

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN)
PUBLIC SERVICE COMPANY'S)
APPLICATION FOR APPROVAL OF ITS 2009)
ENERGY EFFICIENCY AND LOAD)
MANAGEMENT PLAN AND ASSOCIATED) Case No. 08-00333-UT
PROGRAMS AND ITS PROGRAM COST)
TARIFF RIDERS)

Direct Testimony of

Howard Geller

on behalf of

Coalition for Clean Affordable Energy (CCAЕ)

February 5, 2009

1 **Q. Please state your name, occupation and business address.**

2 A. My name is Howard Geller. I am the Executive Director of SWEEP, the Southwest
3 Energy Efficiency Project. My business address is 2260 Baseline Rd. Suite 212,
4 Boulder, Colorado 80302.

5

6 **Q. For whom are you testifying?**

7 A. I am testifying on behalf of the Coalition for Clean Affordable Energy (CCAIE).

8

9 **Q. Please describe CCAIE.**

10 A. CCAIE is a coalition of environmental and public interest organizations working to
11 advance energy efficiency and renewable energy in New Mexico. CCAIE was formed
12 in 1997 and has participated in other Commission dockets.

13

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

15 A. I have 27 years of experience working on energy efficiency policy and program
16 design, analysis, evaluation and advocacy. Prior to founding SWEEP in 2001, I
17 served as Executive Director of the American Council for an Energy-Efficient
18 Economy (ACEEE) in Washington, DC. I have authored or co-authored four books
19 on energy efficiency and energy policy, and published dozens of reports and articles
20 on these topics. I have testified before the public utility commissions of Colorado,
21 Illinois, Maryland, Nevada, New Mexico, Utah, and the District of Columbia. Exhibit
22 HG-1 summarizes my professional qualifications.

23

1 **Q. What is the purpose of your testimony?**

2 A. In my testimony I will review and comment on Southwestern Public Service
3 Company's (SPS's) proposed electric energy efficiency and load management (DSM)
4 programs in its 2009 DSM program plan.

5

6 **Q. Please summarize your testimony.**

7 A. I first note that SPS has proposed numerous improvements to its DSM programs in its
8 2009 Plan compared to its 2008 programs. Second, I recommend some modifications
9 and enhancements to many of the programs proposed by SPS. In some cases such as
10 for the home lighting and refrigerator recycling programs, I recommend higher
11 participation and energy savings goals. In other cases such as for the business custom
12 efficiency and small business lighting programs, I recommend higher rebate levels as
13 a way to stimulate greater participation. Overall I recommend increasing SPS's 2009
14 energy efficiency and load management programs budget by \$890,000 (17.8%)
15 relative to the level proposed by the Company.

16

17 **Q. What is your overall assessment of the electric DSM programs proposed by SPS**
18 **in its 2008 Program Plan?**

19 A. In general I believe SPS has done a good job in expanding its DSM programs relative
20 to the initial set of programs begun in 2008. I am particularly pleased to see the
21 expansion of the residential and business lighting programs, and the addition of the
22 refrigerator recycling, home energy services, Saver's Switch, business motor and
23 drive efficiency, and small business lighting programs. These new and expanded

1 programs will increase energy savings, increase program participation, and result in
2 increased economic benefits for the customers served by SPS.

3

4 **Q. Turning to specific programs, do you have comments on the proposed residential**
5 **evaporative cooling program?**

6 A. I support this program and the two-tier rebate structure that SPS proposes. There will
7 be substantial energy savings and peak demand reduction if customers utilize high
8 efficiency evaporative cooling rather than compressor-based cooling. But SPS is
9 assuming only 20 participants in this program in 2009. In order to increase the
10 participation level, energy savings, and program cost effectiveness, I urge SPS to
11 work on increasing the number of contractors supplying qualifying equipment, as
12 well as increase promotion and marketing. I also suggest increasing rebates to 60-75
13 percent of the installed cost for qualifying high efficiency evaporative cooling
14 systems in order to help establish the market for such equipment in the SPS service
15 area. In order to accommodate these changes as well as more program participants, I
16 recommend allowing for an annual budget for the program of up to \$100,000, an
17 increase of up to \$65,000 over the budget proposed by SPS.

