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January 9, 2009

Darrell Nitschke, Dir. Of Administration/Executive Secretary
North Dakota Public Service Commission
State Capitol Building, Dept. 408
600 East Boulevard
Bismarck, ND 58505-0480

RE: COMMENTS
DEMAND SIDE MANAGEMENT COST/BENEFIT ANALYSIS
CASE NO. PU-08-884

Dear Mr. Nitschke:

Pursuant to the November 20, 2008 Notice of Workshop on Cost/Benefit Analysis and subsequent session conducted on January 5, 2009, Northern States Power Company, a Minnesota corporation ("Xcel Energy" or the "Company") submits the attached comments. Xcel Energy appreciated the opportunity to participate in the workshop on Electric Demand Side Management ("DSM") and to be able to work with the North Dakota Public Service Commission ("Commission") to develop overall policies and guidelines. In its Notice, the Commission addressed many of the most common issues facing state commissions when considering adopting energy efficiency guidelines or rules.

Xcel Energy sponsors or implements DSM portfolios in eight states, and has participated in several relevant legislative and rulemaking sessions. With over 20 years of experience in designing and implementing DSM programs, we recognize and respect the variety of approaches that have been taken in various states, and we are able to tailor DSM programs to meet a variety of policies and objectives.

Xcel Energy believes that both energy efficiency and load management programs and rates are valuable to our customers because they can lower long-term energy costs compared to other supply-side options. We also believe that our North Dakota customers are interested in having the ability to participate in energy efficiency offerings. Finally, as part of a balanced approach to DSM, it is important for the Commission to allow for timely recovery of costs and to address the financial disincentives facing utilities in the promotion of energy efficiency.

We thus recommend that the Commission develop high-level DSM objectives and policies that:

- Encourage the consideration of demand-side management as a viable resource option alongside traditional supply-side alternatives;
- Facilitate utility development and promotion of DSM programs by removing or offsetting the natural disincentives; and
- Recognize the unique characteristics of each utility, the territories they serve, and their customer mix and profiles.

Xcel Energy believes meeting these objectives can best be accomplished through the development of Commission guidelines, in collaboration with other North Dakota utilities and interested parties. DSM Guidelines would have a number of advantages over the establishment of formal rules. They are:

- Effective in establishing broad direction without being overly proscriptive;
- More easily changed as either the Commission's policies on these issues evolve over time or other market conditions change;
- More accommodating of utility and service territory differences; and
- More accommodating of future changes in energy efficiency technology or DSM programs.

We look forward to working with the Commission and its Staff in this endeavor to develop a DSM approach that best meets the needs of electric customers in North Dakota. Please call me at (701) 241-8632 if you have any questions concerning our enclosed comments. Thank you.

Sincerely,

David H. Sederquist

David H. Sederquist
Sr. Consultant, Regulation & Finance
Xcel Energy

STATE OF NORTH DAKOTA
BEFORE THE
NORTH DAKOTA PUBLIC SERVICE COMMISSION

Tony Clark	Commissioner
Kevin Cramer	Commissioner
Brian Kalk	Commissioner

CASE NO. PU-08-884

IN THE MATTER OF NORTH DAKOTA PUBLIC SERVICE COMMISSION'S NOTICE OF WORKSHOP ON ELECTRIC DEMAND-SIDE MANAGEMENT AND COST BENEFIT ANALYSIS

COMMENTS OF XCEL ENERGY

OVERVIEW

On November 20, 2008, the North Dakota Public Service Commission ("Commission") invited comments on Demand-Side Management ("DSM") Rulemaking in conjunction with a January 5, 2009 Workshop on cost/benefit analysis. Northern States Power Company, a Minnesota Corporation ("Xcel Energy" or "the Company") submits the following comments for consideration in the development of Commission's DSM policy goals and objectives.

The Company appreciates the Commission's initiative in this regard. We believe that DSM can offer significant benefit to all of our customers. A thorough and thoughtful review of potential policies and programs will be helpful as the Commission formulates its desired approach to DSM. We look forward to active participation in this initiative.

