

**NorthWestern<sup>®</sup>**  
**Energy**



**SOUTH DAKOTA**

**Demand Side Management Plan**

**April 4, 2014**

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## I. Introduction

NorthWestern Energy (NorthWestern) believes Demand Side Management (DSM) is a necessary and important part of a balanced portfolio of electric and natural gas supply resources that it acquires to serve the energy needs of its customers.

A primary benefit of DSM is that it displaces the need to purchase more expensive electric or natural gas resources by reducing customer energy usage through efficiency gains. In that sense, DSM can be viewed as an energy resource. Another important benefit of DSM is that it provides tools individual customers can use to reduce their energy bills without loss of comfort or convenience. Also, environmental benefits are an important aspect of DSM. Energy saved through DSM activities reduces the need for electric generation, and/or consumption of natural gas, and the associated emissions and other environmental impacts.

DSM is available in relatively small and variable amounts from large numbers of individual utility customers. A structured DSM Plan must be developed and implemented in a manner that will successfully educate and motivate customers into action on a scale sufficient to produce meaningful amounts of cost effective DSM resources.

NorthWestern presents this plan as its proposed initial commitment to Demand Side Management and increased energy efficiency efforts with its customers. This plan is based on NorthWestern's successful experience in Montana, experience in talking with South Dakota customers about what they seek for energy efficiency services, and best practices in the utility industry. The plan will continue to evolve as business conditions change and as DSM program experience in South Dakota is gained.

## II. DSM Goals and Objectives

There are two fundamental purposes for NorthWestern's proposed DSM plan:

- 1) Acquire low-cost energy resources for the benefit of NorthWestern customers, and
- 2) Help customers better understand ways that energy efficiency can assist them in managing their energy usage and costs.

Following successful implementation of initial DSM programs intended for mass residential and commercial customer markets, NorthWestern will work to complete design and implementation of a comprehensive group of DSM programs that will address the entire natural gas and electric customer base. When the DSM program portfolio is fully implemented, the programs will have broad applicability and should provide opportunities for expanded energy efficiency and savings to almost all customers. NorthWestern will develop the DSM delivery infrastructure (programs, contractors, funding sources, trade ally relationships, etc.) necessary to maintain a steady, sustainable DSM acquisition schedule into the future. DSM program activities will include customer education and multiple program mechanisms that offer customers several energy efficiency choices and additional control over their energy usage and cost.

### **III. Overview and Background of Demand Side Management**

DSM is a term used in the energy industry to describe strategies aimed at proactively influencing the manner in which customers use energy. Basic DSM strategies include persuading customers to use energy more efficiently and/or encouraging customers to shift portions of their energy usage away from peak periods (generally high system usage periods as defined by the utility).

DSM strategies that promote more efficient energy use generally include customer education and financial incentives to persuade customers to adopt energy efficient technologies and/or change energy usage-related behavior. An example of an energy efficient technology is a compact fluorescent light bulb (CFL). Turning down the temperature setting on an electric water heater is an example of a behavioral change. DSM strategies aimed at efficiency improvements may also reduce energy usage during peak periods.

Another category of DSM programs, typically referred to collectively as Demand Response, is aimed at shifting the times of energy use and generally includes education, appropriate rate design and/or financial incentives to encourage the desired behavior. Such Demand Response DSM programs may contemplate voluntary actions by customers to shift usage (non-dispatchable) or, for customers willing to participate, can include active control of specific customer equipment by the utility (dispatchable).

As proposed, this plan includes DSM techniques to encourage more efficient use of energy through programs that educate customers and provide financial incentives to encourage customers to adopt efficient technologies. Throughout the remainder of this section and the rest of this document where the terms DSM or Demand Side Management are used, the reference is to the more efficient use of energy unless specifically stated otherwise.<sup>1</sup>

#### **IV. Benefits and Risks Associated with DSM**

One primary benefit of DSM is that it displaces the need to purchase more expensive energy resources by reducing customer energy usage through efficiency gains. In that sense, DSM is viewed by the industry as a resource option. The average levelized cost of electric DSM is estimated at about \$20-25 per MWh, which compares quite favorably with other resource alternatives. Because of this relatively low cost, DSM decreases total energy supply portfolio costs over the long run and, on average, customer bills are lower as a result. DSM provides a tool individual customers can use to reduce their energy bills from what they otherwise would be, absent adoption of efficient technologies. Environmental benefits are another important aspect of DSM. Energy saved through DSM activities reduces the need for electric generation and natural gas supply and the associated emissions and other environmental impacts.

There is a capital cost risk associated with DSM. DSM related costs are incurred up-front to pay for the installation of efficient technologies or DSM measures that are expected to generate savings many years into the future. There is the risk that the expected savings will not materialize. Some reasons the expected savings may not materialize include equipment not performing as specified, incorrect assumptions about the efficiency and operating parameters of the equipment that is replaced, or changes in customer behavior after adoption of energy efficient technologies<sup>2</sup>. Other reasons for why DSM savings may not materialize as expected relates to the removal of DSM measures due to premature equipment failure, changes in

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<sup>1</sup> There is potentially a small amount of cost effective electric DSM associated with switching electric and water space heat to natural gas in the residential sector.

<sup>2</sup> An example of a change in behavior that could reduce actual savings from expected is a customer who, after installing more efficient lights, is less conscientious about turning off unneeded light fixtures. This is also known as "take-back".

equipment/facility use, business closure, or customer dissatisfaction with performance of the DSM measures. DSM programs are generally designed such that program participants pay for a portion of the measures so the capital risk is shared between program participants and the utility. This cost sharing approach reduces NorthWestern's cost of acquiring the DSM resources and helps to increase the likelihood that anticipated savings will materialize since customers have a financial stake in the success of the DSM measures as well. Up to the cost effective limit, NorthWestern is guided by the principle of contributing only as much as is necessary to cause customers to act and install DSM measures. To the extent actual savings is less than anticipated, DSM resource becomes relatively more expensive and thus, cost effectiveness from both the customer and utility perspectives is reduced.

While the capital cost risk associated with DSM is a consideration, it does not necessarily make DSM unattractive or uneconomic. In fact, utilities across the country have a long history of operating cost effective DSM programs while managing the associated capital cost risk. NorthWestern, through its predecessor utility Montana Power Company, operated energy efficiency programs in Montana beginning in the late 1980's that were generally confirmed through rigorous program evaluations as being cost effective. More recently, NorthWestern has operated diverse portfolios of electric and natural gas energy efficiency programs in its Montana service territory. Third party evaluations of these programs for the years 2006-2011 found NorthWestern-MT's portfolios to be cost effective.<sup>3</sup> While DSM related capital cost risk has not gone away, NorthWestern believes it is a risk that can be effectively managed through appropriate program design, regular program evaluations, and ongoing program adjustments and modifications as more information and experience is gained.

**V. Growth of DSM at NorthWestern**

NorthWestern has taken the initiative to add new energy conservation activities since 2004, including more extensive use of its website to inform and educate its customers. Using a

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<sup>3</sup> A comprehensive evaluation by an independent third party of NorthWestern's DSM programs operated during the period 2006-2011 years completed in January 2013.

product called "Calc-U-Pal" (located on NorthWestern's website<sup>4</sup>) provides a means for customers to identify opportunities to control and reduce their energy consumption. Another tool for customers on NorthWestern's website is a list of energy savings tips for the highest energy end-uses within a home. There are also tools for commercial and industrial customers. Energy Management Solutions, for example, is an e-mail service for commercial and industrial customers. It is a free service that provides technical advice, energy operations and maintenance information, business research and information assistance quickly and easily.

In addition to greater use of on-line tools through its website, NorthWestern has sponsored customer appreciation "Open Houses" at its local office sites. Tabletop displays and videos with information on energy efficiency are located at local offices for customers to review during Open Houses. Similar events have proven quite popular and provide an excellent opportunity for positive "one on one" interaction between NorthWestern and its customers.

NorthWestern has also used its customer newsletters and bill inserts as another method for distributing information to its customers concerning energy efficiency, preparing their homes for winter, or understanding and using budget billing. NorthWestern attends home shows, state fairs, trade association conventions, and other community events regularly as an opportunity to distribute energy efficiency information to customers.

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<sup>4</sup> <http://c03.apogee.net/clients/default.aspx?hostheader=northwestern&utilityid=northwestern>

## VI. DSM Cost Effectiveness

In 2003, NorthWestern contracted with KEMA, Inc. to perform an assessment of the electric DSM potential in its Montana service territory. The assessment work was updated in 2005, and the research was repeated and expanded in 2009 using a different contractor, NEXANT, Inc. These studies began with a comprehensive starting list of possible DSM measures, which were then analyzed for cost-effectiveness. The consultants' analyses of the initial DSM prospects resulted in a list of DSM measures that were deemed suitable for Montana electric DSM programs. A Total Resource Cost Test (TRC) was employed to screen individual DSM measures for cost effectiveness. The TRC is a ratio of benefits to costs. TRC costs include both utility costs and customer costs. TRC benefits are avoidable costs, which for this assessment equal the present value of the estimated electric or natural gas savings provided by the DSM measure multiplied by NorthWestern's estimated avoidable electric or natural gas supply costs (avoided costs) over a 20-year period.

Separately but similarly, NorthWestern has conducted an analysis of natural gas DSM measures for its Montana market, screening them for cost effectiveness using natural gas avoided costs, best available installation cost information, and application of the TRC. As with the electric DSM assessment work, a list of qualifying measures resulted from this analysis.

Building on work done for the Montana portion of NorthWestern's system, service territory and customer base, NorthWestern applied South Dakota-specific electric and natural gas avoided costs to DSM measures considered for initial programs in South Dakota. Additionally, updated information on costs for materials and installation of many DSM measures was included in the calculations for South Dakota.<sup>5</sup> The TRC test using these measure costs and South Dakota's current electric and natural gas avoided costs were used to select the cost-effective measures for inclusion in this proposal for DSM programs.

