

November 1, 2013

Ms. Kate Whitney
Administrator
Montana Public Service Commission
1701 Prospect Ave.
P. O. Box 202601
Helena MT 59620-2601

RE: Docket No. D2013.5.34 – Natural Gas Tracker
PSC Set 1 (001-019)

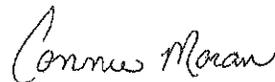
Dear Ms. Whitney:

Enclosed for filing are NorthWestern Energy's responses to PSC Set 1 Data Requests in Docket No. D2013.5.34 Natural Gas Tracker.

These data responses will be efiled with the PSC this date and will be hand delivered to the PSC and MCC.

If you have any questions, please call Joe Schwartzenberger at (406) 497-3362.

Sincerely,



Connie Moran
Administrative Assistant
Regulatory Affairs

Attachments
CC: MCC

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of NorthWestern responses to PSC Set 1 Data Requests (001-019) in Docket No. D2013.5.34 will be hand delivered to the Montana Public Service Commission and Montana Consumer Counsel and also e-filed with the Montana Public Service Commission. It will also be served upon the following persons by, postage prepaid via first class mail, as follows:

Robert Nelson
Montana Consumer Counsel
Po Box 201703
Helena Mt 59620-1703

Connie Moran
NorthWestern Energy
40 East Broadway
Butte MT 59701

Joe Schwartzberger
NorthWestern Energy
40 East Broadway
Butte MT 59701

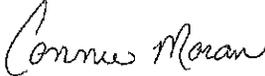
Ross Richardson
116 W Granite St
Butte MT 59703

Kate Whitney
Public Service Commission
1701 Prospect Ave
Po Box 202601
Helena MT 59620-2601

Al Brogan
NorthWestern Energy
208 N Montana Ave Suite 205
Helena MT 59601

Sarah Norcott
NorthWestern Energy
208 N Montana Ave Suite 205
Helena MT 59601

DATED this 1st day of November 2013.



**NorthWestern Energy
Docket D2013.5.34
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**Public Service Commission (PSC)
Set 1 (001-019)**

Data Requests received October 11, 2013

PSC-001 Regarding: Electronic Worksheets
 Witnesses: Smith, DiFronzo, Thomas

- a. Please provide working electronic copies of all Exhibits with all supporting files and links intact.
- b. Please update any exhibits that contain 2012-2013 estimates with actuals.

RESPONSE:

- a. Please see the folder labeled "PSC-001" on the attached CD. Inside is a folder for each witness.
- b. See the response to part a, above.

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PSC-002 Regarding: SBW Report – Tables, Supporting Files, and Other Resources
 Witnesses: Baker, McRae, DeBolt

Please provide a revision of Table 645 that incorporates the following:

- a. For each natural gas DSM or USB program in which evaluated energy savings differs more than 10% from reported savings, please describe the primary factors.
- b. For each natural gas program incorporate the calculated free ridership and spillover rate estimates.
- c. To the extent necessary, update the B/C ratios and CSE values for natural gas programs in Tables 648 and 649 based on the revised net realized savings.
- d. Please provide working electronic copies of all Tables with all supporting files and links intact.
- e. Please provide copies of all internal and external resources used to inform the estimates found in the Tables.

RESPONSE:

- a. Reasons for differences between NWE reported savings and the evaluation results are presented in the spreadsheet workbook titled "Portfolio tables for PSC-002.xlsx" on the sheet named "Table 645 with Reasons." See the new column in this table headed "Reasons for Difference." Reasons are summarized on each program-specific line of the table for each program where evaluated energy savings differs more than 10% from reported savings. The spreadsheet can be found on the attached CD.
- b. Report tables have been calculated using the free ridership and spillover estimates, as provided in the response to item c. below.
- c. Refer to the spreadsheet workbook titled Portfolio tables for PSC-002.xlsx on the attached CD. See the sheets named "Table 648 with FRSO" and "Table 649 with FRSO."
- d. Refer to the spreadsheets found in the folder titled "AdjustedForFRandSO" on the attached CD.

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PSC-002 cont'd

- e. To assist SBW with its work, NorthWestern initially provided SBW with a set of printed materials contained in 26 three-ring binders. Through the course of the work at SBW's direction and request, NorthWestern provided a steady flow of electronic information that accumulated to a significant volume. File information on the many DSM and USB projects and activities is maintained in NorthWestern's offices. This file information was sampled by SBW during the course of the project. This information is quite voluminous and is available for inspection upon request at NorthWestern's offices at 40 East Broadway, Butte MT.

Other resources used in the work are cited in the many footnotes in the Final Report, in particular in Volume 1, Chapter 34, Sources Cited on page 948.

Resources used for this project also include the knowledge and experience of numerous staff at NorthWestern, SBW, Research Into Action, Inc., and subcontractors. This knowledge was developed over many years of work, built upon and resulting from countless projects, analyses, meetings, research, writings, state/federal legislative actions and statutes, regulatory proceedings and guidelines, and monitoring/review of the efforts, trials, failures, successes, and results of utility DSM programs throughout the United States over the course of 30 years or more. SBW believes it is neither feasible nor possible to compile all such resources.

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PSC-003 Regarding: DSM Impacts on Gas Supply Costs
 Witness: Thomas, part a / Smith, parts b-d

- a. Please provide estimates of annual total natural gas supply portfolio costs with and without planned non-USB DSM acquisition over NorthWestern's planning horizon. Please explain how the estimate is calculated and provide supporting work papers.
- b. Please provide estimates of residential natural gas supply service rates with and without planned non-USB DSM acquisition over NorthWestern's planning horizon, and with and without lost revenue.
- c. Please provide estimates of average residential natural gas bills with and without planned non-USB DSM acquisition over NorthWestern's planning horizon.
- d. Please provide separate estimates of average residential natural gas bills for participants and non-participants with planned non-USB DSM acquisition over NorthWestern's planning horizon, including lost revenue.