RESPONSE TO QUESTIONS

1. What policy goals and objectives should the Commission consider when considering energy efficiency programs?

Fundamentally, the Company believes there are two primary objectives for any overall package of DSM programs offered by a utility:

- In the long run, DSM can help create lower overall energy costs for all customers compared to other supply-side options. The Commission's policies should help support effective implementation of cost-beneficial DSM programs.
- Utilities face disincentives to the development and promotion of effective DSM programs. The Commission's policies should help encourage implementation of effective programs by removing or offsetting these financial disincentives.

We will discuss these goals further in the responses to the following questions posed by the Commission's Notice.

1a. Should the Commission consider the use of energy efficiency as a resource in addition to building additional power plants in order to meet future energy needs?

Yes, in the Company's integrated resource planning process, DSM is recognized as an important source for energy and demand in both the short and long term. The benefits from DSM programs include:

- *Participating Customer Benefits,* such as reduced energy use and energy bills, reduced incremental costs of purchasing more efficient equipment through rebates and incentives, and rate discounts for load management.

- *Non-participating Customer Benefits,* such as lower costs than supply-side generation and fuel costs, bill savings (avoided costs > program costs).

- *System Benefits,* including cost management through the deferral of generation additions; reductions in plan emissions, helping to ensure compliance with environmental requirements and mitigating the risk of potential future requirements; and reduced risk and exposure to fuel cost volatility.

1b. If so, should energy efficiency programs need to produce cost effective, firm energy savings?

Yes, energy-efficiency ("EE") programs should be cost effective and produce verifiable or firm savings. A primary cost-effectiveness test should be defined for this purpose. However, the Commission should ensure sufficient flexibility to provide some exceptions to program cost-effectiveness tests, such as

programs that do not directly produce savings but support other direct-savings programs or the overall portfolio of programs. These programs provide valuable support for other programs, and include:

- Education and audit programs,
- Market research,
- Market transformation efforts,
- Product development, and
- General administration and planning.

It may also be appropriate to exempt pilot programs, programs with long sales cycles, newly launched programs, or low-income programs from typical cost-effectiveness testing. Overall, we believe the Commission's approach to DSM should provide sufficient flexibility to consider and determine the appropriate mix of programs in a utility's portfolio so that the overall package of offerings available to customers is most effective and efficient.

1c. Should energy efficiency programs be used to achieve both energy and demand reductions?

Yes. EE programs provide both energy and demand savings and a well-designed portfolio will provide significant amounts of both. Having both Load Management ("LM") and EE programs also optimizes demand- and energy-reduction capability. Demand reductions from EE programs lower the system peak not only during a utility interruption or curtailment, but also as a long-term resource.

1d. Should energy efficiency programs provide immediate and dependable energy savings supplied throughout the relevant lifetime of the program?

Yes. Lifetime energy savings are immediate and dependable, and normally provide the same level of energy savings each year until the measure life runs out. Measure lives are based on studies that have been undertaken by engineering companies and associations, such as the American Society of Heating, Refrigeration, and Air Conditioning ("ASHRAE") and take into account operational characteristics of equipment, customer persistence, and equipment degradation. Measures that have significant equipment degradation embedded into the measure life may show decreasing annual energy savings as the measure life increases.

1e. Should energy efficiency programs address efficiency improvements in a comprehensive manner in order to make the most cost-effective use of energy efficiency expenditures?

Interpreting this question to mean should programs be designed in a holistic fashion to target whole house or facility efficiency upgrades, we list some pros and cons of this approach as follows:

Pros:

- Holistic, comprehensive programs can be cost effective and produce greater total energy savings combining all measures that make a home/facility more efficient than standard. They include popular programs like Energy Star Homes, Business New Construction, and Energy Design Assistance.
- Such programs take into account interactive effects; i.e., lighting may increase energy used to heat or reduce energy to cool.
- They appeal to a special niche of customers – new home builders, or customers with capital to upgrade existing structures.
- They work best for combination (natural gas and electric) utilities since whole facility upgrades are usually most cost effective if both fuels are addressed.

Cons:

- Some measures may not be cost effective in the overall whole facility.
- These programs can require significant investment from customers.
- Excludes many customers.
- May require several years to complete a project.

