

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO**

IN THE MATTER OF THE APPLICATION  
OF PUBLIC SERVICE COMPANY OF COLORADO  
FOR APPROVAL OF ITS 2003 LEAST COST  
RESOURCE PLAN

DOCKET NO. 04A-214E

IN THE MATTER OF THE APPLICATION OF  
PUBLIC SERVICE COMPANY OF COLORADO  
FOR AN ORDER APPROVING A REGULATORY  
PLAN TO SUPPORT THE COMPANY'S 2003  
LEAST-COST RESOURCE PLAN

DOCKET NO. 04A-215E

IN THE MATTER OF THE APPLICATION OF  
PUBLIC SERVICE COMPANY OF COLORADO  
FOR A CERTIFICATE OF PUBLIC  
CONVENIENCE AND NECESSITY FOR THE  
COMANCHE UNIT 3 GENERATING FACILITY

DOCKET NO. 04A-216E

**DIRECT TESTIMONY OF HOWARD S. GELLER**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Howard S. Geller. My business address is 2260 Baseline Rd., Suite 212,  
3 Boulder, Colorado 80302.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by the Southwest Energy Efficiency Project (SWEEP). I am the  
6 Executive Director of SWEEP, which is a private, non-profit organization.

7 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS DOCKET?**

8 A. I am testifying on behalf of the Southwest Energy Efficiency Project (SWEEP).

9 **Q. HAVE YOU PREPARED A STATEMENT OF YOUR EXPERIENCE AND  
10 QUALIFICATIONS?**

11 A. Yes. That statement is included as Attachment A.

12 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

13 A. The purpose of my testimony is to comment on the treatment of energy efficiency and  
14 demand-side management (DSM) programs in the 2003 Least-Cost Resource Plan  
15 (LCRP) filed by Public Service of Colorado (PSCo or Company). Under the LCRP  
16 Rules, PSCo is expressly required to consider energy-efficient technologies as part of its  
17 bid solicitation and evaluation process, and, in fact, must grant a preference to such  
18 resources where cost and reliability considerations are equal. 4 C.C.R. § 723-3, Rule  
19 3610(f).

1           The Company has considerable experience implementing successful DSM  
2 programs both here in Colorado and also in its home state of Minnesota. Unfortunately,  
3 this experience and the significant benefits of DSM towards a low cost energy portfolio  
4 are not adequately represented in PSCo's current proposal. I will argue that the LCRP is  
5 badly flawed as the Company neglected to consider an important resource option —  
6 continuation and potential expansion of existing company-sponsored DSM programs. I  
7 will also comment on the DSM bidding proposal made by the Company in the 2003  
8 LCRP, and recommend a specific funding level for continued company-sponsored DSM  
9 programs.

10 **Q. WHAT DOES STATE LAW SAY ABOUT UTILITY INVESTMENTS IN**  
11 **ENERGY EFFICIENCY?**

12 A. SB 01-144, adopted by the Legislature and signed into law, states:

13           The Commission shall give *the fullest possible consideration* of the cost-  
14 effective implementation of new clean energy *and energy-efficient*  
15 *technologies* in its consideration of generation acquisitions for electric  
16 utilities, bearing in mind the beneficial contributions such technologies  
17 make to Colorado's energy security, economic prosperity, environmental  
18 protection, and insulation from fuel price increases. The commission shall  
19 consider utility investments in energy efficiency to be an acceptable use of  
20 ratepayer moneys. (C.R.S. § 40-2-123) (emphasis added).

21 The Commission should, therefore, include consideration of utility-sponsored DSM  
22 programs as part of the LCP process in order to give energy-efficient technologies the  
23 "fullest possible consideration."