RESPONSE:

- a. NorthWestern's current Natural Gas DSM Acquisition Plan (DSM Plan) began with the 2009 tracker period and continues through the end of the 2018-2019 tracker period. One approach to this question would begin with an estimate of the annual natural gas supply portfolio cost for the time period through the end of the current DSM Plan. NorthWestern's natural gas supply portfolio planning horizon does not extend 20 years in a manner similar to the Electric Resource Procurement Plan, and ultimate natural gas supply portfolio costs depend greatly on future natural gas market prices that are not fully predictable and largely unknowable.

Because of this considerable uncertainty, identifying annual total natural gas supply portfolio costs with and without planned non-USB DSM acquisition over NorthWestern's planning horizon is difficult or impossible. Without a natural gas supply portfolio cost to begin the calculations with, it is futile to attempt estimation of that portfolio cost with and without other costs and benefits attributable to planned USB and non-USB DSM.

An alternative approach that provides an indication of the effects of DSM on the natural gas supply portfolio is to estimate how much less the natural gas supply

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PSC-003 cont'd

portfolio will cost (whatever that ultimately becomes) as a consequence of acquisition of the planned non-USB DSM.

The generalized method of calculating this estimate using this approach is:

Cumulative amount of remaining cost-effective non-USB DSM that NorthWestern expects to acquire (planned non-USB DSM)

Multiplied by:

20-year levelized avoided cost of natural gas

Minus:

Estimated DSM program costs incurred to acquire the remaining non-USB DSM through the end of the current natural gas DSM Plan period

Equals:

The net benefit (or cost) to the gas supply portfolio over the expected 20-year life of the DSM measures acquired in each of the remaining years of the DSM Plan

Certain assumptions and several steps are required to complete this analysis.

- DSM acquisition is front-loaded with program costs in each program year, but cost-effective DSM measures installed through those programs produce energy savings that persist into the future. DSM measures are assumed to persist in producing natural gas savings for an average of 20 years.
- The most recent natural gas DSM potential assessment was completed in 2008. This work identified approximately 2,100,000 Dkt of cost-effective, achievable **annual** natural gas DSM at the then-applicable 20-year levelized avoided natural gas cost of \$7.13/Dkt. At that time a 10-year natural gas DSM acquisition plan for the time period 2009-2018 was implemented using one-tenth (.10) of this total 2,100,000 Dkt DSM potential as the annual incremental natural gas DSM acquisition target (i.e., 210,000 Dkt/year). An estimated 700,000 Dkt of DSM has been acquired, and 1,400,000 of cost-effective potential remains.

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PSC-003 cont'd

- NorthWestern's natural gas DSM programs are currently producing at an approximate level of 100,000 Dkt of new incremental energy savings each year. The USB contribution has steadily declined since the beginning of the DSM Plan and is assumed to be 25% going forward; the non-USB DSM contribution is assumed to be 75%.
- The 20-year levelized natural gas DSM avoided cost currently in use by NorthWestern for DSM program planning and analysis is \$6.08/Dkt. This analysis assumes that this avoided cost does not change through the remainder of the period of the DSM Plan.

The results of the analysis indicate that the long-run future natural gas supply portfolio costs will be lower by an estimated \$37,965,307 (net of DSM program costs) with planned and (conservatively) expected non-USB DSM. Conversely, the ultimate long-run total natural gas supply portfolio cost would be higher by this same amount if no non-USB natural gas DSM is acquired. The DSM Program cost to produce this amount of benefit is estimated at \$15,386,693.

All values used in the analysis are nominal except the 20-year levelized avoided cost. Workpapers for this are in the folder named "PSC-003" on the CD attached to Data Request PSC-001.

- b. NorthWestern has not made these estimates. Any estimates would likely not be meaningful due to the number of assumptions and forecasts that would have to be incorporated to estimate the multiple years' worth of detailed projections for rates based on multiple years of annual trackers. These assumptions at a minimum would include: multiple market price inputs, market price risks, estimates of natural gas purchase agreements, estimates of future rate allocations, estimates of future customer class allocations, estimated annual re-projection of loads, estimates of timing of DSM resets, estimates of authorized DSM expenditures for each annual tracker filing, estimated government rules and regulations, and estimated future changes to technology.
- c. See the response to part b, above.
- d. See the response to part b, above.

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PSC-004 Regarding: Impacts of USB DSM Programs
 Witnesses: Thomas

Does NorthWestern fund natural gas USB DSM programs in excess of statutory requirements? If so, please repeat the analyses requested in PSC-003 after including the USB DSM programs that are funded in excess of statutory requirements.

RESPONSE:

No.

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PSC-005 Regarding: Third Party Vendor impacts
 Witness: Thomas

Describe and quantify any impacts on third-party DSM services vendors under contract to NorthWestern if NorthWestern terminated its natural gas non-USB DSM programs.

RESPONSE:

Portland Energy Conservation, Inc (PECI) under contract with NorthWestern provides marketing, identification and development of E+ Business Partners, E+ Commercial Lighting, E+ Commercial Electric Rebate, and E+ Commercial Gas Rebate program projects with customers to support NorthWestern commercial/industrial DSM energy conservation programs. The annual contract amount is currently not-to-exceed \$250,000. It is estimated Peci provides approximately 1.40 full-time equivalent employees (FTE) to this effort. If the natural gas non-USB DSM programs were terminated this contract would be cancelled.

