each year for the remaining 15 years  
9 (2021-2022 through 2035-2036). The corresponding Forecast Costs are  
10 based on NorthWestern’s 2017 DSM Acquisition Plan and recent DSM  
11 programs’ operation results. Forecasted increases occur due to  
12 NorthWestern’s expectation that remaining cost-effective DSM will  
13 become more expensive to acquire. Actual acquisition and costs will vary  
14 from the forecast.

15  
16 During the 2022-2023 electric tracker year (that runs from July 1, 2022 to  
17 June 30, 2023), NorthWestern will hire an outside service provider to  
18 perform an end use and load profile study, an electric energy efficiency  
19 assessment, and a demand response potential assessment. An end use  
20 and load profile study will provide a timely estimate as to how  
21 NorthWestern’s customers are using electricity in their homes and  
22 businesses. The last end use and load profile study was completed for  
23 NorthWestern in 2016. An updated electric potential assessment, with a

1 scope expanded beyond the past assessments, could allow for additional  
2 benefits to be considered along with providing an update of technologies,  
3 costs, energy savings, and the estimated amount of remaining achievable,  
4 cost-effective electric energy efficiency potential. In addition, a demand  
5 response assessment will be included to provide estimates of demand  
6 response potential.

7

8 **Q. What expected energy savings do NorthWestern’s DSM programs**  
9 **generate?**

10 **A.** A summary of Annualized Energy Savings of incremental new installed  
11 DSM capability shown on Exhibit DLW-2 represents summarized results  
12 for reported energy savings for programs and projects for the 2018-2019  
13 tracker year through the 2021-2022 tracker year displayed in aMW. The  
14 2021-2022 tracker year is based on 9 months of actual (July 2021 through  
15 March 2022) and 3 months of estimated (April 2022 through June 2022)  
16 energy savings. Reported energy savings means estimates of electricity  
17 savings from individual energy conservation projects where engineering  
18 calculations were submitted with project proposals and reviewed by  
19 NorthWestern staff (e.g., E+ Business Partners site-specific projects). In  
20 cases where engineering calculations are not required for program  
21 participation, reported energy savings means average energy savings per  
22 measure (also referred to as *deemed savings*). Examples of the latter  
23 include residential and commercial LEDs and variable frequency drives.

1 Reported energy savings represent the annual energy savings that would  
2 occur if all energy savings measures were in place for a full year.

3

4 **Q. What are the costs of NorthWestern’s electric DSM programs?**

5 **A.** Exhibit DLW-3 includes a summary of the electric supply DSM programs  
6 expenditures and forecast costs for the 2018-2019 tracker year through  
7 the 2022-2023 tracker year. This exhibit reflects actual costs for July 2018  
8 through June 2022 and forecast costs for July 2022 through June 2023 for  
9 the following programs:

- 10 • General Expenses related to all DSM Programs
- 11 • E+ Residential Lighting Program
- 12 • E+ Residential Electric Existing Construction
- 13 • E+ Residential Electric New Construction
- 14 • E+ Commercial Lighting Program
- 15 • E+ Commercial New Construction Program
- 16 • E+ Business Partners Program
- 17 • E+ Commercial Electric Rebate Program
- 18 • Market Transformation (NEEA)
- 19

20 **Q. What are the useful lives of the measures that comprise these DSM**  
21 **programs?**

22 **A.** The lives of the individual measures offered in NorthWestern’s electric  
23 DSM programs during the 2020-2021 and 2021-2022 tracker years range  
24 from 7 to 20 years. For example, a notched V-belt, which is used as a belt  
25 drive for an HVAC fan motor, has a 7-year average life; LED lighting has a  
26 14-year average life; and a high efficiency air-cooled chiller has a 20-year

1 average life. The weighted average life of the electric DSM portfolio for  
2 the 2021-2022 tracker year is approximately 14 years.

3

4 **Q. What is NorthWestern’s expected investment in these DSM programs**  
5 **for the 2022-2023 tracker year?**

6 **A.** NorthWestern’s expected investment in electric DSM programs for the  
7 current tracker year is approximately \$11 million. NorthWestern’s  
8 forecasted DSM expenses included in Exhibit DLW-3 are based on a  
9 number of factors considered. As mentioned above, NorthWestern  
10 evaluates DSM opportunities for cost effectiveness using electric avoided  
11 costs as a primary determinant, and consequent effects on qualifying DSM  
12 measures and rebate levels. In addition to electric avoided costs, program  
13 administrative costs and customer incentives are contemplated based on  
14 historic and recent DSM program activity; information included in the  
15 electric energy efficiency market potential studies; the 20-year electric  
16 DSM acquisition plan; and expected levels of customer participation.

17

18 **Q. Please explain NorthWestern’s DSM stakeholder group and process.**

19 **A.** As noted earlier, DSM is a supply resource and part of NorthWestern’s  
20 Plan. Consequently, DSM is included in public meetings associated with  
21 resource planning as well as in the process for the Electric Technical  
22 Advisory Committee (“ETAC”).

23

1 In addition to those stakeholder processes, in NorthWestern’s last electric  
2 general rate review (Docket No. 2018.02.012), the Commission directed  
3 NorthWestern to establish a stakeholder group specific to DSM. From  
4 September 2020 through March 2021, NorthWestern held six stakeholder  
5 meetings. As a result of these meetings, a subset of stakeholders  
6 provided the stakeholder group with findings and recommendations.  
7 NorthWestern provided a response to the findings and recommendations  
8 that included an explanation as to why NorthWestern was not able to  
9 implement the recommendations in the 2021-2022 program year.

10  
11 As an alternative to the recommendations, NorthWestern proposed  
12 performing an updated electric potential assessment and an updated end  
13 use and load profile study and invited stakeholders to continue working  
14 through the process. NorthWestern explained that an updated electric  
15 potential assessment, with a scope expanded beyond the past  
16 assessments, could allow for additional benefits to be considered along  
17 with providing an update to technologies, costs, and energy savings. An  
18 updated end use study would pair with the potential assessment and  
19 provide a timely estimate as to how NorthWestern’s customers are using  
20 electricity in their homes and businesses.

21

22 **Q. What is the current status of the stakeholder group?**

1 **A.** A subset of stakeholders expressed interest in continuing to work with  
2 NorthWestern on its DSM efforts. NorthWestern will continue to engage  
3 and meet with stakeholders on its DSM efforts. NorthWestern has also  
4 provided updates in the public meetings and ETAC meetings associated  
5 with development of the 2022 Electricity Supply Resource Procurement  
6 Plan.

7  
8 **Q.** Does this conclude your testimony?

9 **A.** Yes, it does.

#### **VERIFICATION**

This Pre-filed Direct Testimony of Danie L. Williams is true and accurate to the best of my knowledge, information, and belief.

/s/ Danie L. Williams  
Danie L. Williams