

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

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IN THE MATTER OF NorthWestern Energy's) REGULATORY DIVISION
Application for Approval of Electricity Supply)
Deferred Cost Account Balance and Projected) DOCKET NO. D2012.5.49
Electric Supply Costs)

**DATA REQUESTS PSC-096 THROUGH PSC-099 OF THE
MONTANA PUBLIC SERVICE COMMISSION
TO
HUMAN RESOURCE COUNCIL, DISTRICT XI AND
NATURAL RESOURCES DEFENSE COUNCIL**

PSC-096

Regarding: Criteria for utility energy efficiency programs
Witness: Power

- a. In the Commission's attempt to evaluate DSM programming, should it matter which consumers participate in DSM programs, or should DSM's savings of energy to the system compared with the avoided cost of energy the utility otherwise would have purchased be the Commission's lodestone, regardless of the level of consumer participation?**

In general DSM investments should be treated the same as investments in other supply alternatives. In that context, one would not consider who among NWE's customers may have benefited from the resource purchase because of new economic activity created. The utility would simply seek the cheapest source of supply for customers. It would not matter how much, if any, of the economic benefits associated with the purchase accrued to particular NWE customers or how those economic benefits were distributed among customers. It is Dr. Power's understanding that when choosing a conventional generating source, the distribution of any economic benefits associated with that purchase is not considered, only the bottom line cost is relevant.

Despite the commitment of both the utility and the Commission to treat investments in DSM and investments in conventional generation similarly, the fact that customers in whom NWE makes direct DSM investments benefit more than customers who receive no such investments raises questions of equity. All customers pay to cover the costs of these electric supply resources and all receive the benefits of NWE purchasing the lowest cost resources. However, customers who participate in the DSM programs get additional benefits. That, of course, is also true of customers who participate in the building of a new conventional resource or live in a community where such a new resource is being constructed.

Whatever “inequity” may exist due to the fact that participating customers in utility DSM programs gain more benefits than non-participants should be and has been addressed by the utility seeking to expand the number and diversity of customers participating. Those efforts should continue since those customers who have not participated in past DSM programs represent a potential resource to be exploited. However, in the end, NWE should pursue the least cost resource for the electric supply portfolio, whether that is a conventional source of supply or programs to improve the efficiency with which its customers use electricity.

b. Please refer to NWE response to PSC-054. Do you support the company’s plan to continue incenting CFL purchases even while federal regulations have caused (or will cause) incandescent light bulbs of gradually lower wattages to be discontinued from being manufactured?

Yes. It is important to understand that the Energy Independence and Security Act (EISA) does not bar the manufacturing of high wattage incandescent lights; rather the Act phases in “efficiency standards” for new bulbs (with numerous exceptions) to meet on a date certain based on lumens. Specifically, the Act requires bulbs to use roughly 25% to 30% less energy than previously. Thus, after January, 2012, a halogen incandescent light that used “only” 72 watts could be manufactured as a replacement for the 100 watt bulb. Even greater energy savings would result if a 25 W CFL was used as a replacement and even greater savings would result from the use of an equivalent lumens LED bulb. Accordingly, lighting will continue to represent an important potential for electric energy savings.

c. Please comment on the efficacy of market transformation programs.

Economists, marketing professionals, businesses, sociologists, and psychologists, among others have long recognized the role that social trends, peer behavior, personal experience, habit, accurate information and the cost of obtaining and processing that information, to name but a few factors, play in the development of markets. Markets do not always spring naturally into being just because engineers and economists agree that some individual or company behavior would be efficient and profitable. Retail markets are largely social constructs. Commercial firms know that. That is why in the U.S. upwards of \$150 billion a year is spent on advertising and no doubt much more than that on the design of products to make them individually and socially attractive. Worldwide advertising totals close to \$500 billion yearly.

Given that our purchasing decisions are informed by our own experiences and the information we have as well as our preferences that are developed in a social context, accessible information, demonstration, and experience can impact purchasing decisions.

When many companies, non-profit organizations, and government agencies are all trying to make it easier for consumers to make more rational energy use decisions, rational from both a private and public perspective, it makes sense to pool ideas, experiences, and funds to accelerate the development and maturing of energy efficiency markets.

For each organization to do it alone would be wasteful and less effective. For organizations to not do it at all because they hope someone else will do it is self-defeating. Organizing to share resources, skills, and experience makes sense. That is what Northwest Energy Efficiency Alliance (NEEA) and other non-profit, public-private energy efficiency market transformation organizations are all about.