24 **Q. WHAT HAS BEEN THE EXPERIENCE WITH PSCO'S DSM PROGRAMS IN**  
25 **RECENT YEARS?**

26 A. PSCo is operating a set of DSM programs under the *1999 DSM Stipulation and*  
27 *Settlement Agreement*. Under this agreement, PSCo is spending up to \$75 million on  
28 DSM programs during 2001-2005, in order to reduce peak summer demand by at least  
29 124 MW. PSCo is on track for meeting this goal, according to information it has  
30 provided at periodic DSM Roundtable Discussions. The most recent update was  
31 provided on August 25, 2005 in a Response to Issues Raised During the April 26, 2004  
32 DSM Roundtable Discussion. In that public document, PSCo indicated it anticipates

1 reducing peak demand by 125.55 MW from DSM programs implemented during 2001-  
2 2005, programs that will cost the utility \$56 million (2000 dollars). PSCo is  
3 implementing seven DSM programs in order to achieve this goal (an eighth program  
4 ended in 2003). In addition, the Company includes energy savings and peak demand  
5 reductions from its 2001-2005 DSM programs in its 2003 LCRP (Vol. 4, Table 1.6.B-7).

6 **Q. HOW COST-EFFECTIVE DO THE EXISTING DSM PROGRAMS APPEAR TO**  
7 **BE?**

8 A. Except for one program that has been completed, the Company is still in the process of  
9 implementing DSM programs under the 1999 Agreement. However, the Company has  
10 made preliminary cost-benefit estimates for all its ongoing DSM programs. This  
11 information was provided to SWEEP on August 18, 2004 in response to Discovery  
12 Request No. SWEEP2-1. The Company estimates that its current DSM programs are  
13 very cost-effective. The estimated net economic benefit from the programs under the  
14 Total Resource Cost test is \$117,526,782. The benefit-cost ratio (BCR) for the programs  
15 as a whole from this perspective is 2.45. The Total Resource Cost test considers the net  
16 present value of both utility and program participant costs and benefits, meaning the  
17 Company estimates its current DSM programs will generate net economic benefits of  
18 approximately \$117.5 million on a net present value basis.

19 **Q. WHAT IS THE COST EFFECTIVENESS OF THE COMPANY'S CURRENT**  
20 **DSM PROGRAMS UNDER THE RATEPAYER IMPACT COST TEST?**

21 A. Under the more restrictive Ratepayer Impact Cost test, the Company estimates that some  
22 programs will have a benefit-cost ratio (BCR) of more than one, but that the programs as  
23 a whole will have a BCR of 0.68. The two programs with an estimated BCR of over one  
24 from this perspective are the Saver's Switch (BCR = 2.59) and Central AC Rebate  
25 program (BCR = 1.27).

26 **Q. HOW DOES THE COMPANY'S EXPERIENCE WITH DSM PROGRAMS IN**  
27 **COLORADO COMPARE WITH ITS EXPERIENCE IN MINNESOTA?**

28 A. The Company operates well-funded and very effective DSM programs in its home state  
29 of Minnesota. The Company reports that it spent \$42.16 million (about 2.35% of its  
30 retail revenues) on electricity DSM programs in Minnesota in 2003. The programs  
31 implemented in 2003 alone reduced peak electric load by 110.6 MW, saved 245 GWh/yr  
32 of electricity consumption (at the generator), and provided more than \$153 million in net

1 economic benefits to the Company's electric customers. Furthermore, the programs had  
2 a BCR of 2.90 from a Total Resource Cost test perspective and a BCR of 1.06 from the  
3 Ratepayer Impact Cost test perspective. The Company's cumulative DSM programs in  
4 Minnesota since 1990 reduced electricity use in 2003 by 3,349 GWh, reduced peak  
5 demand in 2003 by over 1,700 MW, and achieved \$1.92 billion in net economic benefits  
6 for the Company's customers.<sup>1</sup> In its most recent long-term resource plan for its  
7 Northern States Power subsidiary, the Company reaffirms the DSM goals adopted in its  
8 2000 Resource Plan, namely reducing peak demand by 1,174 MW and saving 3,253  
9 GWh/yr in 2014 as a result of DSM programs implemented during 2000-2014.<sup>2</sup> In fact,  
10 the Company exceeded the annual savings goals established in its 2000 Resource Plan  
11 during 2000-2003.

12 The Company's successful experience with DSM in Minnesota is particularly relevant to  
13 the LCRP process here in Colorado, given PSCo's mandate to minimize the net present  
14 value of rate impacts consistent with reliability considerations.

