

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

IN THE MATTER OF AN INVESTIGATION)
INTO THE APPROPRIATENESS OF DEMAND) Docket No. 06-12005
SIDE MANAGEMENT COST RECOVERY)
MECHANISMS AND INCENTIVES)

Comments of

Stephen Wiel

on behalf of

Southwest Energy Efficiency Project (SWEEP)

February 2, 2007

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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.

25

26 **Q. What are your professional qualifications?**

27 A. I have 45 years of experience in energy and environmental management. I am
28 currently the Nevada Representative of the Southwest Energy Efficiency project
29 (SWEET). I previously served as Head of the Energy Analysis Department at
30 Lawrence Berkeley National Laboratory (LBNL), where I also established LBNL's
31 Washington Office, served as senior advisor to the US Department of Energy on
32 integrated resource planning and demand-side management in the utility sector, led
33 the greenhouse gas mitigation component of the U.S. Country Studies Program, and
34 created the initiative on international energy efficiency standards and labels that
35 evolved into the Collaborative Labeling and Standards Program (CLASP). Before
36 joining LBNL, I regulated utility companies, serving for 8 years as a Nevada Public
37 Service Commissioner. Before that, I ran my own consulting firm in energy
38 management and solar design and was an Assistant Professor at UNR.
39 During the time I was a Nevada Public Service Commissioner, I presided over several
40 integrated resource plan filings and related dockets. I was also prominent in the
41 National Association of Regulatory Utility Commissioners (NARUC), where I served
42 as the Chairman of NARUC's Conservation Committee for four years, contributing
43 significantly to the development of electric and gas utility companies' long-range
44 planning, their investment in conservation, incentives for conservation profitability,
45 and environmental accounting.
46
47 I currently serve as President of the Board of CLASP, am on the Board of Directors
48 of the American Council for an Energy Efficient Economy, and am on the Boards of

49 two local organizations supporting homeless women. I have Bachelor's and Master's
50 degrees in Chemical Engineering from Stanford University, and a Doctorate from the
51 University of Pittsburgh, Graduate School of Public and International Affairs. I have
52 published 151 books, articles, reports and papers on the subject of energy efficiency
53 and the environment.

54

55 **Q. What is the purpose of your comments?**

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

62

63 **Q. What are your suggestions for improvement in Nevada's incentive structure?**

64 A. I suggest that the Commission conduct the following six steps to improve its
65 incentive structure for electricity DSM.

- 66 1. Maintain the approach of allowing a utility company to capitalize its DSM
67 investments and applying an adder to its ROE for that investment.
- 68 2. Declare explicitly and concisely that the objective of its incentive structure is to
69 “provide rules that make investment in cost-effective DSM a slightly more
70 preferable business venture for Nevada utilities than investing in supply side
71 facilities.”

- 72 3. Establish the following criteria for determining the appropriate level of its DSM
73 incentive:
- 74 a. Investments by a utility company in cost-effective DSM earn a
75 slightly higher return on equity (ROE) than investments in
76 investments in supply side facilities.
- 77 b. The additional earnings of a utility company for its DSM investment
78 due to the ROE adder do not exceed a reasonable and specified
79 portion of the net benefits actually achieved from its DSM program
80 as determined by the total resource cost (TRC) test. Subject to
81 considerations of additional information available to the
82 Commission, the utility companies, and other stakeholders, I believe
83 that this cap should be in the 10% range.
- 84 4. Develop a method for determining the appropriate magnitude of the ROE adder
85 for the company's investment in DSM by creating a formula for its
86 determination that is based on energy savings, avoidance of new peak power,
87 and the aggregate DSM benefit-cost ratio.
- 88 5. Order Sierra Pacific Power Company (SPP) and Nevada Power Company
89 (NPC) to conduct analyses of their DSM profitability; then conduct hearings on
90 these analyses in order to set appropriate parameters for the ROE adder formula.
- 91 6. Once the Commission has experience to show that its modified DSM incentive
92 rules work as intended, it would have no reason to pre-approve or cap individual
93 DSM investments and could treat DSM as a single resource in a utility's
94 resource plan.

95 Q. **How would you recommend that the Commission apply this approach to**
96 **education, technology trial, market research, and low-income DSM programs?**

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

104

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

111

112 **General Comments on DSM Incentives in Other States and on Nevada’s Current**
113 **Regulatory Approach**

114

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

117 A. Fortunately, the American Council for an Energy Efficient Economy (ACEEE) has
118 just published a survey of energy efficiency incentive regulations throughout the U.S.