We believe that to have a well-rounded portfolio of programs that allows all customers an opportunity to participate, the administrator should offer both holistic programs as well as programs that promote and rebate individual measure installations.

1f. Should program proposals provide an analysis of anticipated impact on low-income consumers?

The issue of how to address low-income customers within DSM programs is a policy decision the Commission should likely consider in conjunction with

other state and local agencies that work with low-income customers. In some service territories, we have designed special low-income programs that provide more funds to replace inefficient appliances and weatherize homes. We work with the local agencies in those states to identify and deliver these programs. However, because it is typically more expensive to deliver low-income programs, they are not always cost effective and exceptions are often made for that fact.

1g. Should program proposals target customers residing in structures most in need of efficiency improvements?

Ideally, it would be most cost-effective to target those structures most in need of efficiency improvements. Unfortunately, it is impossible for the utility to identify every structure's current efficiency state without a door-to-door canvas and assessment. However, our energy efficiency program managers design their programs and delivery methods to try to encourage these customers to participate by:

- Targeting the marketing messages to customers in older neighborhoods or customers that have high-energy usage.
- Choosing the types of measure to be rebated that are most in need of improvement, such as incandescent lighting.
- Targeting specific segments of customers, such as the government buildings segment, that may have more potential for efficiency improvements.

2. What benefit /cost tests should the Commission use for reviewing energy efficiency and load management programs?

There are five tests that are commonly used to analyze EE and LM programs:

1) *Ratepayer Impact Measure ("RIM"):*

   a. Determines whether offering programs creates an upward or downward pressure on rates.
   b. Compares the avoided costs of supply-side options versus utility costs and reduced revenue from lower energy sales.

2) *Participant Cost Test ("PCT"):*

a. Determines whether the program participants will benefit over the lifetime of the measure.
b. Compares the participants bill savings plus received incentives versus participants incremental measure costs.

3) *Utility or Program Administrator Cost Test ("PACT"):*

a. Determines whether utility overall costs will increase or decrease for providing energy.
b. Compares avoided supply, emissions, and non-energy benefits versus utility costs and paid incentives.

4) *Total Resource Cost Test ("TRC"):*

a. Determines whether the total cost of energy in the utility service territory will increase or decrease.
b. Compares the avoided cost of supply and quantifiable emissions (such as the cost of carbon tax to the utility) and non-energy benefits (such as customers' decrease in O&M costs) versus the utility costs and the participant incremental costs.
c. Combination of RIM & Participant (PCT) test.

5) *Societal Cost Test ("SCT") – variation of TRC test:*

a. Determines whether society as a whole will benefit.
b. Compares avoided costs of supply, emissions, non-energy benefits plus qualitative non-energy benefits (such as the benefits to comfort, health and the environment, or reduced bad debt to the utility) versus utility costs and participant incremental costs. Also may use a lower discount rate.

Xcel Energy generally runs all tests to analyze our programs since each test provides a different perspective. The primary test for judging whether a program is cost-effective in all states that we operate in is the TRC or its variant, the SCT test. According to the National Action Plan for Efficiency, these two tests are the most common primary tests used by Commissions to make decisions on DSM program and portfolio cost effectiveness.[1] Only one

[1] National Action Plan for Energy Efficiency (2008). *Understanding Cost-effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers.* Energy and Environmental Economics, Inc.

state, Florida, uses the RIM test as the primary test for cost-effectiveness.

3. What policy goals should the Commission use to evaluate the results of the benefit cost tests? (Reducing or postponing future construction of generation, reducing or postponing future reservation of capacity on natural gas transmission pipelines, and mitigation of customer bill increases)

All of the points listed are critical and commendable policy goals that could be used by the Commission for evaluating the results of cost-effectiveness tests. The PACT best answers the question of whether the program reduces or postpones future generation construction, fuel and operating costs, transmission and distribution construction, gas pipeline reservations for gas programs, and emission costs while lowering overall utility costs and thereby mitigating future customer bill increases. This test is closely related to the minimization of net present value of revenue requirements that is used in several states' resource plan modeling.

Other policy issues, such as whether total costs of energy in the region would decrease lead to using the TRC or SCT tests as the primary test.