KEMA Services, Inc (KEMA) under contract with NorthWestern provides full-time marketing outreach professionals to inform customers, contractors, vendors, engineering firms, architectural firms, etc. of NorthWestern's commercial/industrial electric/natural gas energy conservation programs in Montana. The outreach team provides training, referrals of potential projects to the engineering firms under contract to assist customers to identify and develop projects for submittal to NorthWestern, and face-to-face promotion of the commercial/industrial programs. The annual contract amount is currently not-to-exceed \$700,000. KEMA provides 4.0 FTE to this effort. If the natural gas non-USB DSM programs were terminated this contract would be cancelled.

Energy Resource Management, Inc (ERM) under contract with NorthWestern provides marketing, identification and development of E+ Business Partners, E+ Commercial Lighting, E+ Commercial Electric Rebate, and E+ Commercial Gas Rebate program projects with customers to support NorthWestern commercial/industrial DSM energy conservation programs. The annual contract amount is currently not-to-exceed \$250,000. ERM provides approximately 1.0 FTE to this effort. If the natural gas non-USB DSM programs were terminated this contract would be cancelled.

CTA Architects Engineers (CTA) under contract with NorthWestern provides marketing, identification and development of E+ Business Partners, E+ Commercial Lighting, E+ Commercial Electric Rebate, and E+ Commercial Gas Rebate program projects with customers to support NorthWestern commercial/industrial DSM energy conservation programs. The annual contract amount is currently not-to-exceed \$375,000. CTA

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provides approximately 4.0 FTE to this effort. If the natural gas non-USB DSM programs were terminated this contract would be cancelled.

The National Center for Appropriate Technology (NCAT) under contract with NorthWestern provides marketing, identification and development of E+ Business Partners, E+ Commercial Lighting, E+ Commercial Electric Rebate, and E+ Commercial Gas Rebate program projects with customers to support NorthWestern commercial/industrial DSM energy conservation programs. The annual contract amount is currently not-to-exceed \$1,750,000. NCAT provides approximately 15.0 FTE to this effort. If the natural gas non-USB DSM programs were terminated this contract would be cancelled.

McKinstry Essention (McKinstry) under contract with NorthWestern provides marketing, identification and development of E+ Business Partners, E+ Commercial Lighting, E+ Commercial Electric Rebate, and E+ Commercial Gas Rebate program projects with customers to support NorthWestern commercial/industrial DSM energy conservation programs. The annual contract amount is currently not-to-exceed \$250,000. McKinstry provides approximately 2.0 FTE to this effort. If the natural gas non-USB DSM programs were terminated this contract would be cancelled.

KEMA Services, Inc (KEMA) under contract with NorthWestern provides implementation services for the E+ Commercial and Residential, New and Existing, Natural Gas Rebate Programs. KEMA promotes the programs, provides marketing and customer education, pays qualifying customer project rebates, conducts completed project inspections, and maintains the program databases. The annual contract amount is currently not-to-exceed \$2,000,000. KEMA provides approximately 3.0 FTE to this effort. If the natural gas non-USB DSM programs were terminated this contract would be cancelled.

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PSC-006 Regarding: DSM Program Unit Costs
 Witness: Thomas

Please provide the unit cost (\$/Dkt) of all natural gas DSM programs for each tracker year since July 2007.

RESPONSE:

The figures in the following table are 20-year levelized costs. Workpapers for this table are provided in the folder labeled "PSC-006" on the CD attached to Data Request PSC-001.

Period	DSM Cost (Program Administrator Perspective)	
	Natural Gas (\$/Dkt)	
2006-07	\$	0.81
2007-08	\$	0.86
2008-09	\$	2.23
2009-10	\$	1.92
2010-11	\$	1.44
2011-12	\$	2.66
2012-13	\$	2.35

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PSC-007 Regarding: Selection of SBW
 Witness: Thomas

- a. Please provide the RFP used to select SBW, Inc.
- b. How many bids were submitted in relation to the RFP?
- c. Regarding p. 3, lines 18-19 of your supplemental testimony, please list all bidders that responded to NorthWestern's 2011 RFP and highlight the two finalists.
- d. How were respondents to the RFP scored and evaluated?
- e. Who made the decision to select SBW over the other finalist?

RESPONSE:

- a. See Attachment in the folder labeled "PSC-007" on the CD attached to Data Request PSC-001. Because this document is voluminous, hard copies were provided to the Commission and the MCC only.
- b. The RFP was requested by and provided to 15 potential bidders, of which eight provided bids.
- c. Navigant
 Tetra Tech
 Gil Peach and Associates
 SBW Consulting - finalist
 ADM Associates - finalist
 Opinion Dynamics
 Applied Energy Group
 Dynamic Energy Group
- d. The criteria used in ranking bids were included in the RFP. They are:
 - The bidder's demonstrated ability to perform work outlined in the RFP document (20%)
 - Demonstrated understanding of DSM technologies and NWE Customers (15%)
 - The ability to deliver work in a timely manner (15%)
 - A clear explanation of the logic behind the proposed approach (15%)

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- Demonstrated experience completing similar successful projects (15%)
 - The cost of the work to be performed as specified in the proposal (10%)
 - The bidder's demonstrated ability (through examples) to provide clear written reports (5%)
 - References (5%)
- e. NorthWestern DSM staff considered input from Lands Energy Consulting Inc. (the RFP administrator) on the two finalists. Following the presentations from the two finalists in Butte, Montana at a meeting of the Electric Technical Advisory Committee, staff presented their recommendation to select SBW, Inc. to management. NorthWestern executive management, including the Energy Supply Board, approved that recommendation.

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PSC-008 Regarding: SBW Report Costs
 Witness: Thomas

Please provide an estimate of the final cost of the SBW Report, including regulatory expenses such as having SBW personnel appear as witnesses in various Commission proceedings.