119 It is titled, “*Aligning Utility Interests with Energy Efficiency Objectives: A review of*
120 *Recent Efforts in Decoupling and Performance Incentives*”. Its principal author is
121 Martin Kushler. It was issued in October 2006. [This report may be downloaded as a
122 PDF document without fee at
123 [www.aceee.org/store/proddetail.cfm?CFID=1436792&CFTOKEN=40048025&ItemI](http://www.aceee.org/store/proddetail.cfm?CFID=1436792&CFTOKEN=40048025&ItemID=421&CategoryID=7)
124 [D=421&CategoryID=7](http://www.aceee.org/store/proddetail.cfm?CFID=1436792&CFTOKEN=40048025&ItemID=421&CategoryID=7). A copy has been provided to the Commission along with
125 these comments.]

126

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

128 A. Let me summarize the ACEEE report. It addresses three aspects of incentive
129 regulation – (1) cost recovery, (2) performance incentives, and (3) decoupling.
130 Seventeen states, including Nevada, allow cost recovery of a utility’s DSM expenses
131 as either an operating expense or a capital expense. Eight states provide performance
132 incentives, including Nevada. Seven of these states provide a performance bonus as a
133 percentage of DSM expenditures. Only Nevada provides an increased rate of return.
134 Two states mandate decoupling of revenues from sales, only one of them for
135 electricity.

136

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

139 A. The other seven states that provide a performance incentive use a variety of criteria
140 for determining the amount of the performance bonus. These include electricity
141 savings, lifetime resource benefits, cost savings, meeting kWh savings targets by

142 sector, benefit-cost ratio, market penetration of energy-efficient technologies,
143 leveraging of ratepayer dollars, and demonstrated market transformation.

144

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

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

156

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

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

163

164 **Reasons for Suggestions on Next Steps that the Commission Can Take**

165

166 Q. **Why do you suggest the Commission “maintain the approach of allowing a**
167 **utility company to capitalize its DSM investments and applying an adder to its**
168 **ROE for that investment”?**

169 A. Some regulators began encouraging their regulated utility companies to conduct DSM
170 thirty years ago. Finding that most utility companies resisted DSM, almost twenty
171 years ago they began considering adjustments to ratemaking procedures to induce
172 their regulated utility companies to conduct more DSM. This history is described in a
173 1989 Public Utility Fortnightly (PUF) article that I wrote titled, “*Making Electric*
174 *Efficiency Profitable*”. The article calls on electricity and natural gas regulators to
175 make DSM profitable for utility companies. [A copy of this article has been provided
176 to the Commission along with these comments.] As the recent ACEEE survey
177 referenced above shows, electricity regulators have sometimes recognized the benefit
178 of allowing utilities to treat their investments in DSM as they do their investments in
179 supplying electricity – as capital investments. But seven of the eight states that
180 provide extra financial incentives treat DSM as a separate service, which they reward
181 based on performance judged by the regulators. It is my contention that the most
182 appropriate regulatory treatment of DSM, as practiced so far only in Nevada, would
183 have utility executives and managers seeing DSM investments as being profitable in
184 the same manner as investments in power supply. And because cost-effective DSM is
185 societally preferable to burning fossil fuel, the regulatory goal should be for cost-
186 effective DSM to be preferable to utility executives and managers. ‘Slightly
187 preferable’ is good enough. The regulatory goal is not that utilities simply *earn more*
188 *money* from cost-effective DSM than from building power plants (as I once stated in
189 the PUF article referenced above); it is that utility executives and managers *prefer to*

190 *invest* in more cost-effective DSM. Traditionally, the electricity industry prefers
191 capital investments and an adder to ROE allows the Commission to adjust the balance
192 of that preference. Nevada's current approach to DSM incentives, with the ROE
193 adder determined based on historic DSM program performance as I have
194 recommended, provides this appropriate motivation to the utility companies.

195

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

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

207

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

212 A. The Commission's rules are interpreted by many people for many different purposes.
213 For example, utility company managers make daily decisions about how to best

214 comply with them. Commission staff members interpret them when overseeing
215 utility company operations. Future Commissioners sometimes need to judge the
216 intent of the rules when deciding whether they need revision. I believe that explicitly
217 stating the intent of a rule increases the likelihood of the Commission achieving this
218 intent and makes it easier for the implementers of the Commission's rules to perform
219 their jobs appropriately.