We know that market transformation is possible and practical since we have an entire private industry working on it. We know that success or failure can be measured. Firms have to do that constantly as they change their marketing strategies. There is no reason to believe that similar marketing strategies by non-commercial organizations cannot do the same thing and then evaluate their successes and failures. The campaign to reduce tobacco use is one, possibly controversial, example. The regional pooling of funds and expertise through NEEA to improve electric energy efficiency markets is another.

d. You argue on pgs. 18-19, that using the *average* cost rather than the *incremental* cost of expanding energy supply can keep customers from realizing the energy savings they have facilitated. You write, “Average cost pricing may provide a price signal that understates the value of electricity saved and discourages customer energy saving investments that are actually cost-effective.” Do you accept the reverse proposition, that when incremental costs are lower than the average cost, that the average cost may *overstate* the value of electricity saved by DSM programming.

That certainly is a possibility. If one focuses on short run private variable or incremental costs, those costs at times can certainly be much less than the long run average private costs or, even, long run incremental social costs. Market electric prices and natural gas prices fluctuate a lot across years and, even months, and are currently quite low. Most of the costs of the delivery system are sunk costs and the variable costs of moving electricity over that delivery system are relatively low. As a result, the avoidable private cost of delivering another mwh or dkt to a customer is quite low. Regulated rates based on average total private costs may be much higher than those short term avoidable private costs.

Obviously there are important public policy questions associated with whether the focus should be only on private costs and only on short term private costs: If there is a conflict, should we focus on the short run objective of maximizing the usage of the existing production and delivery infrastructure or should we focus on minimizing long-run energy costs. Over the last half-century we have learned a great deal about the broader social costs associated with energy production, transportation, and use. We have also learned that what appears to be privately cheapest from a short-run point of view may not, in the long run, turn out to be even the best private decision.

e. Given current low avoided prices available through market purchases in at least the short term, would you agree that DSM programs that are short- or medium-lived, such as CFL lighting programs, may avoid incremental costs that are in fact less than the average cost of energy?

This question is framed in a short-term context. DSM programs are not aimed at the short term for several basic reasons. First, energy efficiency improvements tend to be capital intensive: They incur upfront costs now in order to save energy for an extended period into the future. In that sense that cannot be turned off and on. They are similar to utility investments in production and delivery of energy.

Second, as discussed in response to part c. above, energy efficiency programs involve literally years of informing, teaching, demonstrating, training, etc. Those programs seek to overcome a variety of market barriers and systematically change what the market norm is. Turning these programs into “stop and go” mode undermines their effectiveness and increases their costs. For that reason, also, they need to be seen as long-term investments and evaluated as such.

Third, over the last decade or two we have watched market electricity and natural gas prices fluctuate dramatically across months and years. At times, relying on those markets and making no fixed commitments appears to be the “brilliant” strategy. At other times, exposure to those market prices can threaten bankruptcy. Investments in DSM, like investments in any other source of supply with relatively high fixed costs, are partially intended to shield customers from that market volatility. The Northwest Power and Conservation Council’s modeling, which looks out 20 years, consistently favors investments in efficiency, principally because it is relatively inexpensive compared to the future costs of incremental electric supply.

Finally, investment in energy efficiency is also tied to a long-run understanding of the broader problems associated supplying our energy needs, from energy security, issues of energy independence, reduced environmental damage, and climate stabilization.

Within the short-term context in which this question was phrased, it is possible that the average cost of a DSM program would be higher than the short-run market cost of the electricity or natural gas being saved when those costs are unusually low. But, as discussed above, that is not the appropriate context in which to evaluate investments in customer energy efficiency programs.

PSC-097

Regarding: SBW report

Witness: Power

a. Are you challenging any aspect of SBW’s work and, if so, which aspect(s)?

No, but we have not undertaken a detailed review of the SBW evaluation and calculations. We have reviewed the SBW report for the general approach it has taken to evaluating NWE’s DSM programs and found that it follows standard practices for such evaluations of utility energy efficiency programs.

SBW and the other consulting firms on its team were charged with carrying out a very detailed analysis of dozens of NWE customer energy efficiency program over a five-year period.

This was a huge, data- and calculation-intensive, undertaking. Simply managing all of the data collection, sampling, interviews, and analysis was a major logistical undertaking.

