BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

IN THE MATTER OF AN INVESTIGATION
INTO THE APPROPRIATENESS OF DEMAND
SIDE MANAGEMENT COST RECOVERY
MECHANISMS AND INCENTIVES

Docket No. 06-12005

Comments of

Stephen Wiel

on behalf of

Southwest Energy Efficiency Project (SWEEP)

February 2, 2007
Introduction

Q. Please state your name, occupation and business address.
A. My name is Stephen Wiel. I am the Nevada Representative of SWEEP, the Southwest Energy Efficiency Project. My business address is 780 Joyce Lane, Incline Village, Nevada, 89451.

Q. For whom are you commenting?
A. I am commenting on behalf of Southwest Energy Efficiency Project (SWEEP).

Q. Please describe SWEEP.
A. SWEEP is a public interest organization promoting greater energy efficiency in the six states of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming. This is a high growth region where energy efficiency efforts have been lagging compared to other regions, air pollution is a growing concern, and many new power plants are under development or planned, including some new coal-fired power plants. SWEEP engages in both analysis and advocacy and is collaborating with utilities, state agencies, environmental groups, universities, and other energy efficiency specialists. SWEEP works in the following five areas:

- state energy legislation,
- utility energy efficiency policy and programs,
- building energy efficient,
- combined heat and power, and
- energy efficiency in rural areas.
Q. What are your professional qualifications?

A. I have 45 years of experience in energy and environmental management. I am currently the Nevada Representative of the Southwest Energy Efficiency project (SWEEP). I previously served as Head of the Energy Analysis Department at Lawrence Berkeley National Laboratory (LBNL), where I also established LBNL's Washington Office, served as senior advisor to the US Department of Energy on integrated resource planning and demand-side management in the utility sector, led the greenhouse gas mitigation component of the U.S. Country Studies Program, and created the initiative on international energy efficiency standards and labels that evolved into the Collaborative Labeling and Standards Program (CLASP). Before joining LBNL, I regulated utility companies, serving for 8 years as a Nevada Public Service Commissioner. Before that, I ran my own consulting firm in energy management and solar design and was an Assistant Professor at UNR.

During the time I was a Nevada Public Service Commissioner, I presided over several integrated resource plan filings and related dockets. I was also prominent in the National Association of Regulatory Utility Commissioners (NARUC), where I served as the Chairman of NARUC's Conservation Committee for four years, contributing significantly to the development of electric and gas utility companies' long-range planning, their investment in conservation, incentives for conservation profitability, and environmental accounting.

I currently serve as President of the Board of CLASP, am on the Board of Directors of the American Council for an Energy Efficient Economy, and am on the Boards of
two local organizations supporting homeless women. I have Bachelor’s and Master’s
degrees in Chemical Engineering from Stanford University, and a Doctorate from the
University of Pittsburgh, Graduate School of Public and International Affairs. I have
published 151 books, articles, reports and papers on the subject of energy efficiency
and the environment.

Q. What is the purpose of your comments?
A. I am commenting (1) to provide a national perspective on how utility regulators
across the country provide incentives for energy efficiency to the utility companies
they regulate, (2) to praise the Commission on the method it currently applies to
provide the utility companies in Nevada with an incentive to conduct demand side
management (DSM) for their electricity customers, and (3) to suggest ways that the
Commission can improve its incentive structure for conducting electricity DSM.

Q. What are your suggestions for improvement in Nevada’s incentive structure?
A. I suggest that the Commission conduct the following six steps to improve its
incentive structure for electricity DSM.

1. Maintain the approach of allowing a utility company to capitalize its DSM
investments and applying an adder to its ROE for that investment.

2. Declare explicitly and concisely that the objective of its incentive structure is to
“provide rules that make investment in cost-effective DSM a slightly more
preferable business venture for Nevada utilities than investing in supply side
facilities.”
3. Establish the following criteria for determining the appropriate level of its DSM incentive:
   a. Investments by a utility company in cost-effective DSM earn a slightly higher return on equity (ROE) than investments in investments in supply side facilities.
   b. The additional earnings of a utility company for its DSM investment due to the ROE adder do not exceed a reasonable and specified portion of the net benefits actually achieved from its DSM program as determined by the total resource cost (TRC) test. Subject to considerations of additional information available to the Commission, the utility companies, and other stakeholders, I believe that this cap should be in the 10% range.