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<sup>5</sup> Costs for DSM measures are gathered from many sources, including national and regional databases, other utility DSM programs, and substantial field experience with Montana DSM programs. Additionally, a comprehensive DSM program evaluation completed in 2007 by NEXANT, Inc. verified the costs for materials and labor used in TRC calculations. NorthWestern believes these costs are relevant and reasonably appropriate for the South Dakota region. Future program evaluations of the South Dakota DSM effort will necessarily revisit these cost assumptions.



A. Environmental Benefit Factor: It is generally accepted that DSM mitigates environmental impacts associated with emissions that would have resulted from the typical supply side resources it displaces. It is, however, extremely difficult to accurately quantify. An environmental benefit factor is used in the TRC-based screening and decision rule for eligible DSM measures to recognize that such emissions may have societal costs beyond those internalized in the price of the energy produced by the displaced resources.

Discussions with other interested parties<sup>6</sup> produced an agreement that some recognition of environmental externalities is needed in TRC calculations, but no certainty on precisely how such quantification should be done. Therefore, NorthWestern did not attempt to explicitly quantify the appropriate environmental benefit factor for use in this DSM assessment. Rather a 10% environmental benefit factor was chosen as a reasonable surrogate.<sup>7</sup> This 10% factor has not been challenged since its initial use, and is considered to be adequate recognition of environmental externalities.

B. The Cost Effectiveness Decision Rule: Absent additional considerations, a DSM measure is deemed cost effective when the TRC (the ratio of benefits to costs) as described above is equal to 1.0 or greater. However, when a 10% environmental benefit factor is applied, a measure is considered cost effective when its cost is equal to or less than 110% of the avoided cost value, or the benefits, of the associated electric savings. This is a cost/benefit ratio. As discussed previously, the TRC is a benefit/cost ratio or the reciprocal of the cost/benefit ratio. Consequently, in this analysis, The Cost Effectiveness Decision Rule establishes that all measures with a TRC equal to 0.9 or greater are considered cost effective for purposes of screening the DSM measures for inclusion in NorthWestern DSM programs.

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<sup>6</sup> Discussions included staff of The Montana Public Service Commission, the Montana Electric Technical Advisory Group, and of the Northwest Power and Conservation Council.

<sup>7</sup> Previous to the adoption of the Electric Default Supplier Procurement Guidelines in Montana, electric supply planning was conducted under sections 38.5.2001ARM through 38.5.20016 ARM dated 12/31/92. In accordance with section 38.5.2003, ARM, "Environmental Externalities" NorthWestern (formerly MPC) had previously estimated the external environmental costs associated with gas-fired combined cycle generation at 5% of avoided costs. Additionally, section 38.5.2011, ARM, "Regulatory and Market Barriers to Integrated Least Cost Planning and Acquisition of Demand-Side Resources, specified that DSM resources be considered cost effective up to 115% of the utility's avoided costs. In essence, DSM was afforded a 20% cost advantage. It is possible that government regulations have since caused generation projects to internalize environmental costs to a great extent, which would be reflected in market prices. If so, the environmental benefit factor could be zero or close to it. However, as discussed above, NorthWestern chooses to give DSM the benefit of the doubt in using 10%.

The impact of using a 10% environmental benefit factor is that more measures are considered cost effective than if the 10% is not applied, which results in an increase in DSM potential.

- C. Cost Effective Measures: The measures that were determined to be cost effective for residential and commercial/industrial customers respectively, and will be included in the initial set of DSM programs are provided in Section XII DSM Program Descriptions, and are also listed in Appendix A.

## VII. DSM Annual Targets

Developing a portfolio of DSM programs typically includes establishment of annual targets or goals for specific levels of acquired DSM. At this time, and given the desire of NorthWestern to expand its DSM program offerings immediately, establishment of specific annual electric and natural gas DSM targets is speculative. NorthWestern proposes to go forward with specific DSM programs based on cost effective measures and estimated funding levels for the first two years. An initial ramp-up period is expected to allow the expanded DSM program portfolio to become fully operational and the customer base to become better informed about the program features and availability. Following two years of activity, these initial programs should be fully implemented and functioning well, and NorthWestern will have gained knowledge of the potential annual amounts of DSM the portfolio of programs can deliver. At that time, NorthWestern can set better-informed annual targets.

The quantity of achievable and cost effective DSM available is finite. Because of that, the number of opportunities available to acquire DSM in terms of both customers and measures decreases over time. Customers that are relatively more inclined to adopt energy efficient technologies, for whatever reason, will likely participate in the earlier years of the DSM plan. Relatively more of the DSM opportunities remaining will reside in facilities whose owners are less inclined to adopt energy efficient technologies for any number of reasons. Such reasons may include measures that, while cost effective, are relatively costly as compared to the billing savings they generate, high investment hurdle rates, distrust of new technology, a lack of knowledge of the availability and benefits of energy efficient technologies, and/or simply an

indifferent attitude. Thus, more focused promotional efforts and/or relatively higher average incentives will likely be required to achieve the targets in later years of the DSM plan.

### **VIII. DSM Acquisition**

With the exception of the Residential Home Energy Audit, DSM will be acquired through programs incorporating measures identified as passing the Cost Effectiveness Decision Rule (TRC = 0.9 or greater) as well as any measures subsequently determined by NorthWestern to be cost effective based on further analysis. The program mix will be designed to target all customer sectors. Programs will be designed to minimize cream skimming.<sup>6</sup>

### **IX. Transition to DSM Programs in South Dakota**

The DSM programs and infrastructure to support NorthWestern activities in Montana are well-established. Even so, programs and mechanisms are adjusted based upon opportunities and needs. The experience of the delivery team and the many proven mechanisms will contribute to successful DSM programs in South Dakota. Initially, there are some program startup expenses that may not be required in later years. It is recognized that the plan described in this document is a starting point based upon a wide range of assumptions. For instance, the rebate budget for each year has been estimated at \$900,000. Depending upon customer demand for rebates, actual expenditures may be lower or greater. As more direct experience in the South Dakota markets is gained, the plan will be adjusted to better suit the market conditions to deliver successful cost effective programs. As a result, the timing of activities, the number of measures or programs, and implementation strategies will continue to be modified over time.

### **X. DSM Program Development and Delivery**

The DSM development and delivery infrastructure will consist of a team of NorthWestern personnel (NorthWestern DSM Team) and outside contractors.

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<sup>6</sup> "Cream skimming" is a term used to describe the undesirable practice of acquiring the least expensive DSM without acquiring more expensive, but cost effective, DSM at the same time. Added costs associated with having to "return" to acquire the more expensive DSM can render such DSM non-cost effective or "stranded".

The NorthWestern DSM Team has two components with primary responsibilities as described below:

- A. Administration is responsible for developing, pre-packaging, and managing programs. Related duties include designing programs, issuing requests for proposals, contracting for services and administering such contract(s), developing standardized promotional materials for use in the field and for general program promotion, establishing and tracking overall program budgets, developing DSM goals by area, consolidating/reporting results, and supporting DSM tracker filings.
- B. Local NorthWestern personnel are responsible for providing input for program development and for program outreach at the local level including promoting DSM programs to customers and civic groups, coordinating promotion efforts with the outside contractor(s), and monitoring performance of contractors at the local level. These NorthWestern employees will provide for "on-the-ground" representation of NorthWestern's DSM efforts.

Outside contractors are responsible for program implementation to achieve overall and local DSM targets, including procurement and installation of all DSM measures, coordinating program outreach activities with both the administration and field components of NorthWestern DSM team, and reporting program activities/results. Work placed with outside contractors will generally be competitively bid except where it is clear and demonstrable that sole sourcing is prudent and in the best interests of customers. NorthWestern intends to use one of its contractors that provide DSM support in Montana to support the DSM programs included in this Plan.

## **XI. Program Evaluations**

The DSM savings and costs associated with this DSM plan are based on the DSM assessment, program experience and comprehensive DSM program evaluation in Montana, and analysis specific to South Dakota. Going forward, it is important to conduct evaluations of DSM programs on a regular basis to identify needs for program related changes, verify program savings, and evaluate program cost effectiveness. There are three core tasks involved in a comprehensive DSM program evaluation; process, impact, and economic evaluation.

Process evaluations focus mainly on DSM program delivery issues. Examples of questions that process evaluations attempt to answer are:

- Is the program targeted at the correct customer segment(s)?
- Is program promotion reaching the targeted customer segment(s)?
- Are incentive levels and promotion budgets and activities appropriate for the desired program results?
- Does the potential associated with the program match planned future targets for the program?
- What are customer attitudes about the program?
- Are there areas where the program can be improved and/or made more efficient?

Impact evaluations focus mainly on DSM program results with respect to DSM acquisition. Some of the questions impact evaluations seek to answer include:

- What are the actual savings achieved by the program/technology?
- Do program savings persist over time?
- Is the program cost effective?

Economic evaluation is intended to determine whether the overall DSM program effort, and the respective individual DSM programs and DSM measures within each, are cost-effective. Also, the economic evaluation will produce the levelized cost of DSM resource acquisition by individual program and for the overall portfolio of programs.

NorthWestern intends to commence program evaluation activities no later than the first half of year 4 of DSM program operation. A Request for Proposals will be issued and a blind, competitive bidding process will be used to select a qualified DSM Program Evaluation Contractor. Evaluations will occur on a regular basis thereafter as needed. In order to eliminate potential conflict of interest issues, evaluations will be administered primarily by outside contractors not engaged in other aspects of DSM program implementation and delivery.

A general description of the type of work that the selected independent DSM Program Evaluation Contractor will be required to perform is included in Appendix B.

## **XII. DSM Program Descriptions**

NorthWestern proposes to initiate several programs that are well developed in Montana and can be rolled out quickly in South Dakota. NorthWestern intends to use an outside services contractor with experience in these programs. When the initial programs are fully operational, additional programs will be added.

Effort in the beginning will focus on building the capability to deliver DSM programs and services in the South Dakota service territory. This DSM infrastructure development involves acquiring and training people, establishing and building relationships with market participants like retailers, wholesalers, builders, trade groups, engineering/architectural firms, government officials, operators and decision-makers of commercial and public buildings and facilities.