Another aspect that should be addressed is the level of cost effectiveness that would be required; i.e., at the measure, program, or portfolio level. We recommend that total portfolio cost-effectiveness be the primary goal with a secondary goal that most programs be cost effective. Having a requirement that the portfolio of programs pass cost effectiveness ensures that the utility will keep down costs that do not contribute directly to savings, such as education programs, research, and general administration. Other exceptions to cost-effectiveness may include:

- Pilot programs where cost-effectiveness is often one of the study parameters.
- Programs that are newly launched and have high start-up costs.
- Programs such as new construction energy design assistance, which may have a long cycle from start to finish.
- Low-income programs, which generally require higher utility costs and are typically less likely to pass benefit cost tests, but still provide benefits to a

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and Regulatory Assistance Project, page 5.1. <http://www.epa.gov/cleanenergy/energy-programs/napee/resources/e-newsletter.html>

segment of customers who are in need. Some states specify a percentage adder for low-income programs to include in the benefit side of the equation in order to increase the likelihood of these programs passing benefit cost tests.

4. How should educational programs be treated?

Educational program costs, as well as all other indirect savings programs such as product development, market research, market transformation, audits, and general planning and administration are vital to supporting the overall portfolio. They also support direct-savings programs and are important in increasing long-term energy efficiency practices. These costs should be fully cost recoverable within the portfolio of costs, and they are held in check by the requirement that the cost effectiveness of the total portfolio be maintained.

5. How should the Commission evaluate energy efficiency programs after implementation and what percentage of costs should be allowed for evaluation?

We recommend that the utility or program administrator file DSM Plans, which would include a forecast of the budget, program summary descriptions, energy and demand savings projections, technical assumptions, and cost effectiveness projections.

Following each performance year, the utility would then file an annual status report with details of program and portfolio results, in terms of savings and cost effectiveness. The Commission may evaluate how well the program has performed based on these results and comparisons to the plan. However, we believe it is important to allow for reasonable variances between forecasted and actual results.

Evaluation standards and uses of the results is a broad topic that could be expanded upon in other sessions. Questions such as who performs EM&V, what rigor levels are required, and how should less-than-scientific metrics, such as Net to Gross ratios, be used are relevant topics for further discussion. Percentage of costs can vary greatly, but a guideline for a prudent EM&V plan

is recommended by the National Action Plan[2] to be between 3 and 6% of program costs.

A prudent EM&V plan balances the levels of rigor required, recognizing that different protocols are appropriate for prescriptive measures versus custom type measures. Prescriptive programs provide rebates for well-known energy efficiency measures that many customers commonly purchase, such as compact fluorescent lights, air conditioners, or furnaces. These programs use nationally researched engineering technical assumptions to calculate savings (sometimes referred to as deemed savings) and should require less actual field measurements of the savings than do measures or equipment that are less frequently purchased or are less common in size or application. For these prescriptive type programs, performing audits of rebate applications for errors and randomly field verifying the installation and operation of the measures meets the rigor requirements while reducing the costs of EM&V. More rigorous methods of EM&V are usually employed for custom measures which range from specific engineering studies to pre- and post-installation metering.

6. Dynamic pricing, which is a means of achieving demand response through rate designs that reflect the time-varying nature of utility power production costs, can be used to influence customer behavior using price signals. Dynamic pricing may be coupled with advanced metering infrastructure or with less costly interval metering systems.

For purposes of these comments, the Company is using a definition of "dynamic pricing" that is consistent with that articulated by the Commission above. This definition includes the following rate forms: (1) Time-of-day (TOD), seasonal, special targeted off-peak rates, real time pricing (RTP) interruptible rates and direct load control programs for specific end-uses such as air conditioners and water heaters.

6a. What dynamic pricing programs are already available to North Dakota customers, such as time-of-use rates, critical peak rates, seasonal price differentials, and payments to customers to curtail their usage?

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[2] *Model Energy Efficiency Program Impact Evaluation Guide,* A Resource of the national Action Plan for Energy Efficiency, November 2007, Chapter 7, page 11, http://www.epa.gov/cleanenergy/documents/evaluation guide.pdf.