15 **Q. HOW DO THE COMPANY'S CURRENT DSM PROGRAMS AFFECT PEAK**  
16 **DEMAND, AVERAGE DEMAND, AND SYSTEM LOAD FACTOR?**

17 A. The impact on peak demand, average demand, and system load factor varies from  
18 program to program. But the Company's experience with DSM programs in Colorado  
19 and Minnesota shows that these programs as a whole are a valuable resource for  
20 improving system load factor. In Colorado where DSM programs are more limited, the  
21 Company projected that its 2001-2005 DSM programs will reduce summer peak demand  
22 by 148 MW and average demand by 33.9 MW (297 GWh/yr), implying a peak-to-  
23 average reduction ratio of 4.37 (see 2003 LCRP, Vol. 4, Table 1.6.B-7). In Minnesota  
24 where DSM programs are more comprehensive and oriented to saving electricity as well  
25 as reducing peak demand, the Company claims its 2003 DSM programs alone reduced  
26 peak demand by 110.6 MW and average demand by 28.0 MW (245 GWh/yr). This  
27 implies a peak-to-average reduction ratio of 3.95. In both states, DSM programs are  
28 reducing summer peak demand more than average demand (i.e., total electricity use) in

---

<sup>1</sup> See 2003 Minnesota Natural Gas and Electric Conservation Improvement Program Status Report & Associated Compliance Filings. Xcel Energy, Minneapolis, MN, April 1, 2004.

<sup>2</sup> Application for Resource Plan Approval 2003-2017. Northern States Power Company filing in Docket No. E-002/RP-02-2065. Northern States Power Company, Minneapolis, MN, Dec. 2, 2002. p. 35, pp. 46-49.

1 percentage terms, thereby improving the system load factor. This is an important impact  
2 since system load factor has been declining in the Company's Colorado service area.

3 **Q. ARE ANY DSM PROGRAMS CONSIDERED IN THE COMPANY'S 2003**  
4 **LEAST-COST RESOURCE PLAN?**

5 A. The Company has not proposed or even considered continuation of any of its current  
6 DSM programs, or any new company-sponsored DSM programs, in its 2003 LCRP (see  
7 response to Discovery Request No. SWEEP1-2). This glaring omission was made in  
8 spite of the effectiveness of the Company's ongoing company-sponsored DSM programs  
9 in both Colorado and Minnesota. The Company also states that any acquisition of new  
10 DSM resources would be as a result of winning DSM bids in response to the Company's  
11 proposed All-Source Solicitation.

12 **Q. WERE DSM RESOURCES CONSIDERED IN THE ANALYSIS OF RESOURCE**  
13 **OPTIONS THAT THE COMPANY PERFORMED AS IT PREPARED ITS 2003**  
14 **LCRP?**

15 A. No. The Company did not consider any potential demand-side resources in its resource  
16 screening assessment using the Strategist model (see Response to Discovery Request No.  
17 OCC6-6).

18 **Q. CAN COMPANY-SPONSORED DSM PROGRAMS STILL BE COST-**  
19 **EFFECTIVE UNDER THE RESOURCE PLANNING RULES ESTABLISHED BY**  
20 **THE COLORADO PUBLIC UTILITIES COMMISSION (PUC) IN 2002?**

21 A. Yes they can. In its Decision No. C02-991 in Docket No. 02R-137E, the Colorado PUC  
22 decided to change the objective of resource planning from minimizing the net present  
23 value of revenue requirements (i.e., total electricity bills paid by customers) to  
24 minimizing the net present value of rates. This new objective is less favorable to DSM  
25 resources because it could eliminate DSM programs that lower customer bills but  
26 increase rates. But it does not mean that DSM resources are automatically disqualified.  
27 Some DSM programs individually or collectively pass the Ratepayer Impact Cost Test, as  
28 demonstrated by the Company's DSM experience in Minnesota and its cost-effectiveness  
29 estimates for the 2001-2005 DSM programs in Colorado. Furthermore, even if a DSM  
30 program does not pass the Ratepayer Impact Cost test, it still can be cost-effective as part  
31 of a resource portfolio, if it leads to a smaller rate increase than other potential resource  
32 options (e.g., the proposed Comanche 3 coal-fired power plant).