The DSM Program Portfolio will be organized into the five general programs listed below. Qualifying energy efficiency measures for the rebate programs (non-energy audit programs) are shown, with additional details on each qualifying measure presented in Appendix A:

### **A. Residential In-home Energy Audit Program**

This program is proposed as a foundational energy conservation program that will be available to all qualifying customers at no direct charge. Residential customers in single-family dwellings whose space and/or water heating fuels are delivered by NorthWestern and whose home is at least five years old are eligible for an on-site energy audit. Homeowners and renters will generally qualify. On-site audits are conducted to survey energy use, to install certain energy saving measures, and to identify energy saving opportunities.

This service will include the following activities:

- 1) A dedicated toll-free number for customers to use to request or schedule an audit
- 2) Providing customers with a reminder call and/or a reminder postcard

- 3) A customer-specific report home audit report that will be sent to the customer within 12 business days of the appointment
- 4) In-home audits include (as applicable):
  - a. Installing hot water energy saving measures where appropriate:
    - 1) Water heater insulation blanket
    - 2) Pipe insulation (up to 10 feet on the hot water line)
    - 3) Water and energy saving showerheads; kitchen and bath faucet aerators
  - b. Educating customers on the benefits of Do-It-Yourself (DIY) air-sealing materials.
  - c. Supplying education, services, and measures where appropriate:
    - 1) Air tightness analysis on the home (blower door test)
    - 2) Computer analysis of energy usage in the home, which includes energy-saving recommendations and payback information
    - 3) Water heater safety check including carbon monoxide test for homes using NorthWestern natural gas
    - 4) Insulation and ventilation inspection
    - 5) Door and window inspection

A customized report with energy saving recommendations is generated for the customer for on-site audits. Although homes cannot be re-audited, a customer can request a copy of a previous audit report.

**B. Residential Existing Construction Program (Electric and Natural Gas):** This program may include rebates for the following measures:

- Compact Fluorescent Lamp (CFL)
- Compact Fluorescent Lamp (CFL) Fixture
- Canned Lighting Air Tight Sealing
- Light Colored Shingles
- Door R – 11
- Door R – 5
- Doors - Weatherization
- Ground / Water Source Heat Pump Desuperheater
- Duct Sealing
- Insulation Basement or Crawl Space Wall
- Insulation (Ceiling/Attic)
- Proper Sizing of Central Air Conditioner

Proper Sizing of Heat Pump  
ENERGY STAR® Refrigerator/Freezer  
Thermostat - Clock/Programmable – Electric  
Water Heater Tank Insulation Blanket  
Water Heater Thermostat Set-back  
Attic/Ceiling R-0 to R-49 Insulation  
Crawlspace R-0 to R-19 Insulation  
High Efficiency Condensing Boiler  
Boiler Diagnostics – testing, repair and maintenance  
High Efficiency Condensing Furnace  
High Efficiency Gas Room Heater  
Heater Diagnostics – testing, repair and maintenance  
Programmable Thermostat – Natural Gas

**C. Residential New Construction Program (Electric and Natural Gas):** This program includes rebates for the following measures that may be offered during the second year of the program rollout:

Compact Fluorescent Lamp Fixture  
Door R-11  
Door R-5  
Faucet Aerators  
Ground / Water Source Heat Pump Desuperheater  
Low Flow Shower Heads  
Pool Pump Timers  
Water Heater Thermostat Set-back  
ENERGY STAR Refrigerator/Freezer  
ENERGY STAR TV  
High Efficiency Condensing Boiler  
High Efficiency Condensing Furnace

**D. Commercial Existing Construction Program (Electric and Natural Gas):** This program may include rebates for the following measures:

One or Two Lamp Fixture 1/1, 2/1 (lamp/ballast)  
Three Lamp Fixture 3/1, 3/2 (lamp/ballast)  
Four Lamp Fixture 4/1, 4/2 (lamp/ballast)  
T-8 lamp 4 foot  
Mercury Vapor (MV), High Pressure Sodium Vapor (HPSV) or Metal Halide (MH) to T-8  
Other Approved Lighting Retrofits  
Compact Fluorescent Lamp (CFL)



- Integral (screw-in) or Modular
  - Hard-Wired CFL Fixture
- LED Solid State White Lighting for
- Exterior Landscape, Signage & Structure Only
  - LED Face Exit Sign
- Photocell
- Occupancy Sensor or Sweep Control
- Day lighting Controls - Dimming-Continuous, Fluorescent Fixtures Continuous Dimming, Fluorescent Fixtures (Day-Lighting)
- ENERGY STAR – Computer
- ENERGY STAR – Printers
- ENERGY STAR - Residential-Size Refrigerator
- Server (Early Retirement)
- Server Virtualization (4:1)
- Motor - Fan System - Variable Speed Control
- Motor – Pump System – Variable Speed Control
- Night Cover for Display Cases – Refrigeration
- Reduced Speed or Cycling of Evaporator Fans
- Refrigeration with heat recovery
- Special Glass Doors for Refrigerated Glass Cases
- Strip Curtains for Freezer Walk-ins
- Programmable Thermostats
- Refrigerated Vending Machine
- Anti-sweat Controls (Humidistat)
- Automated Exhaust VFD Control – Parking Garage
- Centrifugal Chiller Variable Frequency Drive
- Refrigerator Compressor Variable Frequency Drive
- Cooling Tower 2 Speed Fan Motor
- Cooling Tower Variable Frequency Drive
- Dishwashing Chemical System
- Exhaust Hood Make-up Air
- Floating Head Pressure Control
- Hot Food Holding Cabinets
- Hot Water Pipe Insulation
- Hotel Key Card Room Energy Control System
- Wall Insulation – R-20.5
- High Efficiency Water Heater
- High Efficiency Furnace/Boiler (AFUE  $\geq$  90% or 90% Thermal Efficiency)
- Ceiling Insulation R  $\geq$  38
- Exterior Wall Insulation (above grade, R  $\geq$  21)

**E. Commercial New Construction Program (Electric and Natural Gas):** This program includes rebates for the following measures that may be offered during the second year of the program rollout:

- Compact Fluorescent Fixture (CFL)
- LED Solid State White Lighting for Exterior Landscape, Signage & Structure Only
- MV, HPSV or MH to T-8
- ENERGY STAR – Computer
- ENERGY STAR – Fax
- ENERGY STAR – Printers
- ENERGY STAR – Water Cooler
- ENERGY STAR – Residential
- PC Power Supply 80+
- Motor – Fan System – Variable Speed Control
- Optimized Variable Volume Lab Hood Design
- Reduced Speed or Cycling of Evaporator Fans
- Refrigeration with Heat Recovery
- Special Glass Doors for Refrigerated Cases
- Strip Curtains for Freezer Walk-ins
- Refrigerated Vending Machine
- Anti-sweat Controls (Humidistat)
- Automated Exhaust VFD Control – Parking Garage
- Automated Ventilation Control
- Cooling Tower Decrease Approach Temperature
- Cooling Tower 2 Speed Fan Motor
- Cooling Tower Variable Frequency Drive
- Defrost Demand Control with Hot Gas
- Dishwashing Chemical System
- Exhaust Hood Make-up Air
- Floating Head Pressure Control
- Hot Food Holding Cabinets
- Faucet Aerators
- Hotel Key Card Room Energy Control System
- Low Flow Shower Heads
- High Efficiency Water Heater
- Water Heater Tank Insulation
- Stack Heater Exchanger
- High Efficiency Furnace/Boiler (AFUE  $\geq$ 90% or 90% Thermal Efficiency)

## DSM Program Rebates

### A. Residential Rebates and Incentives

In general, participating customers can claim rebates for eligible DSM Program measures by completing a Rebate Application Form (available in NorthWestern offices or from the NorthWestern Energy web site) and mailing the form along with proof-of-purchase documentation to NorthWestern's DSM Program contractor.

In addition to rebates for various types of equipment, the program promotes energy efficient lighting projects by providing prescriptive rebates to encourage residential customers to switch from incandescent/halogen bulbs to more efficient ENERGY STAR compact fluorescent lamps (CFLs) in their homes. All NorthWestern electric residential customers will be eligible to participate. The program employs the following delivery approaches to encourage customers to install ENERGY STAR CFLs:

1. *In-Store:* Coupons worth \$1.00 per CFL toward the purchase of up to ten CFLs at participating retailers are mailed to customers. Each coupon has a unique bar code that indicates which coupons are used. Customers are limited to one coupon per promotion; promotions occur twice annually.
2. *Mail-In:* Rebates for a minimum of five and a maximum of 15 CFLs, limited in amount to the lesser of \$1.00 per bulb or the bulb's purchase price, and rebates of \$5.00 per fixture for ENERGY STAR lighting fixtures (fixtures with electronic ballasts, although outdoor ENERGY STAR fixtures with magnetic ballasts are also acceptable).

### B. Commercial Rebates and Incentives

As with residential rebates, participating commercial customers can claim rebates for eligible DSM Program measures by completing a Rebate Application Form (available in NorthWestern offices or from the NorthWestern Energy web site) and mailing the form along with proof-of-purchase documentation to NorthWestern's DSM Program contractor.

The Commercial DSM Programs target NorthWestern's commercial, industrial, and institutional customers in South Dakota. In addition to rebates for various types of

equipment, the program promotes energy efficient lighting projects by providing prescriptive rebates for customers who replace lighting equipment with more efficient technologies or who install lighting controls. Equipment must operate a minimum of 1,000 hours per year to qualify, and projects must qualify for at least a \$50 rebate to be eligible.

Projects will be given a window of time in which they must be completed to ensure project funds are assigned only to projects that are actively underway. In addition, rebates will not be provided for lamps or fixtures placed in stock in excess of 5% of installed equipment.

Program marketing includes outreach to and cultivation of working relationships with area retailers and trade allies. Action will be taken to promote the program, interact with trade allies, provide technical assistance to participants, and perform pre- and post-installation inspections.

Appendix A provides additional detail on eligible DSM program measures, qualification criteria, and the rebate/incentive structure for all DSM programs.

### **XIII. DSM Program Marketing and Communications Plan**

The South Dakota DSM Communications Plan is intended as a guide to identify and direct the communications strategies associated with the implementation of NorthWestern Energy's DSM programs in South Dakota. The plan will be modified as needed to suit changing opportunities and conditions.