4. Develop a method for determining the appropriate magnitude of the ROE adder for the company’s investment in DSM by creating a formula for its determination that is based on energy savings, avoidance of new peak power, and the aggregate DSM benefit-cost ratio.

5. Order Sierra Pacific Power Company (SPP) and Nevada Power Company (NPC) to conduct analyses of their DSM profitability; then conduct hearings on these analyses in order to set appropriate parameters for the ROE adder formula.

6. Once the Commission has experience to show that its modified DSM incentive rules work as intended, it would have no reason to pre-approve or cap individual DSM investments and could treat DSM as a single resource in a utility’s resource plan.
Q. **How would you recommend that the Commission apply this approach to**

education, technology trial, market research, and low-income DSM programs?

A. Some DSM programs are worthwhile even though they have no measurable benefits
or have benefit-cost ratios below one. For programs such as education programs,
technology trials, and market research programs without measurable benefits, I
suggest that the costs be recovered in the same manner as other DSM investments;
that is, capitalized with the ROE adder applied. In evaluating the aggregate DSM
benefit-cost ratio when considering the appropriate level for the ROE adder, the costs
should be included even though there are no direct benefits.

I believe that Commission-approved “low income DSM programs” that have a
benefit-cost ratio below one (i.e., with costs greater than the benefits) should also
have the same cost recovery as other DSM investments; that is, capitalization with the
ROE adder applied. Likewise, they should be included in evaluating the company’s
aggregate DSM benefit-cost ratio when considering the appropriate level for the ROE
adder.

**General Comments on DSM Incentives in Other States and on Nevada’s Current**

**Regulatory Approach**

Q. **Is there a good source of information on energy efficiency incentives in other**

states?

A. Fortunately, the American Council for an Energy Efficient Economy (ACEEE) has
just published a survey of energy efficiency incentive regulations throughout the U.S.
It is titled, “Aligning Utility Interests with Energy Efficiency Objectives: A review of Recent Efforts in Decoupling and Performance Incentives”. Its principal author is Martin Kushler. It was issued in October 2006. [This report may be downloaded as a PDF document without fee at www.aceee.org/store/proddetail.cfm?CFID=1436792&CFTOKEN=40048025&ItemID=421&CategoryID=7. A copy has been provided to the Commission along with these comments.]

Q. Please provide an overview of DSM incentive programs throughout the U.S.

A. Let me summarize the ACEEE report. It addresses three aspects of incentive regulation – (1) cost recovery, (2) performance incentives, and (3) decoupling.

Seventeen states, including Nevada, allow cost recovery of a utility’s DSM expenses as either an operating expense or a capital expense. Eight states provide performance incentives, including Nevada. Seven of these states provide a performance bonus as a percentage of DSM expenditures. Only Nevada provides an increased rate of return. Two states mandate decoupling of revenues from sales, only one of them for electricity.

Q. What criteria do other states use for determining the magnitude of the performance incentive?

A. The other seven states that provide a performance incentive use a variety of criteria for determining the amount of the performance bonus. These include electricity savings, lifetime resource benefits, cost savings, meeting kWh savings targets by
sector, benefit-cost ratio, market penetration of energy-efficient technologies, leveraging of ratepayer dollars, and demonstrated market transformation.

Q. **Do you have an opinion on which approach is most effective?**

A. Based on my eight years as a Nevada Public Service Commissioner, my five years chairing NARUC’s Energy Conservation Committee and leading the effort to introduce energy efficiency incentive regulation in the first place, my twelve years at LBNL heading the Energy Analysis Department, my reading of the aforementioned ACEEE report, my discussions with that report’s principal author, and my recent discussions with SPP/NPC executives, I do have a personal opinion on this subject. I believe that of all the mechanisms that have been tried, the Nevada approach of providing an adder to the utility’s ROE for its capital investment in cost-effective DSM comes closest to the ideal of having utility companies prefer to invest in DSM rather than supply facilities with the least pressure from regulators.