1 **Q. IS THE ALL-SOURCE SOLICITATION PROCESS PROPOSED BY THE**  
2 **COMPANY LIKELY TO RESULT IN ACQUISITION OF SIGNFICANT DSM**  
3 **RESOURCES?**

4 A. For a number of reasons, the all-source solicitation and DSM RFP are unlikely to  
5 stimulate very much incremental energy efficiency improvement or load management in  
6 the Company's service territory.

7 First, there is a minimum size requirement—bidders must offer at least 1 MW of  
8 peak demand reduction or 8,760 MWh of annual energy savings. This means the bidding  
9 process is not readily amenable to smaller scale yet potentially cost-effective DSM  
10 resources, such as programs that increase the energy efficiency of household appliances  
11 or small commercial building air conditioning systems.

12 Second, the proposed DSM bidding application is relatively complex. For  
13 example, it requests information on hourly operating schedules which may not be readily  
14 available to potential bidders.

15 Third, there are non-trivial application fees. The proposed fee is \$1,000 to \$5,000,  
16 depending on the size of the bid.

17 Fourth, the solicitation materials do not provide potential bidders with information  
18 that would help them to decide whether or not to bid. For example, the Company is  
19 unwilling to provide information that would help potential bidders determine whether  
20 potential DSM bids are likely to be cost-effective (e.g., the Company stated that is not  
21 planning to provide potential bidders with information regarding avoided costs or  
22 expected economic benefits from energy efficiency improvements). (See Response to  
23 Discovery Request No. SWEEP1-5).

24 Fifth, the shift to a rate minimization objective rather than an electricity bill  
25 (revenue requirements) minimization objective, as previously used in Colorado, will  
26 discourage DSM bids, as it is more difficult for DSM projects to appear attractive under  
27 the former.

28 **Q. HOW DO THE PROPOSED DSM BIDDING RULES COMPARE TO THE DSM**  
29 **BIDDING THE COMPANY CURRENTLY USES WITHIN ITS DSM**  
30 **PROGRAMS?**

31 A. The Company has been using bidding procedures to solicit DSM projects under its  
32 Custom Efficiency program targeted to commercial and industrial customers. The

1 program has been successful in bringing forth cost-effective DSM projects. But the  
2 Custom Efficiency program is much more flexible and user friendly than the proposed  
3 new DSM bidding rules. Under the Custom Efficiency program, the application form is  
4 simpler, smaller projects can directly bid, and potential applicants are informed of the  
5 maximum incentive payment. The average size (in terms of peak demand reduction) of  
6 awarded bids is 225 kW, far below the minimum size (1 MW) specified for DSM bids in  
7 the proposed all-source solicitation. This confirms the point that the proposed DSM RFP  
8 is not conducive to acquisition of actual DSM resources.

9 **Q. WHAT HAS BEEN THE EXPERIENCE WITH DSM BIDDING PROGRAMS IN**  
10 **OTHER PARTS OF THE COUNTRY?**

11 A. The experience has been mixed. Assessments of DSM bidding programs have found that  
12 these programs tend to be more costly than conventional utility-sponsored DSM incentive  
13 programs. For example, a comparison of utility-sponsored lighting efficiency programs  
14 and DSM bidding programs by researchers from Lawrence Berkeley National Laboratory  
15 found that the utility cost per unit of energy savings is significantly higher and the total  
16 resource cost is moderately higher for DSM bidding. The same assessment concluded "A  
17 number of utilities have encountered significant difficulties in implementing DSM  
18 bidding programs. ... DSM bidding programs have been quite contentious and difficult  
19 for some utilities to implement."<sup>3</sup>

20 **Q. WHAT HAS THE COMPANY LEARNED ABOUT DSM BIDDING?**

21 A. Northern States Power hired a contractor to prepare an assessment of DSM bidding  
22 experience in the United States. The contractor's report, completed June 1, 1998<sup>4</sup>,  
23 includes the following statements and conclusions: "The evidence is mixed on whether  
24 DSM bidding has been successful. In a few cases, all parties appear to be satisfied that  
25 goals have been met. More commonly, however, bidding programs fall short of their  
26 MW reduction goals, involve contentious approval processes, and/or leave at least some  
27 parties less than pleased with the experience" (p. 8-1). "Another weakness of DSM  
28 bidding programs is that they are not appropriate for all market end-use segments, so  
29 some customer type[s] will not benefit from resulting increases in energy efficiency.