As a result of this complexity, SBW had to be simultaneously gathering information and data, interviewing NWE personnel and customers, analyzing that information, and writing up parts of the report. The organization of the report show signs of this simultaneous writing and analyzing. For instance, one of SBW's (and Research into Action (RIA))tasks was to measure free-ridership and spill-over rates associated with as many of the NWE programs as possible. At the same time SBW and RIA had to evaluate the reliability of those estimates and decide how to use them in the ultimate estimates of the net impact of each program. As a result, the report proceeds to report the estimated free-ridership and spill-over rates for each program where they could be estimated. That was a task specified in the contract with NWE. In the process of analyzing these results, SBW and RIA concluded that the estimated free-ridership and spill-over rates were not reliable and that the combination of the two could not be reliably stated to be different from zero. For that reason, SBW's report did not include those particular estimates in calculating program impacts.

This added some confusion to the report as the free-ridership and spill-over rates are discussed for many programs and then not included in the final impacts calculated. The decision to "zero out" the combined impact of free-riders and spill-overs was fully discussed and explained in the report. However that discussion does not appear until near the end of the report, in the 31st of 32 chapters.

The discussion and analysis of the impacts of the NWE's CFL lighting programs were also hard to follow at times because of the multiple different parts of the programs where distribution of the NWE supported customer CFL acquisition had to be divided between commercial and residential users. Given that both residential and commercial customers benefited from the upstream buy-down of CFLs by NWE and that it seems possible that managers of large private and public apartment buildings obtained large numbers of CFLs for installation in residential housing at subsidized prices, the division of the lighting programs between residential and commercial classes was not easy. This had implications for both measured energy savings and measured lost revenues.

My point is that SBW's review of NWE's customer energy efficiency programs was complex and difficult. Many data and conceptual problems had to be solved along the way. There is no doubt that some of the judgment exercised by SBW could be questioned. That, however, is true of any professional evaluation.

It is also important to note that SBW is a professional firm whose personnel have been evaluating and seeking to improve utility energy efficiency programs for over 40 years. Their clients have included state regulatory commissions, non-profit energy services companies, publicly-owned utilities, as well as investor-owned utilities. SBW has also contributed significantly to formalizing the way we evaluate energy efficiency programs within the Pacific Northwest in its work for the Northwest Power and Conservation Council's Regional Technical Forum. SBW developed guidelines for the measurement and verification of estimated energy

savings for program impact evaluation design protocols for the Regional Technical Forum in 2012.

NWE and the Montana Power Company before it have operated customer energy efficiency programs for almost a quarter of a century and evaluated those programs for efficiency and effectiveness along the way. NWE has always been committed to installing measures that meet standard cost-effectiveness tests. It has hired and supervised organizations that have experience pursuing these programs and installing the measures. NWE has insisted that its energy efficiency programs be periodically evaluated for cost-effectiveness and success in reaching clients. The American Council for an Energy-Efficient Economy (ACEEE) recently recognized NWE for operating “exemplary” commercial and industrial energy efficiency programs (E+ Business Partners Program). It will use that NWE set of programs as a model for other utility customer efficiency programs in the nation.

Improving the efficiency with which we use energy has been a major national undertaking since the first oil price crisis in the early 1970s, four decades ago. Household and commercial energy efficiency measures have been developed that have proven track records in terms of energy savings. The bulk of those energy efficiency measures are “off-the-shelf” and have been regularly installed and evaluated.

SBW can be considered the equivalent of a professional consulting firm that comes in to audit NWE’s rate-payer-funded customer energy efficiency programs. NWE knows what is professionally expected of its programs. It knows how other utilities operate their programs. It has had its programs evaluated before. For that reason, the evaluation is a familiar process, just as audits are routine with both NWE and the auditing firm understanding what is required of each. The evaluator wants sufficient information so that it can do its job. NWE wants to make sure the evaluator understands exactly how they have operated the programs. NWE provides information on and documentation of its DSM programs and SBW evaluates NWE’s success at implementation.

b. Have you accepted as true the energy savings the SBW report projects as resulting from NorthWestern’s Energy Efficiency programming?

See the response to 97a above.

As in most *estimates* of effects caused by an event, “true” or “false” is probably not the appropriate word to use. The SBW evaluation “estimated” (as did NWE’s and Nexant’s earlier analyses) the energy savings associated with NWE’s customer energy efficiency programs. These are called “estimates” because there is an expected range of error associated with them. It would be unreasonably costly to reduce the range of error to the point where one might be able to say the estimated number was “true” or “false.” NWE’s customer energy efficiency programs are not unique or unusual. Most utilities in the United States run similar programs. The tools used by SBW to evaluate these programs also were not unique. Both the programs and evaluation were “off the shelf:” regularly used and often evaluated. There is little mystery about whether the measures work and save energy. The question is more one of whether NWE professionally implemented programs known to work and be cost effective and saved the expected amounts of

energy. This is more a matter of auditing the implementation of familiar and effective programs to see if something went badly wrong in their implementation so that the expected savings were not realized. There is nothing revealed by this particular SBW “audit” that would suggest that NWE failed in its implementation of these programs that have proven to be effective when implemented by utilities elsewhere in the nation.

c. Have you reviewed the avoided-cost calculations that NorthWestern and SBW are using to benchmark DSM cost savings against? (Refer to the report, and PSC-052 as needed.) If so, do you find them reasonable?