RESPONSE:

- a. The SBW Programs Evaluation Study contract amount is not-to-exceed \$2,272,988.

The contract base not-to-exceed amount of \$2,154,491 includes:

- Development of a DSM Evaluation Plan
- Project Management
- Program Process Evaluation
- Program Impact Evaluation
- Program Economic Analysis
- Final Report
- Three in-person trips to Montana with appropriate staff
- 40 hours of senior analyst time for data request responses

The contract contingency not-to-exceed amount of \$118,497 includes regulatory support and data request responses.

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PSC-009 Regarding: SBW Report Drafts
 Witness: Baker

Please provide copies of drafts of any portion of the SBW Report that SBW sent to NWE.

RESPONSE:

See the folder labeled "PSC-009" on the SBW CD attached to Data Request PSC-002.

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PSC-010 Regarding: Free Ridership and Spillover
 Witnesses: Baker, McRae

On p. 876 of its report SBW stated “A 2012 review of the NTG practices of 31 jurisdictions found that 42% had no NTG requirement, equivalent to an NTG value of 1.0 and a free ridership estimate that is fully offset by program spillover.” Please provide a copy of this review for the record.

RESPONSE:

See Attachment. NorthWestern is relying on the “fair use” exemption of federal copyright law to provide it for purposes of this docket only. No copies should be made, nor should the parties receiving the information use the copyrighted material for any purposes other than for this docket. This document has not been efiled on the Commission website.

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PSC-011 Regarding: DEQ Appliance Program
 Witness: Thomas

Please provide a breakdown of total resource and program costs attributed to NorthWestern, DEQ, program participants, and any other parties.

RESPONSE:

As shown in the attached letter, this program would not have been possible without NorthWestern's matching support. Neither total program costs nor total energy savings for the Montana State Energy Efficient Appliance Rebate program are available to NorthWestern Energy to respond to this data request. The costs in the table below are what DEQ reported to DOE.

DEQ Appliance Rebate Program

Source Final Program Report Montana Grant # DE-EE-00001676 revised 12/30/2011

Extract from Table 1. Program Outcomes

Rebate Payments	\$ 840,740.00
Program DOE Administrative Spending	\$ 87,260.00
In-Kind Administrative Spending	\$ 118,774.00
	<hr/>
	\$ 1,046,774.00

In-Kind Administrative Spending includes NorthWestern Energy's electric USB funding of \$49,696.00. Matching funds were a requirement to receive ARRA funds for the State Energy Efficient Appliance Rebate Program.

MT DEQ requested commitment from NorthWestern in order to qualify for the ARRA funding of the program.

NorthWestern committed marketing support and funds for advertising as part of DEQ's application.

Customer costs were not reported to DOE as part of DEQ's report.

No rebates from utilities or retailers were reported to DEQ or included in the program spending.

NorthWestern did not have rebates for the qualifying products.

NorthWestern Energy's reported resource savings associated with this program are a subset of the total energy savings of the statewide program based upon NorthWestern's customer saturation.

Rebates by appliance were reported to NorthWestern by zip code.

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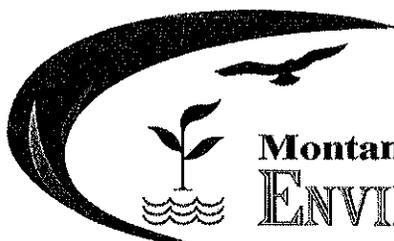
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PSC-011 cont'd

NorthWestern assigned savings to a rebate based upon the percentage of NorthWestern's customer saturation for the county of the zip code level. For example, where a dishwasher rebate was paid in Missoula zip code 59801, 100% of the natural gas savings are assigned to NorthWestern Energy and 74.33% of the electric savings were assigned to NorthWestern. No customer savings were reported for rebates paid in zip codes where the NorthWestern customer saturation is zero such as Sidney zip code 59722.

Customer costs were included as part of the customer's rebate application but are not included in the DEQ report to DOE.

NOTE: Other in-kind expenditures were not fully collected or documented by DEQ as they had met the reporting and qualifying requirements for the ARRA funds. Example: DEQ costs supported through the State Energy Program were not reported. Utilities did not report their rebates, only that they offered them. Not all partners provided documentation of advertising and marketing support or costs.



Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

October 29, 2013

Mr. Bill Thomas
NorthWestern Energy
40 East Broadway
Butte, MT 59701-9394

Subject: Appliance Rebate Program (ARRA)

Dear Mr. Thomas:

The Appliance Rebate Program was a one-time program under the American Recovery and Reinvestment Act (ARRA). Like all of the ARRA programs, it came to states quickly with a short timeframe to put a program together that would provide rebates to consumers and meet federal requirements for the expenditure of the funds. States had a wide variety of circumstances surrounding the program as it was announced. A few already had some sort of rebate program operating that they were able to utilize, but most including Montana had to move quickly to establish a program knowing that it would only be in existence for a short period of time.

States were required to provide matching funds in order to get the appliance rebate grant. Montana did not have a source of funds for the match. In order to accept the grant and provide rebates to Montanans DEQ approached companies that were likely to have an interest in either acquiring the energy savings from the rebate program or selling additional appliances. We approached NorthWestern Energy specifically because of the large service territory that it serves in Montana. Once DEQ had a commitment from NorthWestern Energy and one large retailer to provide advertising that would qualify as match to the program, DEQ applied for and received the grant funds. If NorthWestern Energy had not provided matching funds to the program, DEQ would not have been able to offer the rebate program in Montana.

If you have further questions, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Lou Moore". The signature is written in black ink and is positioned above the typed name and title.