#### Goals, Objectives and Audiences

NorthWestern's communications and marketing goal is to effectively and efficiently introduce DSM programs to NorthWestern's South Dakota natural gas and electric customers through NorthWestern Energy employees and its program contractors, and by generating increased public awareness of the programs and the opportunity to save energy.

Specific DSM marketing and communications objectives are to engage trade allies in our communities and public entities to incorporate energy efficiency in their messages and marketing, and also to engage customers to demand energy efficiency from service providers.

Audiences that will be targeted by NorthWestern's marketing and communications activities include:

- NorthWestern Energy employees
- NorthWestern Energy program contractors and partner contractors
- Residential customers (natural gas and electric)
- Commercial and Industrial Customers (natural gas and electric)
- Trade Allies:
  - Electrical vendors—i.e. Grainger, WesCo, CED;
  - Service providers—electricians, refrigeration, HVAC, motors, architects, engineers, insulation;
  - Distributors—lighting, equipment;
  - Retailers—of CFLs, building supplies, appliances, air sealing, and water measures; building contractors and general contractors;
  - HVAC and insulation contractors; and
  - Trade associations—i.e. AIA, ASHRAE, Hospital Association and Hospitality and Lodging Association.
- Public officials and government departments
- Media—mass and trades

### Implementation Strategies

NorthWestern Energy will engage its employees, program implementation representatives, and program/partner contractors to utilize existing and new methods and tools to cultivate customer participation in the DSM programs.

Implementation tactics are targeted by customer sector and directed at defined audiences in most cases. Cross-marketing of programs within the customer sector is incorporated as appropriate.

Programs will be offered under the Efficiency Plus (E+) umbrella and mirror best practice strategies that have been successfully implemented with Montana customers. Modification to communications and program design to fit the South Dakota market will be incorporated.

### Tactics

Residential Programs will be promoted using the following techniques and mechanisms:

- Target direct mail and limited media for E+ Audits for the Home.
- CFL instant coupon offerings to increase installation of CFLs, incorporating the educational messages (4L's) into various residential lighting messages for lighting activities
- Develop program materials/resources (Web and Brochures)
- Develop contacts by program contractors/local NorthWestern employees
- Provide training on DSM programs for Customer Service Representatives (CSRs)
- Messages in Energy Connections and news releases regarding saving energy and the introduction of E+ Programs in South Dakota.
- Participate in local events as appropriate
- Contact trade allies and solicit their participation in promotion of E+ Programs with their customers/members (Preferred Contractors, lighting retailers, homebuilding associations)

Commercial and industrial DSM Programs will be promoted using the following techniques and mechanisms:

- Develop materials to support the outreach for E+ Commercial Lighting rebates
- Integrate commercial program messages into tradeshow displays
- Initiate customer and trade ally contacts by program/partner contractors and CSRs

- Participate in local events where appropriate
- Targeted outreach for customer/trade ally training and partnership opportunities
- Develop trade ally databases
- Develop program-at-a-glance summary
- Populate the South Dakota E+ web resources with program information

## Methods and Tools

### Residential Sector

- **Program Brochures** that describe individual programs and cross-market same sector programs and highlight resources for more information directing customers to website or program contact phone numbers. Targeted to general audiences.
- **Web/interactive Media** tools that include the Efficiency Plus (E+) web section of [www.NorthWesternEnergy.com/Eplus](http://www.NorthWesternEnergy.com/Eplus), Twitter, YouTube, Facebook, and Search Engine Marketing (SEM) as appropriate. Targeted to general audiences.
- **Internal Communications** throughout the year such as FYI, TEAM, iConnect, emails, employee training sessions, etc. to introduce South Dakota program offerings and inform all or targeted groups of employees of programs, featured projects/promotions, training, and events. Targeted to NorthWestern employees.
- **Billing Messages** in the message box of the NorthWestern Energy billing statement and in Energy Connections to encourage program participation. Targeted to residential customers.
- **Direct Mail to Trade Allies** and targeted customers of individual program offering and related trainings along with cross-marketing of other programs. Targeted for individual mailing.

- **One-on-One Contact** by program representatives, program contractors, CSRs – communicate residential program offerings based upon opportunity and direct to appropriate resources. May include interactions during: E+ Audit for the Home, tradeshow/fair discussions, customer care calls, or normal company interactions with the customer. Opportunity driven.
- **One-to-Many Contact** through speakers' bureau, service organization presentations by program contractors and employees as appropriate to increase awareness of programs and opportunities to save energy. Company or customer initiated.
- **Trade and Home Improvement Shows** and other community events to reach targeted audiences with information about programs and opportunities. Company or organization initiated.
- **Trade Association Events, Publications, and Websites** to target presentations, displays and messages about opportunities for customers to save energy and the programs that NorthWestern Energy offers. Targeted to trade allies and customer groups.
- **Targeted Media Advertising** tied to special campaigns, programs or events. Targeted to eligible residential audiences.
- **Earned Media Feature Stories** on projects and opportunities in trade or mass media. Targeted to general audiences.

### Commercial/Industrial Sector

- **Brochures** that describe program offerings and highlight resources for more information directing customers to website or program contact phone numbers. Initial offering will focus on the E+ Commercial Lighting Rebates. Targeted to general audiences.



- **Web/Interactive Media Tools:** use of the Efficiency Plus (E+) web section of [www.northwesternenergy.com](http://www.northwesternenergy.com) and SEM as appropriate. Targeted to general audiences.
- **Internal Communications** throughout the year such as FYI, TEAM, I-Connect, e-mails, CSR trainings, etc. to inform all or targeted employees groups about programs, featured projects/promotions, training, and events. Targeted to employees and program partners as appropriate.
- **Case Studies** of customer projects as they become available to demonstrate various types of customer participation and customer benefits. Targeted to trade allies and key contacts and certain customers/customer sector subsets.
- **Billing Messages** in the message box of NorthWestern Energy billing statements and in Energy Connections to encourage program participation. Targeted to all commercial and industrial customers.
- **Direct Mail** to trade allies and targeted customers regarding individual program offering and related trainings along with cross-marketing of other programs. Targeted to individual customer mailings.
- **Customer Care E-Newsletter** to key customers will include information about programs, training, and case studies throughout the year.
- **One-on-one Contact** by program representatives, program contractors, employees – communicate commercial and industrial program offerings based upon opportunity and direct to appropriate resources. May include interactions during informal facility assessment, project completion review, cold calls, trade ally visits, or normal company interactions with the customer. This activity is opportunity driven.

- **One-to-Many Contact** through speakers' bureau, service organization presentations by program contractors and employees to increase awareness of programs and opportunities to save energy. This activity is either company or customer initiated.
- **Trade Association Events, Publications, and Websites** for making presentations, setting up displays and delivering messages about opportunities for customers to save energy and programs offered by NorthWestern Energy. Targeted to specific trade allies or customer groups as appropriate.
- **Targeted Media Advertising** tied to events, projects, or programs. E+ Commercial Lighting Rebate program advertising through television and radio to promote lighting as a universal way for businesses to save energy. Targeted to general audiences with an emphasis on commercial lighting or other specific project-related audiences.
- **Earned Media Feature Stories** on projects and opportunities in trade or mass media. Targeted to general audiences with an emphasis on commercial lighting or other specific project-related audiences.
- **Supporting Commercial Program Contractors** with consistent marketing materials to describe working relationship with NorthWestern Energy.

NorthWestern Energy has defined an overall budget for marketing and communication for the electric and natural gas DSM programs as presented in Table 1 below. This includes mass media development and placement as well as all other marketing expenses.

**Table 1: NorthWestern DSM Program Advertising Budget**

<b>Advertising</b>	<b>Year 1</b>	<b>Year 2</b>	<b>TOTAL</b>
Newspaper—CFL --Electric markets only, 2 campaigns; 2 insert ea., 1 inserts ea. ¼ page =\$4,100 EA, Creative \$2,200 ea	\$ 20,800	\$ 20,800	\$ 41,600
Direct Mail CFL Coupon Electric markets only-- 2 coupons, Development of coupon, banner, POP, print ad = \$5,000, Printing and deliver of 52,453 pieces = postage and printing/piece of \$0.40 total app \$21,000	\$ 50,000	\$ 50,000	\$ 100,000
Single Direct Response Audit All Res 69,037 customers, Development of mailing = \$15,000, List prep, printing, lettershop, poster= agency est. \$35,000	\$ 50,000	\$ 50,000	\$ 100,000
Billboard 1 campaign with 20 signs, \$3,000 creative; \$2,700 production= \$5,700, Placement \$11,000/4 weeks at 12 weeks = \$33,000	\$ 38,000	\$ 40,000	\$ 78,000
Radio 1 campaign at 4 weeks (Kick off--general), \$3,500 creative and \$14,500 for 4 weeks Placement	\$ 17,500	\$ 19,000	\$ 36,500
Television 3 campaign =\$10,000/ 4 weeks ea, Portion of TV Creative=\$10,500	\$ 40,500	\$ 30,000	\$ 70,500
Trade shows/association 5 events year 1 plus development, 7 year 2 \$1,500 for Displays,booth, promo, preferably with speaker commitments	\$ 10,500	\$ 10,500	\$ 21,000
Digital Media \$1,750 creative; \$3,600/4 weeks Media, 6 rounds creative, 6 flights placement	\$ 23,350	\$ 23,350	\$ 46,700
Search Engine Marketing (SEM), \$1,250 creative and \$700/4 weeks Media, 4 rounds creative, 12 flights placement	\$ 13,400	\$ 13,400	\$ 26,800
Local Office Display materials 15 locations @\$700 ea.	\$ 10,500	\$ 10,500	\$ 21,000
<b>Advertising total</b>	<b>\$ 274,550</b>	<b>\$ 267,550</b>	<b>\$ 542,100</b>

#### **XIV. Future Programs**

Following successful introduction of the programs described above NorthWestern will examine whether the following additional programs are appropriate and cost effective additions for an expanded DSM portfolio.