---

<sup>3</sup> C.A. Goldman and M.S. Kito, *Review of Demand-Side Bidding Programs: Impacts, Costs, and Cost-Effectiveness*. LBL-35021. Lawrence Berkeley National Laboratory, Berkeley, CA. May 1994. p. 46, pp. 80-81.

<sup>4</sup> *Review of DSM Bidding in the United States*. Report prepared by RER, San Diego, CA for Northern States Power, Minneapolis, MN, June 1, 1998.

1 ...customer classes that seem to be squeezed out of the market include residential and  
2 small commercial and industrial sectors. In addition, DSM bidding is not appropriate for  
3 new construction” (p. 6-9). Furthermore, the Company did not include DSM bidding  
4 among the comprehensive set of DSM programs it implemented in Minnesota as of  
5 2003.<sup>5</sup>

6 **Q. IS THERE ANY ROLE FOR DSM BIDDING WITHIN UTILITY DSM**  
7 **PROGRAMS?**

8 A. PSCo appears to be getting a reasonable response and achieving cost-effective energy and  
9 peak demand savings with its Custom Efficiency DSM bidding program. So DSM  
10 bidding, if properly designed, can play a role within a portfolio of DSM programs. But  
11 DSM bidding is not a comprehensive DSM “solution.” It is not a substitute for company-  
12 sponsored DSM programs for residential and smaller commercial and industrial  
13 customers, for example. This point is supported by a statement in the Lawrence Berkeley  
14 National Laboratory report cited above, namely “...DSM bidding programs account for  
15 only a small amount of the savings (~5%) currently achieved by utility DSM efforts  
16 nationally.”<sup>6</sup>

17 **Q. PLEASE SUMMARIZE YOUR TESTIMONY SO FAR.**

18 A. The LCRP filed by PSCo is flawed because the Company did not consider continuation  
19 of its current DSM programs, nor other potential new DSM programs in its resource  
20 assessment or resource plan. The Company has considerable experience implementing  
21 effective DSM programs in both Colorado and Minnesota. These programs are providing  
22 substantial net economic benefits to customers and also helping the utility improve its  
23 system load factor. The Company’s proposal to conduct DSM bidding within an all-  
24 source solicitation has a number of problems and is not likely to result in much  
25 incremental investment in energy efficiency or load management measures. Although the  
26 general experience with DSM bidding is mixed, if properly designed, DSM bidding can  
27 play a significant role within a portfolio of DSM programs.

28 **Q. BASED ON THIS SUMMARY, DO YOU HAVE AN ALTERNATIVE DSM**  
29 **PROPOSAL FOR PSCO?**

---

<sup>5</sup> See Reference 1.

<sup>6</sup> See Reference 3, p. xvi.



1 A. Rather than abandoning a proven approach for helping consumers and businesses lower  
2 their energy bills while reducing peak demand and improving the load profile of the  
3 electric system, the Company should develop and implement a robust set of DSM  
4 programs in its Colorado service territory, as it is doing in Minnesota. In particular, I  
5 recommend that the Company devote 2.35% of its electric revenues to DSM programs in  
6 Colorado, the same percentage of revenues devoted to these programs in Minnesota in  
7 2003. This would generate about \$40 million per year for DSM programs starting in  
8 2005, given projected electricity sales and revenues that year.