Q. **Are you saying that it is your opinion that the Nevada Commission is leading the nation in the advancement of energy efficiency incentive regulation?**

A. Yes! And I suggest that the Commission take the steps listed above to further that advancement and create a situation where the utilities provide a level of DSM that is best for society as a matter of routine business without being forced by the Commission.

**Reasons for Suggestions on Next Steps that the Commission Can Take**
Q. Why do you suggest the Commission “maintain the approach of allowing a utility company to capitalize its DSM investments and applying an adder to its ROE for that investment”?

A. Some regulators began encouraging their regulated utility companies to conduct DSM thirty years ago. Finding that most utility companies resisted DSM, almost twenty years ago they began considering adjustments to ratemaking procedures to induce their regulated utility companies to conduct more DSM. This history is described in a 1989 Public Utility Fortnightly (PUF) article that I wrote titled, “Making Electric Efficiency Profitable”. The article calls on electricity and natural gas regulators to make DSM profitable for utility companies. [A copy of this article has been provided to the Commission along with these comments.] As the recent ACEEE survey referenced above shows, electricity regulators have sometimes recognized the benefit of allowing utilities to treat their investments in DSM as they do their investments in supplying electricity – as capital investments. But seven of the eight states that provide extra financial incentives treat DSM as a separate service, which they reward based on performance judged by the regulators. It is my contention that the most appropriate regulatory treatment of DSM, as practiced so far only in Nevada, would have utility executives and managers seeing DSM investments as being profitable in the same manner as investments in power supply. And because cost-effective DSM is societally preferable to burning fossil fuel, the regulatory goal should be for cost-effective DSM to be preferable to utility executives and managers. ‘Slightly preferable’ is good enough. The regulatory goal is not that utilities simply earn more money from cost-effective DSM than from building power plants (as I once stated in the PUF article referenced above); it is that utility executives and managers prefer to
invest in more cost-effective DSM. Traditionally, the electricity industry prefers capital investments and an adder to ROE allows the Commission to adjust the balance of that preference. Nevada’s current approach to DSM incentives, with the ROE adder determined based on historic DSM program performance as I have recommended, provides this appropriate motivation to the utility companies.

Besides satisfying the utility’s private perspective, Nevada’s current approach of providing an ROE adder to capitalized DSM investments also satisfies what I believe are the six most important criteria from the Commission’s public perspective. The current approach, as modified by my suggestions in these comments:

1. Provides the utility a fair return on its DSM investment, considering risk and lost sales
2. Provides the utility an incentive to select DSM over competing investments
3. Avoids DSM competing with the utility’s O&M budget for limited resources
4. Provides the public with an appropriate share of the net benefit of DSM
5. Avoids utility windfall profits
6. Maximizes the public benefit from DSM

Q. Why do you suggest that the Commission “declare explicitly and concisely that the objective of its incentive structure is to “provide rules that make investment in cost-effective DSM a slightly more preferable business venture for Nevada utilities than investing in supply side facilities”?

A. The Commission’s rules are interpreted by many people for many different purposes. For example, utility company managers make daily decisions about how to best
comply with them. Commission staff members interpret them when overseeing utility company operations. Future Commissioners sometimes need to judge the intent of the rules when deciding whether they need revision. I believe that explicitly stating the intent of a rule increases the likelihood of the Commission achieving this intent and makes it easier for the implementers of the Commission’s rules to perform their jobs appropriately.

Q. Why do you suggest that the Commission “establish the following criteria for determining the appropriate level of its DSM incentive:

a. Investments by a utility company in cost-effective DSM earn a slightly higher return on equity (ROE) than investments in investments in supply side facilities.

b. The additional earnings of a utility company for its DSM investment due to the ROE adder do not exceed a reasonable and specified portion of the net benefits actually achieved from its DSM program as determined by the total resource cost (TRC) test. Subject to considerations of additional information available to the Commission, the utility companies, and other stakeholders, I believe that this cap should be in the 10% range”?