##### **A. E+ Business Partners Program**

This program would serve all NorthWestern commercial and industrial electric customers for new or existing facilities. NorthWestern would solicit proposals for projects that incorporate conservation measures that provide a unique benefit to NorthWestern's distribution system. Project proposals would have to demonstrate the cost effectiveness of the project, prove the availability of qualified design services, contractors, and maintenance service, and describe the projects' use of reliable and available equipment.

##### **B. Residential and Commercial New Construction Electric and Natural Gas Rebate programs.**

These programs would reach new construction projects that cost effectively exceed code on qualifying measures or designs.

#### **XV. DSM Program Budget and Schedule**

To the extent practical all programs should be offered to NorthWestern electric and natural gas customers on a consistent basis, in order to maximize program effectiveness, minimize customer confusion, and minimize administration cost and effort.

NorthWestern DSM funds should be used only to acquire DSM from NorthWestern customers, not customers served by other utilities or non-utility energy suppliers. DSM funds should fund programs for all NorthWestern customers as allowed by DSM budgets.

## A. Budget

NorthWestern is introducing a group of new DSM programs into its South Dakota service area. Without historical DSM program participation data to use, it is difficult to estimate the level of rebates and incentives that will be claimed by participating customers. NorthWestern has received a bid for certain services from DNV GL (KEMA Services Inc), one of its DSM Program implementation contractors in Montana. This bid includes estimates to establish a presence in South Dakota, recruit and train staff and field personnel, and put various computer, software, data collection, and administrative systems into place.

DSM program spending is substantially dependent on customer participation. NorthWestern will make every attempt to adhere to the budget estimates shown in Table 2 below. It is possible that total annual DSM spending will vary from the budget. NorthWestern will monitor customer participation and spending as the programs proceed. NorthWestern will notify the SDPUC if the spending in either of the two years appears to be likely to deviate from the estimated budget (Table 2) amounts by greater than or less than 30%.

The expected budget for all DSM programs to be introduced in 2014 is summarized in Table 2.

**Table 2: NorthWestern Energy 2-year DSM Program Budget**

<b>NorthWestern South Dakota DSM Program Budget Estimates</b>			
	<b>2014-15</b>	<b>2015-16</b>	<b>2-Year Total</b>
<b>Contractor Expenses (DNV GL)</b>			
<b>Residential Audit Program</b>			
Program Startup (contractor cost):			
Two vehicles (approximate, at cost)	\$ 66,000	\$ -	\$ 66,000
RECAP & Database Development (T&M, not to exceed)	\$ 50,000	\$ -	\$ 50,000
In-home audits	<u>\$ 482,638</u>	<u>\$ 433,440</u>	<u>\$ 916,078</u>
Program Subtotal	\$ 598,638	\$ 433,440	\$ 1,032,078
<b>Residential/Commercial Electric &amp; Natural Gas Rebate Programs</b>			
Program Startup (contractor cost)	\$ 16,692	\$ 11,692	\$ 28,384
Outside Services:	<u>\$ 236,900</u>	<u>\$ 266,150</u>	<u>\$ 503,050</u>
Program Subtotal	\$ 253,592	\$ 277,842	\$ 531,434
Contractor Expenses (DNV GL) Total	\$ 852,230	\$ 711,282	\$ 1,563,512
<b>NorthWestern Energy Expenses:</b>			
Rebates	\$ 900,000	\$ 900,000	\$ 1,800,000
Admin/non-labor (Travel, office supplies, etc.)	\$ 16,000	\$ 8,000	\$ 24,000
Advertising			
Newspaper	\$ 20,800	\$ 20,800	\$ 41,600
Direct Mail	\$ 100,000	\$ 100,000	\$ 200,000
Billboard	\$ 38,000	\$ 40,000	\$ 78,000
Radio	\$ 17,500	\$ 19,000	\$ 36,500
Television	\$ 40,500	\$ 30,000	\$ 70,500
Trade Show /Association Events	\$ 10,500	\$ 10,500	\$ 21,000
Digital Media	\$ 23,350	\$ 23,350	\$ 46,700
Search Engine Marketing (SEM)	\$ 13,400	\$ 13,400	\$ 26,800
Local Office Displays	<u>\$ 10,500</u>	<u>\$ 10,500</u>	<u>\$ 21,000</u>
Advertising Subtotal	\$ 274,550	\$ 267,550	\$ 542,100
NorthWestern Energy Expenses Total	\$ 1,190,550	\$ 1,175,550	\$ 2,366,100
<b>Total Estimated Budget</b>	<b>\$ 2,042,780</b>	<b>\$ 1,886,832</b>	<b>\$ 3,929,612</b>

## B. Schedule

NorthWestern intends to proceed along the following schedule:

1. As part of the Commission's review of this DSM plan, NorthWestern expects to receive critical review and feedback from the Commission specific to its DSM plan and its proposed DSM Program Cost Tracking and Lost Margin Recovery Mechanism.
2. The NorthWestern DSM team is formed and will commence planning activities including developing overall DSM program strategies, developing definitions of responsibilities for the NorthWestern DSM team and outside contractors, identifying preferred program delivery alternatives, and developing competitive solicitations.
3. NorthWestern will undertake additional activities including, program implementation and delivery once the planning work is complete and upon receiving; (1) a strong indication from the Commission that NorthWestern's DSM plan is reasonable and (2) approval from the Commission of the proposed mechanism for recovering prudently incurred DSM program costs and associated lost margin. NorthWestern proposes such a mechanism in the next section.

## XVI. Recovery of DSM Costs and Lost Margin

There are two general categories of costs associated with DSM activities; DSM Program costs and Lost Margin. Full recovery of both categories of costs is necessary to align interests and incentives of both NorthWestern and its customers with respect to utility-sponsored DSM.

## XVII. Proposed DSM Cost Tracking and Lost Margin Recovery

NorthWestern believes that DSM program costs and Lost Margin should be expensed and recovered through a tracker mechanism. Accordingly, NorthWestern describes its proposed DSM Program Cost Tracking and Lost Margin Recovery Mechanism in the following sections.

A separate DSM Electric/Natural Gas Tracker (DSM Tracker) will be implemented on a 12 calendar month cycle each year, with annual rate adjustments as necessary and appropriate. A brief description of the mechanics and anticipated timing is provided below.

Lost Margin will be calculated as a percentage of DSM Program Costs. NorthWestern proposes a straight forward percentage adder to each year's DSM Program costs to compensate it for Lost Margin. The Lost Margin Percentage is as follows:

- Electric Lost Margin Percentage = 30.0%
- Natural Gas Lost Margin Percentage = 7.79%

These percentages, for both electric DSM Program costs and natural gas DSM Program costs, will be applied to the forecasted DSM Program spending for each forthcoming year, and will be included as part of the overall DSM Expenses used to calculate rates to recover the cost of the DSM Program effort.

**Example #1 using hypothetical electric DSM Program cost:**

Year 1 estimated (forecasted) electric DSM Program cost	= \$1,000,000
Plus Year 1 electric Lost Margin adder (@ 30%)	= \$ <u>300,000</u>
Total Year 1 (to tracker)	= \$1,300,000

**Example #2 using proposed DSM budget amounts in this DSM Plan:**

The estimated Year 1 total DSM program budget must first be split into electric and natural gas budgets using an estimated percentage split. Because this Plan represents an introductory step into NorthWestern's South Dakota service territory and there is no history from which to make an estimate of this split, NorthWestern proposes a 50/50 split of the Year 1 budget for purposes of calculating the Lost Margin amounts:

• Electric DSM budget:	$\$2,042,780 \times 0.50$	= \$ 1,021,390
• Natural Gas DSM budget:	$\$2,042,780 \times 0.50$	= \$ <u>1,021,390</u>
		\$ 2,042,780



	YEAR 1 PROGRAM BUDGET	LOST MARGIN		TOTAL
		Electric @ 30.0 %	Natural Gas @ 7.79%	
Electric DSM	\$1,021,390	\$ 306,417	--	\$1,327,807
Natural Gas DSM	\$1,021,390	--	\$ 79,566	\$1,100,956
Total	\$2,042,780	\$ 306,417	\$ 79,566	\$2,428,763

[Note: figures may not total precisely due to rounding.]

A forecast of DSM Program Costs and Lost Margin will be developed for each tracker year. Any over/under collection for the first year (including interest), plus forecasted DSM Program Costs and Lost Margin for the second year are added together to compute rates for the second year.

### Adjustments Resulting from Program Evaluations

NorthWestern intends to report DSM related energy and demand savings based on deemed savings, results from previous DSM Evaluation studies, and engineering calculations. Practice has proven that engineering estimates tend to differ from actual savings (many times actual savings are somewhat lower). To account for this difference in the DSM Tracker, NorthWestern proposes to utilize the results of future program evaluations to develop appropriate savings adjustment factors (adjustment factors) that can be applied to engineering estimates to better reflect actual savings. As discussed previously, NorthWestern plans to commission initial program evaluations in year 4 and will conduct subsequent evaluations as necessary. The evaluations will be conducted by independent outside contractors not engaged in other aspects of DSM program implementation and delivery.

NorthWestern will not have the benefit of the results of program evaluations of DSM program activity in South Dakota in the first few years of implementation.

## **DSM Program Cost Tracking and Lost Margin Recovery Tracker Period**

NorthWestern will identify a first-day-of-month starting date for the tracker period in its initial filing of its DSM Plan. The initial tracker period will begin the first day of the month following the month of SDPUC approval of this DSM Plan ("Tracking Period Starting Date"). Upon receiving approval to implement the DSM Plan, it is possible that NorthWestern will begin to incur costs related to work necessary to begin the start-up process and prepare to offer its initial energy efficiency programs. These costs at the beginning may occur after the approval date but before the Tracking Period Starting Date. These costs that accrue in the days after SDPUC approval but before the Tracking Period Starting Date will be included in the total year one tracking period program expenses. The initial tracker period will end on the last day of the month one full year (12 months) later.

The year two tracker period will begin on the first day of the same month as the initial tracker period starting month.

NorthWestern believes that customers will find value in continuing energy efficiency programs in South Dakota and that energy efficiency programs will continue for many more years. However, in the event that energy efficiency programs do not continue into the future, NorthWestern proposes to continue to collect any unrecovered energy efficiency costs, lost margin and reconciliation amounts through the cost recovery mechanisms described in this Plan until all such costs are recovered. Likewise, NorthWestern would return any over-collections to customers through the cost recovery factor until all over-collections are returned.