9 **Q. WHAT TYPES OF DSM PROGRAMS SHOULD THE COMPANY IMPLEMENT**  
10 **AT THIS DSM FUNDING LEVEL?**

11 A. The Company should implement a diverse set of proven energy efficiency programs that  
12 will both reduce summer peak demand and lower total electricity use, including bidding  
13 programs where appropriate. Here is a preliminary list of the programs that could be  
14 included in a comprehensive DSM effort with \$40 million in annual funding:

- 15 • grants to reduce electricity use in low-income households,
- 16 • rebates for households that purchase energy-efficient appliances and lighting  
17 devices or undertake home retrofits,
- 18 • rebates for households that purchase energy-efficient air conditioners or make  
19 other efficiency improvements in their cooling system,
- 20 • cycling controls for residential and commercial air conditioning systems,
- 21 • audits for and rebates to businesses that upgrade the efficiency of their cooling,  
22 refrigeration, lighting, or other electrical equipment,
- 23 • technical and financial assistance to industries that are interested in improving the  
24 energy efficiency of their processes,
- 25 • grants to pay a portion of the cost for energy savings projects in local government  
26 buildings and schools,
- 27 • training, certification, and outreach to increase the skills of builders, contractors,  
28 and energy efficiency service providers in the Company's service area,
- 29 • education and promotion to increase the availability of and markets for innovative  
30 energy-efficient products,
- 31 • demand-side bidding to solicit energy efficiency projects from businesses and  
32 Energy Service Companies (ESCOs), and

- design assistance and incentives to builders that construct highly energy-efficient new homes and commercial buildings.

**Q. HAVE YOU ANALYZED IN DETAIL THE POTENTIAL IMPACTS AND COST EFFECTIVENESS OF A DSM EFFORT OF THIS MAGNITUDE AND SCOPE?**

A. No I have not. I do not have the data or modeling capability to do so. But the Company does have this data and modeling capability, and it should examine the potential impacts and cost effectiveness of a robust DSM effort along the lines outlined here. Furthermore, I recommend this analysis be performed in a risk-based modeling framework. DSM programs can have value in reducing risks such as vulnerability to system outages due to extreme weather conditions.

**Q. CAN YOU MAKE A PRELIMINARY ESTIMATE OF THE ENERGY IMPACTS OF A DSM EFFORT OF THIS MAGNITUDE AND SCOPE?**

A. Yes, I can do so by making assumptions about the level of energy savings and peak demand reduction per unit of program expenditure. For these estimates, I use the performance metrics achieved by the Company in its comprehensive DSM efforts in Minnesota, as reported by the Company to the Minnesota Department of Commerce. During 2000-2003. The Company reported that it spent \$152.7 million on electricity DSM programs and that these programs reduced summer peak demand by 487.5 MW and cut total electricity use by 1,012 GWh/yr (at the generator).<sup>7</sup> Assuming 7% T&D losses on average, the DSM programs saved 6.16 kWh/yr per program dollar and reduced peak demand by 2.97 MW per million program dollars. Applying these savings coefficients to a \$40 million annual DSM effort in Colorado yields 246.5 GWh/yr of electricity savings and 118.8 MW of peak load reduction from DSM programs implemented each year.

**Q. CAN YOU MAKE A PRELIMINARY ESTIMATE OF THE COST EFFECTIVENESS OF A DSM EFFORT OF THIS MAGNITUDE AND SCOPE?**

A. Yes, I can do so by making assumptions about the level of investment in efficiency measures per DSM program dollar and the overall benefit-cost ratio. In the case of the Company's DSM programs in Minnesota, the overall benefit-cost ratio was 2.90 in 2003.<sup>8</sup> To be more conservative, I assume the energy efficiency programs operated by the

<sup>7</sup>The energy savings are at the generator, meaning that transmission and distribution losses are added to the end-use savings. Personal communication with Chris Davis, Minnesota Department of Commerce, St. Paul, MN, July 15, 2004.

<sup>8</sup> This benefit-cost ratio is based on the total resource cost test which includes the participant contribution to the cost of purchasing and installing efficiency measures. See Footnote 1, *supra*.

1 Company in Colorado would have an overall benefit-cost ratio of 2.4 from a total  
2 resource cost perspective. This value is typical of other well-funded utility DSM  
3 programs. Also, I assume that the DSM programs stimulate \$2 of investment in  
4 efficiency and load management measures for each program dollar. Based on these  
5 assumptions, the proposed \$40 million annual DSM effort would stimulate \$80 million of  
6 investment in energy efficiency and load management measures each year. With an  
7 overall benefit-cost ratio of 2.4, these measures would produce \$192 million in gross  
8 economic benefits over their lifetime. This implies \$112 million in net economic  
9 benefits, from DSM programs each year.