Lou Moore
Chief, Energy and Pollution Prevention Bureau
lmoore@mt.gov

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PSC-012 Regarding: Avoided Costs Used in the SBW Report
 Witness: Thomas

- a. Please identify and provide the source documents that support the avoided costs used to calculate benefits in cost effectiveness tests for the natural gas programs.
- b. For each program, identify the length of time the DSM acquisition is supposed by NWE to be saving energy attributable to NWE's DSM intervention, and thus what length of time of the avoided-cost stream it should be compared against.

RESPONSE:

- a. See the folder labeled "PSC-012" on the CD attached to Data Request PSC-001. The file D2013 5 34 PSC-012 Avoided Costs and Lost Revenues RR(V2) is the file constructed and used by SBW in its analysis. This file is based on the other source files included in the folder.
- b. DSM savings are cumulative; once a DSM measure is installed it is considered as installed energy savings capacity. The DSM measure begins, and continues, to produce energy savings throughout its useful life. When the DSM measure reaches the end of its useful life it is replaced with a like or better measure. Installed DSM capacity is persistent into the future and each program period's new incremental DSM capacity adds to the previous year(s) installed DSM capacity. Last year's installed DSM will be repeated in future periods as continuing, or persistent, energy savings. Each successive year's installed DSM is incremental to the previous year, and to the accumulated DSM.

In DSM analysis and planning, 20 years is typically used for DSM measure lives and the time period used for calculating levelized lifecycle costs of DSM and for avoided costs used in regular DSM analysis. Beyond 20 years, the effect of discounting on net present value becomes minimal. This practice is and has been common among utilities and other entities involved with DSM programs and DSM analysis. Because of this, a 20-year levelized avoided cost stream is appropriate.

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PSC-013 Regarding: E+ Business Partners Program
 Witness: Thomas

- a. Please provide an example showing how customer incentives are derived using total resource costs and any other relevant project variables.
- b. Does NorthWestern consider this program to be a core program? Please explain.
- c. Using rough proxy supply prices of \$0.06/kWh for electric supply and \$4.00/Dkt for natural gas, it appears that savings benefits from the electric side of this program exceeded natural gas savings benefits by a factor of about 25. In your opinion, what are the primary reasons for this savings difference?

RESPONSE:

- a. An example showing how customer incentives are derived using total resource costs and any other relevant project variables is a customer considering the removal of an existing 20-ton chiller and providing space cooling using ground water. The chiller is data-logged so an accurate prediction of the electric usage can be determined. The ground water pump electric usage is calculated. The resulting project has electric savings of 40,917 kWh and 223 kW per year. The project electric savings resource value is \$20,062, based on 2013 electric avoided costs and a 15-year resource life. The total estimated project cost to achieve the savings is \$18,238. The project total resource cost (TRC) test is the resource value divided by the total engineering project cost, or \$20,062/\$18,238, which produces a TRC value equal to 1.10 confirming that the project is cost effective and can be funded. The typical project incentive is 50% of the resource value. In this example, the project incentive is \$10,031, or 50% * \$20,062. For this project the incentive is rounded to \$10,000. The resulting customer project cost is \$8,238, or \$18,238-\$10,000. The project electric customer utility bill savings, based on current GS-1 secondary demand-metered electric service rates, is \$4,669 per year resulting in a 1.76 year simple payback (SPB). If the customer project SPB were less than 1.5 years the E+ Business Partners Program project incentive would be reduced to result in a 1.5 year SPB. The method used for a project where natural gas savings are produced is the same.
- b. Yes, NorthWestern considers the E+ Business Partners Program to be one of the core commercial/industrial customer electric and natural gas conservation programs. In 2013, the E+ Business Partners Program was recognized as an exemplary energy efficiency program in a national review conducted by the American Council for an Energy-Efficient Economy. All of the other

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commercial/industrial conservation programs offer training and/or standardized prescriptive rebates for specific conservation measures. The E+ Business Partners Program offers customized incentives for measures and/or systems that are not specifically addressed by the prescriptive rebate programs. The program recognizes the diversity in the commercial/ industrial sector and the fact that a prescriptive rebate cannot be offered for all the possible conservation measures available in the sector. The program is flexible for the business owner in the ability to evaluate any possible conservation measure. The program enables more customer/contractor interaction and assistance from NorthWestern personnel or a performance contractor under contract with NorthWestern Energy. This is the only program that lends itself to evaluating complex interactive conservation systems and processes found in commercial/industrial customer facilities.

- c. There are three primary reasons why the E+ Business Partners Program realizes more electric savings than natural gas savings. Natural gas is used for far fewer end uses than electricity so the conservation opportunities for natural gas are typically limited. Electricity is used in all systems and processes in customer facilities, including space heating and water heating systems for pumping and control. There are significantly more retrofit opportunities in typical customer facilities to identify and cost-effectively conserve electricity compared to natural gas. The second reason is that many of the customers that have participated in the E+ Business Partners Program receive natural gas from a different supplier than NorthWestern (universities, hospitals, public schools, state and county buildings, etc.). Although there can be significant natural gas conservation opportunities associated with these natural gas Choice customers, the program cannot provide incentives or realize natural gas savings for these customers. The third reason is, on a Btu basis using 2013 electric and natural gas avoided costs, the 20-year levelized avoided cost for electricity (\$0.000017 per Btu) is almost three times greater than the 20-year levelized cost for natural gas (\$0.000006 per Btu). Higher electric avoided costs make it easier for electric conservation measures to pass the total resource cost (TRC) test compared to natural gas conservation measures.

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PSC-014 Regarding: E+ Residential Existing Gas Rebate Program
 Witnesses: Baker, McRae, DeBolt

- a. Please show the derivation of the final savings adjustment rate 0.58 in Table 407.
- b. Please evaluate the cost-effectiveness tests separately for the free kits and rebates sections of the program.