### **XVIII. Conclusion**

NorthWestern has described its intentions with regard to implementation of this proposed DSM plan. Further, NorthWestern has proposed a mechanism for recovery of DSM Program Costs and Lost Margin. NorthWestern has stated its intent to form a DSM team beginning in 2014 and commence program planning and development activities upon final approval of its Plan.

## Appendix A

### 2014-2015 South Dakota Residential Existing Construction Program (Electric and Natural Gas)

#### Residential Existing Construction Electric and Natural Gas Rebate Measures

Measures	Minimum Requirements	Preferred Contractor Rebate (\$/unit)	Self-Installed or Non-Preferred Contractor Rebate (\$/unit)	Units	Qualifiers
1. Canned Lighting Air Tight Sealing	Applicable to attic locations only	\$ 12.00	\$ 9.60	per can	Home must be heated exclusively with electricity
2. Compact Fluorescent Lamp (CFL) Lamp	Hard-wired ballast	\$ 5.00	\$ 5.00	per unit	Energy Star rated CFL
3. Compact Fluorescent Lamp (CFL) Fixture	Integral or modular screw-in	\$ 1.00	\$ 1.00	per unit	Energy Star rated CFL
3. Lighter Colored Shingles	Asphalt shingles (Energy Star rated)	\$ 25.00	\$ 25.00	per home	Home must have central cooling system.
4. R-11 (Steel Doors with foam core)	Replace standard R-3 exterior door (minimum of two exterior doors)	\$ 15.00	\$ 15.00	per door	Home must be heated exclusively with electricity
5. R-5 (Composite Doors with foam core)	Replace standard R-3 exterior door (minimum of two exterior doors)	\$ 5.00	\$ 5.00	per door	Home must be heated exclusively with electricity
6. Weatherstripping and Door Sweeps	Minimum of two exterior doors	\$ 20.00	\$ 20.00	per home	Home must be heated exclusively with electricity
7. Heat Pump - Ground or Water-Source (Desuperheater)	Home water heating exclusively with electricity.	\$ 75.00	NA	per unit	DHW water heating heat recovery unit with existing GSHP
8. Duct Sealing	Mastic or aerosol duct sealing in unconditioned areas with duct blaster test	\$ 250.00	NA	per unit	Home must be heated exclusively with electricity
9. Insulation (Basement or Crawl Space Wall)	R-0 to R21	\$ 0.30	\$ 0.24	per sqft	Home must be heated exclusively with electricity
10. Insulation (Ceiling/Attic)	R-0 to R-49	\$ 1.00	\$ 0.80	per sqft	Home must be heated exclusively with electricity
11. Proper Sizing - Central Air Conditioner	Completed ACCA Manual "J" Calculation form	\$ 5.00	NA	per unit	Must provide completed ACCA Manual "J" Calculation form
12. Proper Sizing - Heat Pump	Correctly Sized Heat Pump (Cooling And Heating Unit)	\$ 5.00	NA	per unit	Must provide completed ACCA Manual "J" Calculation form
13. Refrigerator/Freezer - Energy Star	Energy Star rated $\geq$ 7.75 cuft	\$ 15.00	\$ 15.00	per unit	Energy Star rated $\geq$ 7.75 cuft
14. Thermostat - Clock/Programmable	Programmable Thermostat	\$ 0.006	\$ 0.005	per square ft	Home must be heated exclusively with electricity
15. Water Heater Tank Blanket/Insulation	Install insulation (R-5) or greater	\$ 10.00	\$ 10.00	per unit	Home water heating exclusively with electricity.
16. Water Heater Thermostat Setback	120 degrees	\$ 3.00	\$ 3.00	per unit	Home water heating exclusively with electricity.
17. Attic/Ceiling R-0 to R-49 Insulation	Home must be heated primarily with natural gas	\$ 0.50	\$ 0.40	per sqft	Existing R-0 increase to minimum R-49
18. Crawlspace R-0 to R-15 Insulation	Home must be heated primarily with natural gas	\$ 0.42	\$ 0.34	per sqft	Existing R-0 increase to minimum R-15, includes rim joist insulation
19. Boiler Diagnostic Testing, Repair and Maintenance		\$ 75.00	NA	per unit	
20. Heater Diagnostic Testing, Repair and Maintenance		\$ 60.00	NA	per unit	
21. High Efficiency Condensing Boiler	Home must be heated primarily with natural gas	\$ 200.00	\$ 160.00	per unit	Existing AFUE $\leq$ 82% install AFUE $\geq$ 90%; Integral water heater may qualify for multiple rebates
22. High Efficiency Condensing Furnace	Home must be heated primarily with natural gas	\$ 135.00	\$ 108.00	per unit	Existing AFUE $\leq$ 80% install AFUE $\geq$ 90%
23. High Efficiency Gas Room Heater	Home must be heated primarily with natural gas	\$ 106.00	\$ 85.00	per unit	Existing AFUE $\leq$ 75% install AFUE $\geq$ 80%; Must be sealed combustion direct vent; No unwanted heaters.
24. Programmable Thermostat	Home must be heated primarily with natural gas	\$ 30.00	\$ 30.00	per unit	Existing manual thermostat install programmable unit, maximum 2 per customer
25. In-Home Energy Audit	See NOTES 2 and 3 below	NA	NA	per home	See NOTES 2 and 3 below

**General notes:**

The program, incentives, rebates, qualifying criteria, measures, etc are subject to change or termination without notice.  
 All incentives/rebates not to exceed cost, whichever is less.  
 Rebate to be approximately 50% of unit cost without regard to SPB < 1.5 years in order to maximize rebates.  
 Rebate should be less than 50% of NPV of gas saved.

NOTE 1: CFL Distribution methods for South Dakota Residential Electric customers may be: 1) Mail-in rebate and 2) CFL In-Store Coupon twice a year (Fall and Spring)

NOTE 2: South Dakota Residential electric and natural gas space and/or water heating customers may be eligible for an In-Home Energy Audit

NOTE 3: The In-Home Energy Audit may be run close to the same as it is in Montana including (if applicable): installation of hot water pipe wrap and water heater tank wrap, installation of water measures (1 low-flow showerhead, 2 bathroom aerators, and 1 kitchen aerator).

## 2015-2016 South Dakota Residential New Construction Program (Electric and Natural Gas)

### Residential New Construction Electric and Natural Gas Rebate Measures

Measures	Minimum Requirements	Preferred	Self-	Units	Qualifiers
		Contractor Rebate (\$/unit)	Installed or Non- Preferred Contractor Rebate		
1 Compact Fluorescent Lamp (CFL) Fixture	Hard-wired ballast	\$ 5.00	\$ 5.00	per unit	Energy Star rated CFL
2 R-11 (Steel Doors with foam core)	Replace standard R-3 exterior door (minimum of two exterior doors)	\$ 15.00	\$ 15.00	per door	Home must be heated exclusively with electricity
3 R-5 (Composite Doors with foam core)	Replace standard R-3 exterior door (minimum of two exterior doors)	\$ 5.00	\$ 5.00	per door	Home must be heated exclusively with electricity
4 Energy Star TV	Energy Star TV	\$ 2.50	\$ 2.50	per unit	Energy Star rated
5 Faucet Aerators	0.5 GPM - minimum of 3 faucets (Water Sense labeled only)	\$ 3.00	\$ 3.00	per unit	Home water heating exclusively with electricity
6 Faucet Aerators	1.5 GPM - minimum of 3 faucets (Water Sense labeled only)	\$ 2.00	\$ 2.00	per unit	Home water heating exclusively with electricity
7 Heat Pump - Ground or Water-Source (Desuperheater)	Home water heating exclusively with electricity.	\$ 75.00	NA	per unit	DHW water heating heat recovery unit with existing GSHP
8 Low-Flow Showerheads	2.00 GPM (Water Sense Labeled only)	\$ 2.00	\$ 2.00	per showerhead	Home water heating exclusively with electricity
9 Pool Pump Timers	Pool Pump Timers	\$ 25.00	\$ 25.00	per unit	Assumes a reduction of 67% in pump use. Applicable to pools and hot tubs.
10 Refrigerator/Freezer - Energy Star	Energy Star rated > 7.75 cuft	\$ 15.00	\$ 15.00	per unit	Energy Star rated > 7.75 cuft
11 Water Heater Thermostat Setback	120 degrees	\$ 3.00	\$ 3.00	per unit	Home water heating exclusively with electricity
12 High Efficiency Condensing Boiler	Home must be heated primarily with natural gas	\$ 200.00	\$ 160.00	unit	Install AFUE ≥ 90% instead of standard AFUE ≤ 82%
13 High Efficiency Condensing Furnace	Home must be heated primarily with natural gas	\$ 135.00	\$ 108.00	unit	Install AFUE ≥ 90% instead of standard AFUE ≤ 80%

**General notes:**

The program, incentives, rebates, qualifying criteria, measures, etc are subject to change or termination without notice.

All incentives/rebates not to exceed cost, whichever is less.

Rebate to be approximately 50% of unit cost without regard to SPB < 1.5 years in order to maximize rebates.

Rebate should be less than 50% of NPV of gas saved.