10 **Q. CAN YOU MAKE A PRELIMINARY ESTIMATE OF HOW A DSM EFFORT OF**  
11 **THIS MAGNITUDE AND SCOPE WOULD COMPARE TO THE PROPOSED**  
12 **COMANCHE 3 COAL-FIRED POWER PLANT IN TERMS OF NET PRESENT**  
13 **VALUE OF REVENUE REQUIREMENT AND NET PRESENT VALUE OF**  
14 **RATES?**

15 A. No I cannot. I do not have the data or modeling capability to do so. But the Company  
16 does have this data and modeling capability. The Company should compare the  
17 economic impacts of a robust DSM effort to other potential resource options as part of a  
18 thorough resource planning assessment, again using a risk-based modeling framework.

19 **Q. WHAT BENEFITS WOULD A DSM EFFORT OF THIS MAGNITUDE HAVE**  
20 **RELATIVE TO THE COMPANY'S CLAIMED SHORT-TERM RESOURCE**  
21 **NEEDS?**

22 A. The Company stated in its 2003 LCRP and in its supplemental direct testimony that it is  
23 appropriate to increase its reserve margin to 16-17% and that it has short-term resource  
24 needs in 2006 and 2007. The growth in residential air conditioning is identified as a  
25 major cause of strong summer peak demand growth. Implementing a robust set of DSM  
26 programs would help the Company satisfy its short term and long term resource needs,  
27 especially if these programs emphasize improvements in air conditioning system  
28 efficiency and air conditioning load control.

29 **Q. WHAT OTHER BENEFITS WOULD A DSM EFFORT OF THIS MAGNITUDE**  
30 **AND SCOPE HAVE?**

31 A. The DSM effort I am proposing would have a number of other benefits for Colorado  
32 ratepayers and for the environment. First, as noted above, comprehensive DSM programs

1 improve system load factor by reducing peak demand more than total electricity use in  
2 percentage terms. Based on my preliminary savings estimates presented above, a \$40  
3 million annual DSM effort would reduce the Company's 2005 projected coincident  
4 summer peak demand by 2.26% and electricity sales by 0.91%.<sup>9</sup> The significant  
5 reduction in peak demand and improved load factor could increase system reliability, in  
6 addition to reducing the customers' energy bills. Second, a robust DSM effort would  
7 provide environmental benefits by reducing dependence on fossil-fuel based generating  
8 resources. In other words, less fossil fuel will be burned and pollutant emissions  
9 including carbon dioxide emissions will decline if the Company implements a robust and  
10 well-funded set of DSM programs, compared to a scenario where such programs are  
11 absent. Third, a robust DSM effort will provide water savings for the same reason it will  
12 reduce pollutant emissions. Fourth, a robust DSM effort is more equitable than a narrow  
13 set of DSM programs or the DSM bidding scheme proposed by the Company. I am  
14 suggesting offering DSM programs to all types of customers, thereby giving all  
15 customers the opportunity to easily participate. The proposed DSM bidding scheme, on  
16 the other hand, makes it difficult if not impossible for smaller customers to participate  
17 and, therefore, it is less equitable.

18 **Q. ARE ANY OTHER UTILITIES IN THE SOUTHWEST REGION**  
19 **IMPLEMENTING ROBUST COMPANY-SPONSORED DSM PROGRAMS?**

20 A. Yes. In Utah, PacifiCorp (which operates as Utah Power) is implementing a robust and  
21 growing set of company-sponsored DSM programs. The total budget for the utility's  
22 DSM programs in Utah will reach about \$17-18 million in 2004. This is equal to  
23 approximately 1.7-1.8% of its retail electricity sales revenues. In addition, PacifiCorp is  
24 continuing to develop new DSM programs including a residential new construction  
25 program and commercial/industrial retro-commissioning and lighting load control  
26 programs. With the initiation of these new programs, the utility is expected to spend  
27 around \$22 million (~2.2% of revenues) on DSM programs in 2005 and even more in  
28 2006. The Total Resource Cost test is used in Utah to determine if utility DSM programs  
29 are cost-effective. In addition, DSM programs are explicitly included as a resource  
30 option in PacifiCorp's Integrated Resource Plans.