Xcel Energy has a long history of developing and implementing cost-effective dynamic pricing programs. The Company's rate structure includes several forms of dynamic pricing rates, which were developed over the past several decades through general rate case and miscellaneous rate filings. This dynamic rate structure has become an important component of the Company's strategy for managing its system peak loads and for encouraging efficient use of energy and conservation

These dynamic rate options include:

- Two-period TOD rates,
- Interruptible rates,
- Dedicated off-peak rates,
- A currently pending RTP rate, and
- Direct-load-control programs targeted at specific loads such as air conditioners, water heaters and electric space heating equipment.

Attachment 1 provides a summary of the Company's overall rate structure. For each major rate form (TOD, Interruptible etc.), it shows:

- The number of customers,
- MWh sales,
- MW contribution to system peak, and
- The amount of controllable-load at times of system peak.

These statistics are for the total multi-jurisdiction-system including the North Dakota State jurisdiction.

The Company employs a variety of metering, meter reading, customer communications and load control technologies, which enable the rate programs described above. The technologies used for each rate program are a function of the customer-service requirements, the technical rate requirements and the costs of the technologies.

6b. What benefit cost tests should the Commission use to evaluate Demand response programs for approval?

Xcel Energy uses the same set of benefit cost tests for air conditioning cycling and interruptible demand response programs as for energy efficiency programs. The proxy plant used to calculate the avoided generation costs may be

different, such as a combustion turbine peaking plant for demand response versus a combined cycle intermediate plant for energy efficiency.

6c. How should companies address the effects on the elderly, low-income or handicapped customers who may be unable to easily shift or curtail energy use?

The Company believes the impacts of rising energy costs on elderly, low-income, or handicapped customers is an important issue that requires addressing. The Company has attempted to design a variety of programs that have potential to benefit all of our customers, even those where energy curtailment or shifting is not a viable option. We have attempted to reach out to elderly and low-income customers to ensure they have opportunity to take advantage of full array of programs available, which includes programs where savings can be derived without shifting or curtailing load. By working closely with local assistance agencies, we may be able to reach greater percentage of customers.

7. Other issues that participants may raise concerning policies and methodologies for evaluating electric utility energy efficiency and load management programs.

Below is a list of policies and objectives that are commonly identified and considered during energy efficiency rulemakings. Many of these topics have been addressed in the questions raised in this notice, but others are included below for Commission reference:

- *Resource planning policy:* How is energy efficiency integrated into short and long-term resource planning? What is the cost effectiveness test for modeling and comparing supply-side and demand-side options?

- *Customer eligibility:* Which customer classes or segments are eligible for participating in energy efficiency programs? Are some customer segments especially targeted?

- *Savings goals:* Should the Commission make decisions on the level of energy and/or demand savings goals and whether there are consequences for surpassing or not making these goals? Will the goals be annual or

cumulative over a period of years? Will goals be a percentage of load or load growth? Will goals be based on energy or demand or both?

- *Spending requirements:* Are there requirements for levels of spending by the program administrator? Will there be caps or minimum requirements for total or specifically targeted expenditures? What kind and amount of spending flexibility will program administrator be allowed?

- *Cost-effectiveness test requirements:* What tests will be used to analyze energy efficiency and demand response programs? What will be the primary test to establish acceptance? At what level are the cost effectiveness tests run; i.e., measure, program, or portfolio? How are indirect programs, pilot programs, education or administrative type functions treated? How are avoided costs and discount rates determined? Are non-energy effects included? How are emission costs determined and which tests are they included in?

- *Evaluation, Measurement & Verification:* Who will administer EM&V? What levels of rigor should be required for differing types of programs and measures? How often is EM&V for portfolio required? What will results be used for?

- *Program Administration:* Who will design, deliver, and administer the energy efficiency and demand response programs; i.e., utility, third party, state sponsored?

- *Cost recovery and financial incentives:* How will costs be recovered? Which costs will be recovered? How will disincentives, such as lost earnings and lost capital opportunities be mitigated? Will performance incentives be provided and what is the mechanism for calculating?

- *Reporting requirements:* Will annual status reports be required? Will annual or multi-year plans be required? Will mid-term modifications be allowed and what are the reporting and approval requirements? What information is required in each report? What are the required dates for reporting?