NOTE 1: CFL Distribution methods for South Dakota Residential Electric customers may be: 1) Mail-In rebate and 2) CFL In-Store Coupon twice a year (Fall and Spring)

2014-2015 South Dakota Commercial Existing Construction Program (Electric and Natural Gas)

Commercial Existing Construction Electric and Natural Gas Rebate Measures

Measure	Minimum Requirements	Rebate (\$/unit)	Units	Qualifiers
1 One or Two Lamp Fixture T12 (10-2/20/40)		\$ 1.00	per fixture	Fully Electronic Ballast
2 Three Lamp Fixture T12, T27 (10-2/20/40)**		\$ 2.00	per fixture	Fully Electronic Ballast, ***Tandem wired fixture using one ballast for two fixtures counts as one fixture
3 Four Lamp Fixture T12, T27 (10-2/20/40)**		\$ 3.00	per fixture	Fully Electronic Ballast
4 T-8 Lamp 4 Foot		\$ 1.00	per lamp <sup>1</sup>	<sup>1</sup> An e85 (rated 5.0 W/ft) saved compared to a standard 32 Watt T-8 lamp will be applied for low-Wattage T-8 lamps. Low-Wattage T-8 lamps typically produce lower lumen levels compared to standard T-8 lamps
5 4-1/2" x 4" or 6" x 8"		\$ 0.35	per Watt saved	****Approved Design. Difference in total wattage between equipment removed and equipment installed
6 Other Approved Lighting Retrofit		\$ 0.10	per W/ft saved	****Approved Design. Difference in total wattage between equipment removed and equipment installed
7 Compact Fluorescent Lamp (CFL)		\$ 1.00	per lamp	ENERGY STAR <sup>®</sup> approved. Replaces an incandescent lamp of no more than four times the CFL wattage
8 Hard-Wired CFL Fixture ***		\$ 5.00	per lamp	***Only ENERGY STAR rated CFLs are eligible for rebate. For a current qualified list see <a href="http://www.energy.gov">www.energy.gov</a> and follow the path for CFL lighting. Must be listed on an ENERGY STAR qualified commercial LED lighting list or similar independent DOE certified laboratory testing documents (ENR4, LM-79 or LM-80-06 and Lighting Facts label). Independent testing documents and product criteria must be provided
9 LED Solid State White Lighting for Exterior Landscape, Signage & Structure Only. [This rebate measure only applies to lighting not addressed by the Illuminating Engineering Society of North America]		\$ 0.20	per Watt saved	
10 (IESNA standards or adopted code)		\$ 10.00	per sign	
11 LED Face Exit Sign		\$ 30.00	per unit	
12 Photocell		\$ 0.10	per Watt controlled	Exterior Lighting Only
Occupancy Sensor or Sweep Control Sensor rebates are available for installations where no lamp retrofit took place. Sensor rebates are available for lamp retrofit projects using the post retrofit wattage		\$ 0.09	per Watt controlled	Lighting Wattage Controlled
		\$ 0.08	per Watt controlled	100-300 Watts
		\$ 0.07	per Watt controlled	301-400 Watts
		\$ 0.06	per Watt controlled	401-600 Watts
		\$ 0.05	per Watt controlled	601-1000 Watts
		\$ 0.05	per Watt controlled	1000-3000 Watts
		\$ 0.05	per Watt controlled	more than 3000 Watts
Daylighting Controls - Dimming-Continuous, Fluorescent-Fixture Continuous Dimming, Fluorescent-Fixture (Day-Lighting)		\$ 0.30	sq. ft. of dimmable building area	Must be within 15 ft of daylighting source
13 Variable Temp. Control (Thermostat)		\$ 2.00	per linear foot of case	Variable Temp. Controls (Humidistat)
14 VFD on CD Motors		\$ 650.00	per fan HP	Base-case 16 constant volume continuous duty (60 Hz)
15 Variable speed drive (VSD)		\$ 0.05	per building square foot	Air/gas inlets extreme only
16 Refrigeration compressor VSD Retrofit		\$ 15.00	per compressor HP	
17 Cooling Tower - Two-Speed Fan Motor		\$ 1.75	per chiller ton	
18 Cooling Tower - VSD Fan Control		\$ 5.00	per chiller ton	
19 Distilling - Commercial Chemical System		\$ 400.00	per measure installed	Water heating exclusively with electricity
20 Energy Star - Computer		\$ 1.00	per computer	Features include enabled sleep mode
21 Energy Star - Printer		\$ 7.00	per printer	Energy Star rated printer
22 Exhaust Hood Makeup Air		\$ 2,500.00	per measure installed	Control heating exclusively with electricity
23 Floating Head Pressure Control		\$ 30.00	per refrigeration ton	Pressure control ≤ 70°F with balanced port expansion valves
24 Hot Food Holding Cabinets - Commercial		\$ 75.00	per cabinet	Energy Star Commercial Hot Food Holding Cabinets
25 Hot Water (SHA) Pipe Insulation		\$ 1.50	linear foot	Water heating exclusively with electricity
26 Hotel Key Card or QS Room Energy Control System		\$ 100.00	per room	Heating and cooling exclusively with electricity
27 Insulation (Wall) R-11 existing insulation		\$ 0.30	per sq. ft. of wall	Heating exclusively with electricity
28 Motor - Fan System - Variable Speed Control		\$ 100.00	per motor horse power	No Soft-Starts & not applicable for refrigeration pumping
29 Motor - Pump System - Variable Speed Control		\$ 100.00	per motor horse power	4.0 ft or less of night cover = 1.0 measure
30 Night Covers for Display Cases (R 8 linear feet - 1.0 measure)		\$ 20.00	per measure installed	
31 Reduced Speed or Cycling of Evaporator Fans		\$ 20.00	per fan HP	Existing water heating matches water with electricity
32 Refrigeration with Heat Recovery		\$ 250.00	per refrigeration ton	Replacing standard efficiency unit
33 Heat Recovery from Refrigerator System Applied to Water Heating		\$ 13.00	per unit installed	Removal of least efficient standard server & replace with Energy Star qualified server
34 Server (Entry Replacement)		\$ 90.00	per server	Using software remove a minimum of four servers with one physical server
35 Server Virtualization (4:1)		\$ 75.00	per unit	
36 Special Glass Doors for Refrigerated Ready-in Cases		\$ 15.00	per linear foot of glass	Using software remove a minimum of four servers with one physical server
37 Strip Curtains for Freezer Walk-ins		\$ 5.00	per sq ft of curtain	
38 Thermostat - Programmable		\$ 0.20	per sq ft of control area	Applicable to spaces that are heated and cooled exclusively with a heat pump
39 Thermostat - Programmable		\$ 0.02	per sq ft of control area	Applicable to spaces that are heated exclusively with electricity
40 High-Efficiency Vending Machine		\$ 75.00	per measure installed	Unaudited triple does not apply
41 High Efficiency Formosa Boiler 200K AFUE or 200K thermal efficiency (TE)		\$ 3.25	per btu/hr	instead of installing a new standard AFUE 200K boiler/furnace
42 High Efficiency Water Heater 20 G 62 or 200K thermal efficiency (TE)		\$ 3.50	per btu/hr	Unaudited of installing a new E.T. 2.0 25A unit or a 200K thermal efficiency
43 Ceiling Insulation R2-38		\$ 0.30	per sq ft	Existing R-5.11
44 Exterior Wall Insulation (above grade, R2-21)		\$ 0.40	per sq ft	Existing R-5.9, exterior walls only

Note: Units of Rebate refer to appliance output. Must be net input.

Note: The program, incentives, qualifying criteria, measures, etc. are subject to change or termination without notice.

Note: All incentives/rebates are to exceed cost, whichever is less.