NWE regularly estimates the “avoided costs” of electric supply at a particular point in time and the MPSC periodically adopts an “avoided cost” to guide the pricing of PURPA QF resources. The Commission can compare the values used in the SBW evaluation with the values the Commission approved at various points in the past and the values that NWE estimated in the past. Our understanding is that the “avoided cost” estimates used by SBW were the same as the estimates NWE and the MPSC made and used in those past time periods. We have not made our own estimates of the avoided costs for those time periods.

d. In your view, what are the relative merits and deficiencies of the cost-benefits tests that SBW uses to evaluate DSM programming? Is one test more meritorious than others of adoption for use by the Commission and, if so or not, why or why not?

The cost-benefit tests used by SBW are the conventional ones that have been used for many years by most analysts of utility customer energy efficiency programs. Each has a very practical focus for particular purposes. None can be said to be the preferred measure in all circumstances. That is the reason that all four (or more) have continued to be used and reported on over the decades.

An economist would typically prefer the Societal Cost Test since it nominally looks at all costs and all benefits regardless of who experiences them and regardless of whether the benefits and costs are reflected in commercial market transactions. Since that test attempts to look at all benefits and all costs, it allows a “big picture” view of the impact of a program. Importantly, as will be also discussed in the following paragraph, this includes non-market benefits and costs, which some analysts have found to be significant. Several criticisms of this test have been made. First, it looks beyond the utility and its customers. Second, non-market social costs, by definition, are not reflected in observable transactions and, instead, have to be estimated using other tools.

The Total Resource Cost Test does not look at benefits and costs so broadly. It does, however, include costs beyond those the utility incurs. In particular, it includes the costs that participants in utility customer efficiency programs incur by participating, the customer “co-pay.” Both the benefits and costs measured in the Total Resource Cost Test are benefits and costs reflected in market transactions. The differences between the Societal Cost and Total Resource Cost Tests are the non-market or non-commercial benefits and cost that may be associated with energy production and use. The Total Resource Cost Test does not seek to incorporate these non-

market values into the test. Because the inclusion of non-market costs and benefits is relatively more difficult to quantify and some consider it controversial, the Total Resource Cost Test is the broad measure of cost-effectiveness usually used in evaluations.

Utilities, however, if they are trying to compare customer energy efficiency programs with conventional investments in electric supply, are likely to prefer the Program Administrator Cost Test that includes only the same type of benefits (the value of the electricity produced or saved) but only considers the costs that the utility (on behalf of the ratepayers) incurs. The cost to the household or business to participate in an energy efficiency program is ignored because the utility and the rest of its customers do not have to pay it.

Because utility energy efficiency programs reduce the amount of electricity or natural gas consumed by customers and because some of the fixed costs the utility incurs in producing and delivering energy to customers are collected on a per unit of consumption basis, the reduced sales due to increased efficiency of use ultimately leads, all else equal, to increases in per unit rates. In jurisdictions with Lost Revenue Recovery Mechanisms or jurisdictions with rate cases almost every year, these rate increases happen within a year or so. But they ultimately take place whenever a rate case leads revenue requirements to be adjusted to costs and levels of consumption. Because of concerns about increases in rates associated with successful customer energy efficiency programs, the Ratepayer Impact Measure Test was developed. The name of this test is somewhat misleading. Cost effective utility customer energy efficiency programs always reduce average bills to customers even when per unit rates go up because consumption has been reduced. Customer well-being is tied to the bills that they have to pay, not the per unit rates. In that sense, this test does not measure “ratepayer impacts.” It measures rate impacts.

That ambiguity associated with what the Ratepayer Impact Measure Test actually measures has led to an alternative test, the Non-Participants Test. This measure looks at the benefits and costs associated with someone who has not participated in a utility customer efficiency program. Those customers do not see their bills decreased in the same way a participant in one of the utility programs does. Those non-participants still enjoy the benefits of a lower cost utility supply portfolio, but do not see their bills also decline because they are buying less energy. In general, the solution to non-participants not receiving direct benefits from utility customer efficiency programs is to encourage, over time, a broader and broader array of customers to participate in these programs. See the response to PSC-096a above.