PROCEDURAL ISSUES

The Commission discussed several options for moving forward with a DSM initiative and sought feedback as to participants' recommended approach. Overall, we believe that it is important that the process used to consider and advance DSM initiatives be flexible and adaptable to changes in Commission policies as they evolve, changes in technologies as they advance, and changes in the energy marketplace.

In light of those considerations, we believe that pursuing this initiative through policy statements and guidelines, as opposed to rulemaking, would be preferable. Such guidelines can be readily adapted and changed as appropriate, and could be crafted to provide sufficient flexibility to ensure each utility offers an effective mix of programs tailored for its service territory.

While we believe the Commission has broad authority to implement various kinds of DSM programs, it may be appropriate to consider, as part of this exercise, whether any enabling legislation might be helpful in facilitating DSM programs in the state. If the Commission wishes, we would certainly be willing to provide examples from other states of general legislation crafted to accomplish various DSM objectives while still preserving the Commission's flexibility and oversight.

With respect to next steps, we would appreciate the opportunity to work with Staff on potential draft policy statements and guidelines, and further development of potential measures for removing disincentive. Once options are developed for the Commission's consideration, we believe another workshop or hearing would be appropriate. At that time, it may also be appropriate to encourage participation from customers and non-traditional participants in the Commission's proceedings to obtain additional input.

CONCLUSION

We believe that DSM can play an important role on our system in lowering costs for all customers. We appreciate the Commission's initiative in exploring potential means of considering and promoting DSM in our service territory. We look forward to working with Staff to develop options for the Commission to consider.

NSP System Rate Structure
(2007 Forecast Data)

Class/Rate	Est.	Customers	GWH Sales	System Peak (July) MW	
				Peak Contribution	Controlled
Residential		1,413,715	12,094	3,631	
Residential TOD	1980	8,232	132	16	
Res Saver's Switch	1990	320,804			368
Energy-Ctrl Non-Dmd (a)	1981	1,220	16	1	
Limited Off-Peak	1986	636	11		
Residential Total		**1,744,606**	**12,254**	**3,649**	**368**
Small Gen (w/ Pumping)		119,945	1,718	402	
Small General TOD	1980	10,942	127	31	
General Service		49,362	13,228	2,686	
General TOD	1980	3,288	8,825	1,512	
C & I Saver's Switch	1994	14,768			46
Peak-Control Tiered (b)	1985	2,115	2,401	433	201
Peak-Ctrl Tiered TOD (b)	1985	362	3,090	505	255
Energy-Control TOD (c)	1990	202	824	84	66
RTP (Firm)	1997	7	180	18	
RTP (Controlled) (d)	1997	3	466	22	43
Buy Back (e)	2000				
Short Notice (f)	1998	2			8
Schedule L (f)	1998	2			30
Comm. & Ind. Total		**200,995**	**30,859**	**5,695**	**606**
Lighting/Misc. Total		**15,322**	**240**		
Retail		**1,960,923**	**43,352**	**9,344**	**974**
Wholesale		18	1,109	239	94
Total		**1,960,941**	**44,461**	**9,583**	**1,068**

(a) Originally established as Resid. Dual Fuel Space Heating

(b) Derived from Peak Interruptible established ca. 1967

(c) Derived from Oil Interruptible established ca. 1970's

(d) Controlled MW included in Peak-Control TOD

(e) Peak Day Partners (Buy Back) use not expected in 2007. Available controlled load is 45.4 MW.

(f) Values included in above Contrallbale Services, except Controlled MW

Time of Day and Controllable

Class/Rate	Customers	GWH Sales	System Peak (July) MW	
			Peak Contribution	Controlled
Residential TOD (2,5)	8,868	144	16	
Percent of Residential	1%	1%	0%	
Residential Controlled (3,4)	322,024			368
Percent of Residential	18%			9%
C&I TOD (7,9,12-15)	14,805	13,511	2,173	
Percent of C&I	7%	44%	38%	
C&I Controlled (10-13,15-18)	17,451			606
Percent of C&I	9%			10%
Retail - Time of Day	23,673	13,655	2,190	
Percent of Retail	1%	31%	23%	
Retail - Controlled	339,475			974
Percent of Retail	17%			9%