A. There are various views on the appropriate level of earnings that a utility company should receive for its DSM investments. They range from dollar allocations to percentages of costs to percentages of demonstrated savings to adjustments for lost revenue. I contend that profitability should be the criterion and that the appropriate level of profit can be bounded by two considerations. On the lower end, the profit
should be at least as high as that from investments in supply, after consideration of
risk, lost revenues from reduced sales, expected growth in sales, debt to equity ratio,
fuel costs, power purchase contracts and opportunities, and other aspects of the
company’s operations. On the upper end, the company should not earn more than a
reasonable share of the net economic benefit created by its DSM investments.
Consumers should receive the majority of the benefit.

Q. Why do you suggest the Commission “Develop a method for determining the
appropriate magnitude of the ROE adder for the company’s investment in DSM
by creating a formula for its determination that is based on energy savings,
avoidance of new peak power, and the aggregate DSM benefit-cost ratio.”?
A. There are two aspects to this suggestion – first that the Commission develop an
explicit methodology for setting the ROE adder, and second that the Commission
provide explicit recognition in this methodology that the adder be tied to the utility’s
DSM program performance, in particular to the amount of energy savings and peak
demand reduction achieved as well as the cost effectiveness of DSM programs as a
whole. This will provide an incentive to the utility for maximizing both savings and
cost effectiveness.

When the Commission set the current 5% adder to the ROE for DSM expenditures, it
heard testimony on the matter and judged that 5% was a reasonable and appropriate
level. Given the growth of utility DSM efforts in Nevada, I suggest that a more
sophisticated determination of the adder is desirable and appropriate.
When the Commission set the 5% adder, it specified that it be for DSM that saves energy. As mentioned above, seven states provide performance incentives based on a variety of achievements in addition to energy savings. One of them is especially important in a fast growing state like Nevada – peak power reduction. It is worth treating explicitly since peak power reduction is beneficial in avoiding power plant construction or power purchase agreement, often in addition to saving fuel costs.

I recommend that the Commission use the following formula for determining the appropriate adder to ROE for DSM investments, subject to a cap of 10% of the net benefits from the DSM:

\[ A = \left[ (x \times E) + (y \times P) \right] \times \frac{B}{C} \]

Where:

- \( A \) = Adder to ROE in percent
- \( E \) = fraction of energy growth avoided (kWh)
- \( P \) = fraction of peak power growth avoided (KW)
- \( B/C \) = benefit cost ratio as determined by the TRC test
- \( x \) = a constant value determined by the Commission, after hearings, in this docket
- \( y \) = a constant value determined by the Commission, after hearings, in this docket

I recommend that the above formula be used to determine the appropriate adder to be applied as a fixed value throughout the following resource planning cycle. The values \( x \) and \( y \) in the formula would be preset by the Commission now. The values \( E \),
P, B, and C would be determined, based on utility filings of DSM program performance, at an appropriate point in the resource planning and ratemaking cycle, probably at the end of the second year of the resource planning cycle. An ROE adder would then be set early in the third year of the resource planning cycle for use in the new plan filing and applied to investments made during the subsequent three-year period of the approved resource plan. The better the utility’s DSM performance in any one resource plan cycle, the higher its earnings from DSM would be in the next, and consumers would still be receiving 90% or more of the net DSM benefits.

I suggest this timing for setting and applying the ROE adder in order to provide stability to the incentive mechanism. My recommendation is a compromise between an annual adjustment to the ROE adder, with true-up based on field evaluations, on the one extreme and a level for the ROE adder that is set in perpetuity until some party takes the initiative to file for a revision, on the other extreme. An annual adjustment would provide more information to the Commission about DSM performance, would have higher administrative costs for the process, would be more contentious if true-up proceedings were included, and, most importantly, would create uncertainty that would discourage the utility from conducting DSM. Not setting a periodic review and potential adjustment would leave the Commission with no assurance that any drift away from an appropriate incentive for the DSM program would be corrected. Matching the review of the ROE adder to the resource plan cycle would be the simplest approach, would allow the Commission to monitor the success of its incentive rules over the years, and would create less uncertainty for the utility company in making its daily DSM business decisions.
Q. Would you please provide an example of how this formula would work?
A. Certainly. First let us assume the Commission sets the values of x at 7.5 and y at 4.0.