**2015-2016 South Dakota Commercial New Construction Program (Electric and Natural Gas)**

**Commercial New Construction Electric and Natural Gas Rebate Measures**

Measures	Minimum Requirements	Rebate (\$/Unit)	Units	Qualifiers
1 Compact Fluorescent Lamp (CFL) - Integral (screw-in) or Modular *** - Hard-Wired CFL Fixture **		\$ 1.00 per lamp		ENERGY STAR* approved. Replaces an incandescent lamp of no more than four times the CFL wattage. ***Only ENERGY STAR rated CFLs are eligible for rebate. For a current qualified list see <a href="http://www.energystar.gov">www.energystar.gov</a> and follow the path for CFL lighting.
2 LED Solid State White Lighting for Exterior Landscape, Signage & Structure Only. (This rebate measure only applies to lighting not addressed by the Illuminating Engineering Society of North America (IESNA) standards or adopted code.)		\$ 5.00 per lamp		***Only ENERGY STAR rated CFLs are eligible for rebate. For a current qualified list see <a href="http://www.energystar.gov">www.energystar.gov</a> and follow the path for CFL lighting. Must be listed on ENERGY STAR qualified commercial LED lighting list or provide independent DOE certified laboratory testing documents (IESNA LM-79-08, LM-80-08 and Lighting Facts label). Independent testing documents and product criteria must be provided.
3 MV, HPSV or MH to T-8		\$ 0.20 per Watt saved		
4 Anti-Sweat (Humidistat) Controls	Variable Temp. Controls (Humidistat)	\$ 0.35 per Watt saved		****On Approved Design. Difference in total Wattage between equipment removed and equipment installed.
5 Automated Exhaust/VFD Control - Parking Garage CO sensor	VFDs & CO Sensors	\$ 2.00 per linear foot of case		Variable Temp. Controls (Humidistat)
6 Automated Ventilation/VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (VFD and CO2 sensors or O2 sensors)	\$ 450.00 per fan HP		Base-case is constant volume continuous duty fan(s)
7 Cooling Tower-Decrease Approach Temperature	10 degree to 6 degree F	\$ 0.07 per sqft of Area controlled		Demand Controlled Ventilation (VFD and CO2 sensors or O2 sensors)
8 Cooling Tower-Two-Speed Fan Motor	Two-Speed tower fan motor replace Single-Speed fan motor	\$ 10.00 per chiller ton		
9 Cooling Tower-VSD Fan Control	Variable-Speed tower fan motor replace Single-Speed fan motor	\$ 1.25 per chiller ton		
10 Defrost Demand Control - Hot Gas	Refrigerant Defrost w/ Hot Gas	\$ 5.00 per chiller ton		
11 Dishwashing - Commercial Chemical System	Energy Star rated Low-Temp Commercial Dishwasher	\$ 1.00 per compressor HP		
12 Energy Star - Computer	Energy Star rated computer	\$ 400.00 per Measure Installed		Water heating exclusively with electricity
13 Energy Star - Fax	Energy Star rated fax	\$ 2.00 per computer		Features include enabled sleep mode
14 Energy Star - Printers	Energy Star rated printer	\$ 1.00 per fax machine		Energy Star rated fax
15 Energy Star - Water Cooler	Energy Star rated Water Cooler (Hot/Cold Water)	\$ 7.00 per printer		Energy Star rated printer
16 Exhaust Hood Makeup Air	Provide Makeup Air Directly at Exhaust Hood Instead of Pulling Conditioned Air	\$ 1.00 per unit		Energy Star rated Water Cooler (Hot/Cold Water)
17 Faucet Aerators	1.5 GPM Aerator	\$ 2,500.00 per Measure Installed		Central heating exclusively with electricity
18 Flooding Head Pressure Control	Instal Floating Head Pressure Control	\$ 0.15 per aerator		Water heating exclusively with electricity
19 Hot Food Holding Cabinets - Commercial	Energy Star rated Commercial Hot Food Holding Cabinets	\$ 50.00 per refrigeration ton		Pressure control ≤ 70F with balanced port expansion valves
20 Hotel Key Card or OS Room Energy Control System	Key card system or OS to control room HVAC during non-occupied periods	\$ 725.00 per cabinet		Energy Star rated Commercial Hot Food Holding Cabinets
21 Low-Flow Showerheads	2.0 GPM Showerhead	\$ 100.00 per room		Space heating and cooling exclusively with electricity
22 Motor - Fan System - Variable Speed Control	Fan System Optimization w/ VSD	\$ 3.00 per showerhead		Water heating exclusively with electricity
23 Motor - Pump System - Variable Speed Control	Pump System Optimization w/ VSD	\$ 100.00 per motor HP		No Soft-Starts
24 Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	\$ 100.00 per motor HP		No Soft-Starts & not applicable for irrigation pumping
25 PC Power Supply 80+	80% Efficient Power supply for PCs	\$ 700.00 per hood		Constant volume to variable air volume
26 Reduced Speed or Cycling of Evaporator Fans	VFD on Evaporator Fans (Evap Fan Control on Walk-In)	\$ 0.50 per power supply		Energy Star 5.0 rated or better
27 Refrigeration with Heat Recovery	Heat Recovery from Refrigeration System. Applied to Water Heating	\$ 70.00 per fan HP		
28 Residential-Size Refrigerator	Energy Star rated Residential-Size Refrigerator ≥ 7.75 cuft	\$ 250.00 per refrigeration Ton		Water heating exclusively with electricity
29 Special Glass Doors for Refrigerated Ready-In Cases	Do Not Require Anti-Sweat Heating	\$ 13.00 per unit installed		Replacing standard efficiency unit
30 Strip Curtains for Freezer Walk-Ins	Strip Curtains for Freezer Walk-Ins	\$ 15.00 per linear foot of glass		
31 Refrigerated Vending Machine	Energy Star rated Refrigerated Vending Machines - High Efficiency	\$ 5.00 per sqft of curtain		
32 High Efficiency (Power Burner/ Premium) Furnace/Boiler ≥90% EFF	Facility must be heated primarily with natural gas	\$ 75.00 per Measure Installed		Leased equip does not apply
33 High Efficiency Water Heater (EF ≥ 0.62 or ≥90% Thermal Efficiency)	Facility must be heated primarily with natural gas	\$ 3.25 kbtu-hr		Instead of installing a new standard AFUE ≤ 78% boiler/furnace
34 Stack Heat Exchanger	Facility must be heated primarily with natural gas	\$ 2.50 kbtu-hr		Instead of installing a new EF ≤ 0.584 unit or ≤ 80% thermal efficiency
35 Water Heater Tank Blanket/Insulation (R ≥ 13)	Facility must be heated primarily with natural gas	\$ 0.50 kbtu-hr		Existing R-0, insulation added to tank exterior

Note: Units of kbtu-hr refer to appliance output kbtu-hr not input

Note: The program, incentives, qualifying criteria, measures, etc. are subject to change or termination without notice.

Note: All incentives/rebates not to exceed cost, whichever is less.

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**Appendix B**  
**DSM Program Evaluation Scope of Work**

**Task 1: DSM Evaluation Plan:** In this task, the DSM Evaluation Contractor will be responsible for developing a comprehensive DSM Evaluation Plan to cover all DSM Evaluation tasks. This will involve the following:

- A. Examination of all related program DSM Program documents available from NorthWestern. This information includes scope of work documents for each of the Implementation Contractors for the programs they are administering for NorthWestern and various other pertinent DSM documents.
- B. Working closely with NorthWestern and its DSM program Implementation Contractor(s) to identify existing data, records, and documents that have been accumulated in the course of providing DSM Program services to NorthWestern.
- C. Identification of other research needs for each of the DSM Programs and development of the data collection methodologies that will be used to complete the DSM Evaluation.
  1. The data collection plan will include a physical inspection and measurement plan, plus the sampling methodology and testing design.
  2. The DSM Evaluation Plan should also indicate the approach the DSM Evaluation Contractor will use to expand analysis results from the evaluation sample to the program population.
- D. In addition, the DSM Evaluation Plan should include a description of how program data will be collected, organized, compiled, and reported.
- E. Preparation of a DSM Evaluation Plan timeline.

**Task 2: Project Management:** The DSM Evaluation Contractor must designate a project manager to be NorthWestern's key contact and maintain sufficient staff resources to effectively and efficiently complete the work. The project manager must:

- A. Maintain direct communication with NorthWestern.
- B. Interface with other NorthWestern DSM Implementation Contractors
- C. Comply with DSM Evaluation schedule



- D. Provide Bi-weekly Project Status Report
- E. Provide quality control and assurance that work conforms to the scope of evaluation work

**Task 3: DSM Program Process Evaluation:** This task addresses ways to improve the NorthWestern DSM Programs over time. This task includes examining NorthWestern DSM Program processes for each individual DSM Program, and for each DSM Program Group, and comparing these processes to the best practices within the industry. Sub-tasks include but are not limited to evaluation of:

- A. Appropriateness of program design for achieving program goals.
- B. Program participation procedures.
- C. Application and payment processing (ease of use, cycle time, etc.).
- D. Accuracy, consistency, and completeness of each Implementation Contractor's program records, to be performed by checking a representative sample of completed program application forms and projects. Confidentiality of customer information and proprietary software shall be protected.
  - 1. Identify data anomalies and areas for data collection improvement.
  - 2. Identify areas where excess, unnecessary, or duplicative data collection is occurring.
- E. Effectiveness of program incentive and/or rebate levels in compelling customers to take action.
- F. Identify the barriers to customer participation in the DSM programs.
- G. Marketing and promotional efforts by NorthWestern and its Implementation Contractor(s).
- H. Communication effectiveness between NorthWestern and its Implementation Contractor(s).
- I. Participant satisfaction with DSM Programs.

- J. Results from interviewing participants and non-participants (NorthWestern customers, trade allies, NorthWestern personnel, Implementation Contractors) for the purpose of getting their ideas on process improvement.
- K. Documentation/description/examples, for each individual program, of comparing the program processes with best practices within the industry and areas where improvements could be considered.

**Task 4: DSM Program Impact Evaluation:** The Program Impact Evaluation will utilize appropriate engineering calculations, sampling of on-site verifications, customer interviews and surveys, appropriate statistical techniques, and other industry-accepted practices to determine energy savings achieved by NorthWestern DSM Programs. Where and as applicable, this evaluation will be performed for each individual DSM Program, and results will be aggregated for the entire DSM Portfolio. NorthWestern will make available historical energy consumption data for program participants, and provide access to its Implementation Contractor's DSM Program databases. Specific sub-tasks to be completed include, but are not limited to:

- A. Accurate and supportable quantification of the peak (kW) and energy (kWh, dKt) savings amounts for each program.
- B. Energy savings estimates in two time periods to enable correlation with calendar and tracker year business cycles, if and as necessary.
- C. Review of NorthWestern engineering calculations used to develop energy savings estimates for measures included in DSM program offerings.
- D. Review of the appropriateness and application of building simulation models used by NorthWestern and its Implementation Contractors and model results produced for commercial DSM projects. (Proprietary software shall be protected.)
- E. Physical verification of a representative sample of the DSM program installations to verify that energy conservation measures have been installed as documented by the Implementation Contractor.
- F. Physical on-site measurement of a representative sample of energy projects participating in the DSM Programs. The purpose of this task is to verify the assumptions and calculations of peak (kW) and energy (kWh and dKt) savings from the Implementation Contractors' databases. The measurements shall be performed by a South Dakota state licensed Professional Engineer. The projects and installations to be measured will be selected from a statistically representative sample of completed projects.

- G. Calculation of average annual energy savings for high volume measures/services and programs, for comparison to the values NorthWestern is currently using:
1. Compact fluorescent lamps (for each watt rating used in the lighting program) delivered through distribution at events, direct installation, mail-in rebate, mail-out product, in-store coupon, and other events applicable.
  2. Each of the different home and business energy audit types. The DSM Evaluation Contractor shall provide average annual energy savings for audit direct measure savings and separately for audit in-direct savings.
- H. Rebate measures for all of the prescriptive rebate programs (residential & commercial) offered during the relevant program evaluation period.
- I. Assessment of the rate of free riders and free drivers within each of the programs.
- J. Assessment of the realization rate of DSM measures for which program incentives/rebates were paid by NorthWestern.
- K. Assessment of persistence of energy savings produced by DSM measures installed. This includes an assessment of whether building use, operation, size, or configuration has changed since DSM measures were installed.
- L. Assessment of "spillover" or "leakage" of NorthWestern funded DSM measures into non-NorthWestern service areas and non-rebates measures in NorthWestern service area customer homes/facilities.

**Task 5: DSM Program Economic Analysis:** The DSM Evaluation Contractor will evaluate the cost-effectiveness of the DSM Programs using an industry accepted benefit-cost analysis from the perspective of the Company (Utility Cost Test), from the perspective of society (Total Resource Cost Test), and from the individual ratepayer (Ratepayer Impact Measure).

This cost-effectiveness evaluation will be performed for each individual DSM Program, and results aggregated for the entire DSM Portfolio. The contractor will calculate the levelized cost of DSM acquisition for each DSM Program, and the entire DSM Portfolio.

**Task 6: DSM Program Evaluation Final Report:** The DSM Evaluation Contractor will prepare a high-quality, detailed and comprehensive report, including an executive summary,

that describes and documents the DSM Program evaluation project and each task therein, and presents findings and recommendations in a clear, understandable manner.