RESPONSE:

- a. As described in section 2.2.2.1. Savings Realization Rate, beginning on page 21, of the final evaluation report, the savings realization rate, or final savings adjustment rate in this case since no free ridership or spillover was applied, is the product of the file review realization rate and the site visit realization rate. For this program, the file review realization rate was 1, i.e., the file review resulted in no changes to reported savings. Therefore, the final savings adjustment rate is equal to the site visit realization rate. The site visit realization rate is the sum across strata of the product of the stratum case weight and each sampled measure evaluated savings divided by the sum across strata of the product of the stratum case weight and each sampled measure reported savings, or

$$a = \frac{\sum_{i=1}^n w_h y_i}{\sum_{i=1}^n w_h x_i}$$

where:

- | | |
|-------|---|
| a | = the site-visit realization rate |
| w_h | = case weight for measure i in stratum h (N_h/n_h) |
| y_i | = sample evaluated savings using site visit for measure i |
| x_i | = sample savings reported for measure i |
| n_h | = sample size for stratum h |
| N_h | = population for stratum h |

- b. This included all sampled measures in the program, across both the Kits and Rebates studies. There were a total of five strata in the program, two in the Kits study and three in the Rebates study. Looking at the study results independently, the Kits study had a 26% savings realization rate while the Rebates study had a

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95% savings realization rate. The low realization rate in the Kits program was due to a low installation rate of the kits.

A separate computation of cost-effectiveness for the kits portion of this program is outside the scope of services in SBW's contract with NWE. This would require redesign of the databases and workbooks and additional primary data collection. In addition, the research design used for estimating free-ridership and spillover treats the program as whole and was not designed to separately estimate these rates for the kits portion of the program.

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PSC-015 Regarding: E+ Residential Existing Gas Rebate Program
 Witness: Thomas

- a. On p. 36 of your prefiled direct testimony you state that NorthWestern has decided to discontinue the Weatherization Events. The SBW Report indicates on p. 520 that the free kits component of the E+ Residential Existing Gas Rebates Program achieved a post site visit savings adjustment rate of 0.26 applied to reported savings of 257,089 dekatherms. What portion of the free kits reported savings came from Weatherization Events?
- b. Please explain the unfavorable economics of the Weatherization Events, if possible.
- c. Have you estimated a natural gas delivery “price point” at which the free kits subprogram would pass the total resource cost test? Would you expect high gas prices to inspire kit recipients to install more of the measures in the kits?
- d. Please provide and explain the derivation of the rebate levels for each measure listed in Table 404 of the SBW Report (pp. 505-507).
- e. Table 404 shows that high efficiency boilers, furnaces, and water heaters were eligible for rebates through 2011. Are these measures still available?

RESPONSE:

- a. 91.6 % of the free kits reported savings came from Weatherization Events.
- b. Weatherization Events (Events) originated as part of an expansion of NorthWestern’s Natural Gas DSM Program several years ago in response to very strong encouragement by the Commission to help its natural gas customers deal with high natural gas market prices. Response by customers to the Events was better than expected and the annual Events continued to be popular and well-attended each fall thereafter. NorthWestern responded to this customer reception with an extension of the Events to smaller cities and towns in its Montana natural gas service territory.

During the analysis and planning of the Events, NorthWestern determined that a weatherization kit (and each individual component measure within the kit), if installed as intended, should be cost-effective at the then-current natural gas avoided costs. However, the results of the SBW Evaluation show that the

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installation rates are low, rendering the economics for the Events overall to become unfavorable. Despite NorthWestern's sustained efforts to remind customers attending the Events about the importance of installing the kits, the DSM Evaluation found that the rate was low enough to compromise the economics.

NorthWestern has attempted to overcome this low installation rate by using Energy Corps members present at Events to accept requests from customers for, and follow up with, on-site installation assistance. Also, NorthWestern has approached various organizations and community service groups (Lions Club, Kiwanis Club, church groups, Pachyderm Club, Burros Club, Warm Hearts Warm Homes, etc.) for help with installation. In each case the result was essentially the same; concerns about potential liability that might be incurred while on or in the customer premises became problematic to the point where the effort never gained traction with any of these groups.

Secondary reasons for the unfavorable economics include the cost of NorthWestern's contractor labor and travel required to hold and staff the Events around the service territory in larger cities and numerous small towns in rural locations. Finally, to build interest, awareness, and attendance by eligible customers on the dates of the Events, NorthWestern incurred marketing, direct mailing, and advertising expenses.

NorthWestern tried to defray costs in other ways: free media coverage was solicited from radio stations, company employees were asked to volunteer at Events, and NorthWestern buildings were used when and where available. At times, these NorthWestern facilities were either not available or not large enough, so more suitable space had to be rented. NorthWestern created and provided customers with a How-to-Install video providing clear instruction on Do-It-Yourself installation of kit materials. This video is provided on the attached CD or can be viewed at the following links:

<http://www.youtube.com/watch?v=B-ag15mAW1U>
<http://www.youtube.com/watch?v=i1A0IM3L73U>
<http://www.youtube.com/watch?v=k5aPyI0-jho>
<http://www.youtube.com/watch?v=R8UZKffHJpU>
<http://www.youtube.com/watch?v=spEv2VVH2WM>
<http://www.youtube.com/watch?v=eQvdwZf7UAM>

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Following several years of effort and despite the popularity of and strong attendance at the Events, this experience clearly illustrates the difference between economic DSM potential and achievable DSM potential. These many factors combined to drive NorthWestern's decision to discontinue the Events.