---

<sup>9</sup> These estimates use the Company's base case forecast and are based on retail sales and load only (i.e., the so-called "Commission" sales and peak demand levels). See PSCo's 2003 Least-Cost Resource Plan, Vol. 4, p. 28.

1 **Q. ARE YOU SUGGESTING THAT A ROBUST DSM PROGRAM COULD**  
2 **REPLACE ALL OTHER RESOURCE ACQUISITIONS RECOMMENDED BY**  
3 **THE COMPANY?**

4 A. No, I am not. The DSM effort I am suggesting will not meet all of the resource needs  
5 that the Company forecasts during 2003-2013. The Company will still need to acquire  
6 some additional supply-side resources. But I am suggesting that a robust set of DSM  
7 programs be a significant part of the PSCo's resource portfolio, as is the case in the  
8 Company's home state of Minnesota.

9 **Q. DO YOU HAVE COMMENTS ON THE SUPPLY-SIDE ELEMENTS OF THE**  
10 **COMPANY'S 2003 LCRP?**

11 A. No.

12 **Q. PLEASE REITERATE YOUR PRINCIPAL CONCLUSIONS ABOUT THE 2003**  
13 **LCRP FILED BY THE COMPANY AND HOW THE PUC SHOULD RESPOND**  
14 **TO IT.**

15 A. The 2003 LCRP as filed is badly flawed because the Company failed to consider a  
16 potentially important resource option, namely robust and well-funded company-  
17 sponsored DSM programs. The PUC should insist that the Company prepare a revised  
18 LCRP that includes consideration of comprehensive company-sponsored DSM programs.  
19 The Company should develop and recommend implementation of a robust set of DSM  
20 programs that will provide broad and substantial benefits in Colorado, along the lines of  
21 its successful DSM programs in Minnesota.

22 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

23 A. Yes.

## **Attachment A**

### **Statement of Qualifications**

#### **Howard S. Geller**

Dr. Howard S. Geller is the Executive Director of the Southwest Energy Efficiency Project (SWEEP), a public interest venture he founded in 2001. Based in Boulder, Colorado, SWEEP promotes policies and programs to advance energy efficiency in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming.

Dr. Geller is the former Executive Director of the American Council for an Energy-Efficient Economy (ACEEE). He established ACEEE's Washington, D.C. office in 1981, stepping down as Executive Director in February 2001. He built ACEEE's reputation and influence through technical and policy assessments, advice to policy makers, development of energy efficiency programs, consumer guides, and conferences.

Dr. Geller has advised and conducted energy efficiency studies for utilities, governmental organizations, and international agencies. He has testified before the U.S. Congress on energy issues many times and has influenced energy legislation including the National Appliance Energy Conservation Act of 1987 and the Energy Policy Act of 1992. He has served as an expert witness on energy efficiency and resource planning issues before the utility commissions of Illinois, Maryland, and the District of Columbia.

Dr. Geller is author or co-author of four books. His most recent book, *Energy Revolution: Policies for a Sustainable Future*, was published in 2003 by Island Press. In addition to his work in the United States, Dr. Geller has spent over three years working on energy efficiency issues in Brazil. He helped to start and frequently advises Brazil's National Electricity Conservation Program (PROCEL).

Dr. Geller was awarded the 1998 Leo Szilard Award for Physics in the Public Interest by the American Physical Society in recognition of his contributions to national appliance efficiency standards and more efficient energy use in general. Dr. Geller is a member of the editorial advisory board for the journal *Energy Policy*.

Dr. Geller received his PhD in Energy Policy from the University of Sao Paulo in Brazil in 2002. He holds a Masters degree in Mechanical and Aerospace Engineering from Princeton University (1979) and he received a Bachelors degree from Clark University (1977) where he majored in Physics and Science, Technology, and Society.