220

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

- 223 **a. Investments by a utility company in cost-effective DSM earn a**
224 **slightly higher return on equity (ROE) than investments in**
225 **investments in supply side facilities.**
- 226 **b. The additional earnings of a utility company for its DSM investment**
227 **due to the ROE adder do not exceed a reasonable and specified**
228 **portion of the net benefits actually achieved from its DSM program**
229 **as determined by the total resource cost (TRC) test. Subject to**
230 **considerations of additional information available to the**
231 **Commission, the utility companies, and other stakeholders, I believe**
232 **that this cap should be in the 10% range”?**

233 **A.** There are various views on the appropriate level of earnings that a utility company
234 should receive for its DSM investments. They range from *dollar allocations* to
235 *percentages of costs* to *percentages of demonstrated savings* to *adjustments for lost*
236 *revenue*. I contend that *profitability* should be the criterion and that the appropriate
237 level of profit can be bounded by two considerations. On the lower end, the profit

238 should be at least as high as that from investments in supply, after consideration of
239 risk, lost revenues from reduced sales, expected growth in sales, debt to equity ratio,
240 fuel costs, power purchase contracts and opportunities, and other aspects of the
241 company's operations. On the upper end, the company should not earn more than a
242 reasonable share of the net economic benefit created by its DSM investments.
243 Consumers should receive the majority of the benefit.

244

245 **Q. Why do you suggest the Commission “Develop a method for determining the**
246 **appropriate magnitude of the ROE adder for the company’s investment in DSM**
247 **by creating a formula for its determination that is based on energy savings,**
248 **avoidance of new peak power, and the aggregate DSM benefit-cost ratio.”?**

249 A. There are two aspects to this suggestion – first that the Commission develop an
250 explicit methodology for setting the ROE adder, and second that the Commission
251 provide explicit recognition in this methodology that the adder be tied to the utility's
252 DSM program performance, in particular to the amount of energy savings and peak
253 demand reduction achieved as well as the cost effectiveness of DSM programs as a
254 whole. This will provide an incentive to the utility for maximizing both savings and
255 cost effectiveness.

256

257 When the Commission set the current 5% adder to the ROE for DSM expenditures, it
258 heard testimony on the matter and judged that 5% was a reasonable and appropriate
259 level. Given the growth of utility DSM efforts in Nevada, I suggest that a more
260 sophisticated determination of the adder is desirable and appropriate.

261

262 When the Commission set the 5% adder, it specified that it be for DSM that saves
263 energy. As mentioned above, seven states provide performance incentives based on a
264 variety of achievements in addition to energy savings. One of them is especially
265 important in a fast growing state like Nevada – peak power reduction. It is worth
266 treating explicitly since peak power reduction is beneficial in avoiding power plant
267 construction or power purchase agreement, often in addition to saving fuel costs.

268

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

272
$$A = [(x * E) + (y * P)] * B/C$$

273 Where:

274 A = Adder to ROE in percent

275 E = fraction of energy growth avoided (kWh)

276 P = fraction of peak power growth avoided (KW)

277 B/C = benefit cost ratio as determined by the TRC test

278 x = a constant value determined by the Commission, after hearings, in
279 this docket

280 y = a constant value determined by the Commission, after hearings, in
281 this docket

282

283 I recommend that the above formula be used to determine the appropriate adder to be
284 applied as a fixed value throughout the following resource planning cycle. The
285 values x and y in the formula would be preset by the Commission now. The values E,

286 P, B, and C would be determined, based on utility filings of DSM program
287 performance, at an appropriate point in the resource planning and ratemaking cycle,
288 probably at the end of the second year of the resource planning cycle. An ROE adder
289 would then be set early in the third year of the resource planning cycle for use in the
290 new plan filing and applied to investments made during the subsequent three-year
291 period of the approved resource plan. The better the utility's DSM performance in
292 any one resource plan cycle, the higher its earnings from DSM would be in the next,
293 and consumers would still be receiving 90% or more of the net DSM benefits.