- c. No. Based on spending and savings from the 2012 Weatherization Events, it is estimated that an additional \$100,000 would be needed to make these events cost effective (assuming the 26% installation rate determined by SBW). If a satisfactory (higher) installation rate could be achieved, the additional funds might not be needed to reach a point of cost-effectiveness.

Higher natural gas prices may encourage more kit recipients to attend the weatherization events and, perhaps, install more kits. However, there may be other barriers to kit installation, such as access to tools, lack of skills or physical ability to perform the installation work, Landlord/Tenant Agreement conflicts, simple lack of customer follow-through, or other factors.

- d. See the folder labeled "PSC-015" on the CD attached to Data Request PSC-001 and inspect the cell formulas for explanation of the derivation of the rebate levels.
- e. Yes.

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PSC-016 Regarding: Lost Revenues Associated with Natural Gas Production
Assets
Witness: Thomas

- a. It does not appear that NorthWestern is requesting recovery of lost revenues associated with its gas production assets in this proceeding. Does NorthWestern realize material losses in fixed cost recovery of its natural gas production assets due to its participation in natural gas conservation programs?
- b. If so, does NorthWestern plan to include requests to recover lost revenues associated with these assets in future dockets?

RESPONSE:

- a. NorthWestern realizes lost revenues associated with fixed cost recovery of its natural gas production assets due to its natural gas DSM programs. The level of materiality of the lost revenues depends on the magnitude of the associated fixed costs (and the related fixed cost rate), the level of natural gas DSM achieved, and the time since the fixed rate has been reset in a general rate case.
- b. Yes.

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PSC-017 Regarding: E+ Free Weatherization/Fuel Switch Program
 Witnesses: Baker, McRae, DeBolt

On p. 415-416 of the SBW Report, SBW stated that it attempted to check the reasonableness of this program's savings estimates by comparing the results from a sample of cases to the Regional Technical Forum's savings estimates for weatherization measures. Although the RTF's estimates were nearly always lower than NorthWestern's savings estimates, SBW concluded that this was reasonable since the RTF estimates were derived assuming electric heat only, were not developed for low income applications, and used different baseline assumptions.

- a. How did you compare NorthWestern's natural gas savings estimates to the RTF electricity savings estimates?
- b. How would adjusting the initial conditions of a sample case to accommodate a low income household tend to change the expected value of the savings estimate in the RTF model?
- c. Would you expect the income variable to be correlated with other predictors in the model? If so, please describe.
- d. Please describe the baseline assumptions featured in the RTF and NorthWestern models. How do these assumptions differ between models?

RESPONSE:

- a. The savings estimates are input energy. Using an assumption of electric heating system efficiency, we derive from the input energy the quantity of output useful heat. Then, using an assumption for gas heating system efficiency, we derive from the output heat an estimate of input gas energy. The key is the assumption that output energy should be the same for both heating system fuels.
- b. We think it likely that a typical low-income home would have higher levels of air infiltration, lower levels of insulation, and lower efficiency HVAC equipment. All these features would increase the savings of any particular measure. A low-income home would also likely be smaller, which would tend to decrease savings. The RTF model is a prototype designed to be typical of all homes. On average we would expect the baseline conditions of all homes to be less efficient than the average of all homes, thus we would expect the savings for low income homes to be larger.

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- c. As stated in b. we believe that low-income homes would have higher levels of air infiltration, lower levels of insulation, and lower efficiency HVAC equipment. All these features would increase the savings of any particular measure. A low-income home would also likely be smaller which would tend to decrease savings.
- d. The first difference in the two models is that the RTF model is based on prototype homes, and the model used in the NWE weatherization (Wx) program is applied on a site-specific basis. Differences between the RTF savings level and savings at any specific home are to be expected.

In addition, the RTF weatherization model is based on a "last-in" methodology. This methodology assumes, when estimating savings for one weatherization component, that all other weatherization components have already been installed. The methodology produces a systematic underestimate of savings for each component (except the actual last component). For example, to determine savings for wall insulation, the house is modeled as if the air infiltration rate were 0.35 ACH, the ceiling insulation level is set to R-49, the window U-factor is set to 0.3, etc. Only the baseline wall insulation is set at R-0. The NWE weatherization (Wx) program's models are site specific, and include actual infiltration rates and insulation levels at the site. This difference in modeling would be expected to lead to higher savings in the NWE program.

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PSC-018 Regarding: E+ Free Weatherization/Fuel Switch Program
 Witness: Thomas

- a. On p. 413 of its report SBW stated that this program is funded using a mix of NorthWestern's USB, federal, and other dollars. Please provide the proportionate contribution of NorthWestern USB dollars to total funding in all years.
- b. On p. 415 SBW states that it was unable to check the reasonableness of savings estimates in the tracking database using the CDS Energy Audit System provided by DPHHS because the documentation in the project files was incomplete, the documentation did not include the input screens, and the hand-completed forms were not fully completed and often illegible. Why did NorthWestern provide SBW with project files that were impossible to evaluate?

RESPONSE:

- a. Please see the electronic version of the chart below in the folder labeled "PSC-018" on the CD attached to Data Request PSC-001. Note that NorthWestern tracks and reports energy savings associated only with the measures it funds.