Then let us assume that in the first two years of the 2007-2009 planning cycle the company achieves an aggregate benefit-cost ratio for its DSM programs of 2.0 and reduces its demand for energy by 1%, lowering the experienced growth from 5.0% to 4.0%. Let us also assume that the company shaves 2.0% off of its peak demand while peak demand still increases 6.0% (i.e., would have increased 8.0% without DSM).

The ROE adder with these assumptions would be 5.0%, as determined by the following formula, so long as this value doesn’t cause the utility to recover more than 10% of the net DSM benefits:

\[ A = \left( \frac{7.5 \times 1.0}{5.0} + \frac{4.0 \times 2.0}{8.0} \right) \times 2.0 = 5.0\% \]

Q. Why do you suggest the Commission “order Sierra Pacific Power Company (SPP) and Nevada Power Company (NPC) to conduct analyses of their DSM profitability; then conduct hearings on these analyses in order to set appropriate parameters for the ROE adder formula”?
A. Using NPC as a test case, I calculated the expected profitability of the company’s approved 2007 DSM program. I concluded that the return on the roughly $30 million investment will be higher than it would have been if it had been expensed and will be a reasonable portion of the roughly $20 million expected net benefits of the program. I will not report the results quantitatively here because on talking with the company I found my analysis, although generally indicative, was not accurate enough for Commission decisions. The utility companies have computer models that calculate
profit under various assumptions. The Commission should rely on these models in
determining how well a proposed adder satisfies the set criteria. In keeping with the
traditional ratemaking process in Nevada, each utility company should put its analysis
before the Commission and other interested parties should have the opportunity to
examine and then support or challenge the company’s calculations. Perhaps the
company’s analysis of the breakeven ROE that would make it indifferent to a supply
investment or DSM investment would be a good starting point for discussion.

Q. Why do you say that “once the Commission has experience to show that its
modified DSM incentive rules work as intended, it would have no reason to pre-
approve or cap individual DSM investments and could treat DSM as a single
resource in a utility’s integrated resource plan”?

A. Once the Commission has confidence that its incentive structure induces utility
companies to invest in all of the DSM they can cost-effectively achieve and no longer
feels it has to force them to do more than they want and make sure they don’t spend
money ineffectively, there is no reason for the Commission to scrutinize individual
DSM programs the way it currently does. Nor would there be a reason for the
Commission to cap DSM expenditures. It could treat the collective DSM budget the
way it treats a power plant investment. This would be less work for the Commission
and its staff. The Commission would still review DSM program performance as a
whole and would re-evaluate the ROE adder based on review of the utility’s program
performance once each resource planning cycle.
Both SPP and NPC are ramping up their post-implementation evaluation of their DSM programs. With quality evaluation by the companies, it will hopefully take the Commission only a few years to achieve such a level of confidence.

Q. **Why do you suggest the treatment you do for DSM programs, such as education, technology trial, and market research programs, that do not provide easily quantifiable benefits and for “low-income” programs that have benefit-cost ratios below one?**

A. Foundational DSM programs, such as education programs and technology trials, are an important part of the utilities’ DSM portfolio. They provide indirect benefits such as increasing consumer awareness, understanding the impacts that newer energy measures could have in Nevada, and understanding the changing marketplace for energy efficiency measures. The investments should earn an appropriate return and the DSM program evaluation should include their costs. The utilities’ DSM programs should be judged in the aggregate, including such indirect DSM programs.

For similar reasons, the costs of “low-income” DSM programs that may have benefit-cost ratios below one should also be treated as capital investments with the ROE adder applied. They are worthwhile for reasons of social equity and the utilities should be encouraged to conduct such programs, subject to Commission approval. Likewise, they should be included in any DSM program evaluation. As stated before, the utilities’ DSM programs should be judged in the aggregate as if all DSM were a single program.
Q. Does that conclude your comments?

Yes