294
295 I suggest this timing for setting and applying the ROE adder in order to provide
296 stability to the incentive mechanism. My recommendation is a compromise between
297 an annual adjustment to the ROE adder, with true-up based on field evaluations, on
298 the one extreme and a level for the ROE adder that is set in perpetuity until some
299 party takes the initiative to file for a revision, on the other extreme. An annual
300 adjustment would provide more information to the Commission about DSM
301 performance, would have higher administrative costs for the process, would be more
302 contentious if true-up proceedings were included, and, most importantly, would
303 create uncertainty that would discourage the utility from conducting DSM. Not
304 setting a periodic review and potential adjustment would leave the Commission with
305 no assurance that any drift away from an appropriate incentive for the DSM program
306 would be corrected. Matching the review of the ROE adder to the resource plan cycle
307 would be the simplest approach, would allow the Commission to monitor the success
308 of its incentive rules over the years, and would create less uncertainty for the utility
309 company in making its daily DSM business decisions.

310

311 **Q. Would you please provide an example of how this formula would work?**

312 A. Certainly. First let us assume the Commission sets the values of x at 7.5 and y at 4.0.

313 Then let us assume that in the first two years of the 2007-2009 planning cycle the

314 company achieves an aggregate benefit-cost ratio for its DSM programs of 2.0 and

315 reduces its demand for energy by 1%, lowering the experienced growth from 5.0% to

316 4.0%. Let us also assume that the company shaves 2.0% off of its peak demand while

317 peak demand still increases 6.0% (i.e., would have increased 8.0% without DSM).

318 The ROE adder with these assumptions would be 5.0%, as determined by the

319 following formula, so long as this value doesn't cause the utility to recover more than

320 10% of the net DSM benefits:

$$321 \quad A = [(7.5 * 1.0/5.0) + (4.0 * 2.0/8.0)] * 2.0 = 5.0\%$$

322

323 **Q. Why do you suggest the Commission “order Sierra Pacific Power Company**

324 **(SPP) and Nevada Power Company (NPC) to conduct analyses of their DSM**

325 **profitability; then conduct hearings on these analyses in order to set appropriate**

326 **parameters for the ROE adder formula”?**

327 A. Using NPC as a test case, I calculated the expected profitability of the company's

328 approved 2007 DSM program. I concluded that the return on the roughly \$30 million

329 investment will be higher than it would have been if it had been expensed and will be

330 a reasonable portion of the roughly \$20 million expected net benefits of the program.

331 I will not report the results quantitatively here because on talking with the company I

332 found my analysis, although generally indicative, was not accurate enough for

333 Commission decisions. The utility companies have computer models that calculate

334 profit under various assumptions. The Commission should rely on these models in
335 determining how well a proposed adder satisfies the set criteria. In keeping with the
336 traditional ratemaking process in Nevada, each utility company should put its analysis
337 before the Commission and other interested parties should have the opportunity to
338 examine and then support or challenge the company's calculations. Perhaps the
339 company's analysis of the breakeven ROE that would make it indifferent to a supply
340 investment or DSM investment would be a good starting point for discussion.

341

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

346 **A.** Once the Commission has confidence that its incentive structure induces utility
347 companies to invest in all of the DSM they can cost-effectively achieve and no longer
348 feels it has to force them to do more than they want and make sure they don't spend
349 money ineffectively, there is no reason for the Commission to scrutinize individual
350 DSM programs the way it currently does. Nor would there be a reason for the
351 Commission to cap DSM expenditures. It could treat the collective DSM budget the
352 way it treats a power plant investment. This would be less work for the Commission
353 and its staff. The Commission would still review DSM program performance as a
354 whole and would re-evaluate the ROE adder based on review of the utility's program
355 performance once each resource planning cycle.

356

357 Both SPP and NPC are ramping up their post-implementation evaluation of their
358 DSM programs. With quality evaluation by the companies, it will hopefully take the
359 Commission only a few years to achieve such a level of confidence.

360

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

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

372

373 For similar reasons, the costs of “low-income” DSM programs that may have benefit-
374 cost ratios below one should also be treated as capital investments with the ROE
375 adder applied. They are worthwhile for reasons of social equity and the utilities
376 should be encouraged to conduct such programs, subject to Commission approval.

377 Likewise, they should be included in any DSM program evaluation. As stated before,
378 the utilities’ DSM programs should be judged in the aggregate as if all DSM were a
379 single program.

380

381 **Q. Does that conclude your comments?**

382 Yes