	2006	2007	2008	2009	2010	2011	2012
NorthWestern Energy	\$ 1,378,111.34	\$ 1,455,473.24	\$ 1,857,528.19	\$ 1,537,076.10	\$ 855,129.82	\$ 2,085,790.64	\$ 1,240,917.26
USB	\$ 170,363.67	\$ 226,499.54	\$ 125,805.98	\$ 360,594.39	\$ 21,443.30	\$ 199,304.25	\$ 406,169.81
Dept of Energy	\$ 2,464,299.56	\$ 2,387,577.76	\$ 2,301,344.61	\$ 5,049,706.98	\$ 16,428,530.27	\$ 9,712,304.39	\$ 3,948,300.41
Bonneville Power Administration	\$ 432,274.65	\$ 642,170.45	\$ 463,992.64	\$ 496,633.08	\$ 463,161.36	\$ 549,967.85	\$ 280,919.07
LIEAP Wx	\$ 1,862,220.05	\$ 2,255,360.88	\$ 2,532,214.26	\$ 5,785,747.83	\$ 2,598,027.98	\$ 4,653,682.28	\$ 6,558,217.17
Exxon/Stripper Well	\$ -	\$ 114,175.88	\$ 546,314.69	\$ 898,011.19	\$ -	\$ -	\$ 15,922.64
Grand Total	\$ 6,307,269.27	\$ 7,081,257.75	\$ 7,827,200.37	\$ 14,127,769.57	\$ 20,366,292.73	\$ 17,201,049.41	\$ 12,450,446.36
*Please note Included in the amounts are Weatherization of homes, Training and Technical Assistance, Administration, Warm Hearts Warm Homes, and equipment that was bought. This does not include the costs associated with determining eligibility of clients.							
	2006	2007	2008	2009	2010	2011	2012
Analysis Funds Spent							
NorthWestern Energy	22%	21%	24%	11%	4%	12%	10%
If NWE Funds were exhausted	2006	2007	2008	2009	2010	2011	2012
Contracted Funds	\$ 1,555,812.00	\$ 1,782,029.00	\$ 2,053,314.00	\$ 2,003,767.00	\$ 1,911,000.00	\$ 1,911,000.00	\$ 2,089,947.00
	25%	25%	26%	14%	9%	11%	17%

- b. SBW, Inc. requested copies of all relevant files and records at the beginning of its engagement with NorthWestern. NorthWestern either provided copies of this information, or made it otherwise accessible to SBW, without screening or selecting out any specific files or records for any reason. NorthWestern's intent was to provide SBW with as full and complete documentation of DSM program activity as possible, and then leave it to SBW to independently conduct its review and analysis and render its findings and conclusions.

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PSC-019 Regarding: NEEA Initiatives
 Witnesses: Baker, McRae, DeBolt, Thomas

- a. The SBW Report states on p. 760 that in 2006 and 2007 NorthWestern's share of savings from clothes washers was based on funder share. Table 625 shows that evaluated natural gas savings from clothes washers in those years equaled 6,536 dekatherms. Regarding the use of evaluated savings to calculate the value of a throughput disincentive and lost revenues, would it be correct to conclude that if NorthWestern had not contributed funds to NEEA in those years, it would have enjoyed an expected increase in load on its natural gas delivery system of 6,536 dekatherms due to reduced regional savings from high-efficiency clothes washers?

- b. From 2008 onward NorthWestern's share of savings was based on its share of units shipped to Montana. Table 625 of the SBW Report showed that evaluated natural gas savings from clothes washers equaled 52,054 dekatherms from 2008 through 2011. If NorthWestern had not participated in the NEEA programs, would it be correct to conclude that zero of the units responsible for the estimated 52,054 dekatherms of natural gas savings would have been shipped to Montana? In order to establish a throughput disincentive value, could you estimate what portion, if any, of these units were shipped to Montana as a direct result of NorthWestern's participation in NEEA?

- c. In general, regarding evaluated natural gas savings of 80,711 dekatherms shown in Table 615, please provide an estimate of the portion of the savings that NorthWestern could credibly maintain are directly due to its funding of NEEA.

SBW RESPONSE:

- a. SBW's research plan for this study did not address the question of what would happen in the absence of NWE funding for this or any other NEEA initiative. We only focused on the impact of the NEEA initiative and what portion of that impact occurred in the NWE service territory. We do not know what would have happened if NWE had not contributed funds to this NEEA initiative.

- b. See our response to a.

- c. See our response to a.

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THOMAS RESPONSE:

- a. Yes. The reported natural gas energy savings are based upon the results of NEEA's market transformation initiative for clothes washers as they apply to NorthWestern's natural gas water heat saturation.

NEEA's methodology for determining energy savings begins in advance of an initiative where NEEA contracts with an evaluation contractor to determine the pre-initiative or baseline condition. As the initiative progresses, NEEA continues to monitor the naturally occurring baseline conditions and subtracts those savings along with any reported by utilities through their local rebate programs from the total savings associated with the initiative. Annual savings are reported to the funding utilities based upon the sales data reported to NEEA through the sales in the region at the most granular level that is cost effectively available, net of the naturally occurring baseline conditions and any rebates/savings claimed through utility programs. NorthWestern Energy adjusts the energy savings which are reported in kWh to more accurately represent its customer end use profile. In the case of clothes washers, NorthWestern reports natural gas savings based upon its natural gas water heat saturation.

Absent NorthWestern's funding of NEEA, the availability of the energy efficient clothes washers in NorthWestern's service territory would have been limited to that of the baseline or naturally occurring progress which NEEA netted out before reporting savings to NorthWestern Energy.

NEEA conducts on-going evaluations to continue the measurement of changes in the market due to the market transformation initiative. In addition to the third party evaluations, the initiatives savings are scrutinized by a regional cost effectiveness committee. NEEA's body of evaluation work is available at <http://neea.org/resource-center/market-research-and-evaluation-reports>

- b. Yes. The body of evaluation work on clothes washers demonstrates the results of NEEA's clothes washer initiative.
- c. NorthWestern Energy maintains that the evaluated natural gas energy savings of 80,711 dekatherms shown in Table 615 is directly due to NEEA's market transformation initiative and results through the funding of NEEA by NorthWestern as leveraged with the funds of the other utilities, BPA, and the Energy Trust of Oregon.