Each test frames the question of what benefits and what costs are relevant in a different but informative manner. The whole set of tests provides a more complete picture of the net gain from utility customer efficiency programs.

e. Are there any DSM programs that, in light of the SBW study, you would recommend discontinuing?

NWE regularly shuts down low performing programs and expands better performing programs or starts new programs. However, one cannot judge the success of programs simply on the basis of their scores on conventional cost-effectiveness tests. Some programs are focused on education and motivation (home and business audits) while others are focused on market

transformation by giving customers hands-on experience with new technologies. That is, some small programs are really “demonstration” projects. Measuring the short-terms effectiveness of these education and demonstration projects is difficult. At some point either because they have been successful or because they failed to change markets, they are likely to be shut down. NWE’s practice with its many projects in the past and present has shown its willingness to evaluate projects in a hard-nosed manner and shut down those that are under-performing. We expect it will do so again in response to its own as well as SBW’s evaluation of the ongoing effectiveness of the programs.

PSC-098

Regarding: SBW report

Witness: Power

To what extent should the Commission be concerned about the independence of the savings estimates in SBW’s report, given that SBW’s contract is with NWE?

It is certainly appropriate to be vigilant about the independence of reports coming from consultants hired by particular parties. It is important to look at how the utility came to hire the consulting firms, the range of clients the consulting firms has had, and the independence the firm has shown in previous assignments. In addition, auditing or evaluating firms often have developed best practices to increase the credibility and independence of the reports they produce.

NWE, like all other corporations, has internal auditors keeping track of the financial performance of different parts of the utility. In addition, NWE, like all other corporations, is required by law to hire outside auditors to analyze its financial condition. Those external audits are considered “independent” despite the fact that the corporation does the hiring and pays for that service. Worried corporate boards, at times, also hire outside auditors to evaluate management’s performance. The board of directors does the hiring, but the auditors are intended to be independent.

NWE, after preparing the Request for Proposals for the review of its DSM programs, turned the evaluation of the responses over to a third party that then developed a short list of the top applicants. NWE then invited the top two applicants to make presentations before the independent evaluator, NWE officers and employees, and the Electric Technical Advisory Committee. On the basis of that process NWE chose SBW to carry out the evaluation of NWE DSM programs.

SBW is a leading source of critical evaluations of utility customer efficiency programs in the Western United States and across the nation. See the response to PSC 097a above. It serves a broad range of clients from regulatory commissions like the MPSC to non-profit energy services companies to publically-owned utilities to investor-owned utilities. Presumably, it would not undermine its professional, independent reputation by simply giving clients what they ask for.

Truly independent audits are carried out by a third party and paid by a third party with no interest in the outcome of the audit. It is only in a regulated setting that this type of outside audit can usually take place. It is our understanding that both the MPSC and the MCC have the

authority to audit NWE's performance. The funding of this function comes from the equivalent of a tax on the utility. Since both the MPSC and the MCC have their own policy objectives more or less set by the legislature and are potentially in an adversarial relationship with the utility in contested cases, it is not clear that audits paid for by them could be labeled "completely independent."

One has contested cases before the MPSC so that all parties can present evidence to the Commission on utility performance and appropriate rates. This provides a variety of evidence for the Commission to use in making its decisions. Trying to arrange still yet another "truly independent" evaluator on top of all the current parties and Commissioners, with assistance from Commission staff, who are already involved in contested cases is somewhat hard to imagine.

PSC-099

Regarding: LRAM

Witness: Power

In a time when utilities are filing more recent rate cases, is it reasonable to discontinue the LRAM because volumes will be more quickly re-established in rate proceedings?

If annual rate cases were relatively certain, there would be no need for an LRAM to address the disincentive associated with utility run efficiency programs. Some have opined that the electric and natural gas tracker cases have turned into "mini-rate cases." Turning them into actual rate cases, however, might overburden the regulatory system. There are substantial costs associated with a full rate case. The utility, Commission and Commission staff, Consumer Counsel, and various parties face considerable expense in terms of time, staff, and consultants in every rate case. That is partially why rate cases are not usually filed every year and parties would likely find it unreasonably burdensome and expensive to go through such a proceeding every year. Since annual rate cases are unlikely, the LRAM still has an important function in aligning utility and ratepayer incentives.

CERTIFICATE OF SERVICE

I hereby certify that on the 19th day of April, 2013, a copy of Human Resource Council, District XI and Natural Resources Defense Council Responses to Montana PSC Data Requests 996-99 was served by first class and electronic mail on the parties to this proceeding.

Charles Magraw