18

19 **Q. Do you have comments on the proposed home energy services program?**

20 A. I am pleased to see SPS promoting and offering incentives for a wide range of
21 residential energy efficiency measures to occupants of single family, multi-family,
22 and manufactured homes. Doing so should make the program attractive to a
23 significant number of households. Regarding details of the program, I recommend

1 that SPS include a quality installation component to the promotion and incentives for
2 high efficiency central air conditioners. Quality installation including proper
3 refrigerant charge and air flow is critical to maximizing the performance and energy
4 efficiency of air conditioning equipment. The Air Conditioning Contractors of
5 America (ACCA) has a quality installation specification that many utilities use, and
6 that I recommend SPS use as a criterion for air conditioner rebate eligibility.¹ Doing
7 so should increase energy savings, cost effectiveness, and net economic benefits. If
8 necessary, training on quality installation could be offered to HVAC contractors in
9 the SPS service area.

10

11 **Q. Do you have comments on the proposed residential lighting program?**

12 A. First I applaud SPS for the significant expansion of its CFL program and for adding
13 the lamp recycling component. But the target of distributing 50,000 CFLs per year,
14 about 0.57 lamps per household on average, is less ambitious than what other utilities
15 are achieving or planning. For example, Arizona Public Service Company has
16 stimulated the purchase of 4.5 million CFLs, 3.8 per household on average, during
17 less than three years of DSM program activity.² In New Mexico, PNM has proposed
18 stimulating the purchase of 900,000 CFLs in 2009 through its DSM program, about
19 two CFLs per household on average. In addition, SPS notes in its Energy Efficiency
20 and Load Management Plan that the penetration of CFLs is relatively low in its New

¹ HVAC Quality Installation Specification. ACCA Standard Number: ANSI/ACCA 5 QI-2007.
<http://www.cee1.org/resid/rs-ac/HVACQIspec.pdf>

² H. Geller and J. Schlegel. 2008. "Update on Utility Energy Efficiency Programs in the Southwest." *Proceedings of the 2008 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy-Efficient Economy. August.

1 Mexico service area, suggesting a large potential for further adoption of this energy
2 efficiency measure. For these reasons, I urge the Commission to direct SPS attempt to
3 stimulate the purchase of 100,000 CFLs per year (1.14 per household on average),
4 twice its current target. The annual program budget would need to grow by around
5 \$75,000 to accommodate this change. But with administration and marketing costs
6 being spread over a larger number of participants and greater energy savings, the cost
7 effectiveness of the program would increase.

8
9 In addition, I have a comment on the net-to-gross (NTG) savings ratio assumed for
10 this program. SPS is proposing to use a NTG savings ratio of 100%, meaning an
11 assumption of no free ridership for this program (see RMS Attachment 1, page 21).

12 But consumers are purchasing some CFLs in the absence of utility promotion and
13 incentive programs. In fact the availability, awareness, and sales of CFLs nationwide
14 are growing rapidly, spurred in part by the marketing campaigns of major retailers
15 such as Wal-Mart.³ In New Mexico, PNM is proposing a free ridership factor of 30%
16 for its residential lighting program; i.e., a NTG ratio of 0.70. In Colorado, Xcel
17 Energy has agreed to use a NTG ratio of 0.83 for its CFL promotion and incentive
18 program. Considering these circumstances, I recommend the Commission adopt a
19 NTG ratio in the range of 0.70-0.83 for SPS's home lighting program in New
20 Mexico. Even assuming a NTG value of 0.70, the program would still be very cost
21 effective.

³ See, for example, "EPA and DOE Spread a Bright Idea: Energy Star Bulbs are Helping to Change the World." U.S. EPA and DOE press release, Jan. 15, 2008. Available on the ENERGY STAR web site news room, http://www.energystar.gov/index.cfm?c=news.nr_news

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2 **Q. Do you have comments on the proposed refrigerator recycling program?**

3 A. This is a “tried and true” DSM program that many utilities successfully implement.
4 SPS estimates that its proposed program would have a benefit-cost ratio of 2.33 under
5 the TRC test. But SPS is proposing a relatively modest participation level of 500 units
6 in 2009. This is just one unit per 176 households served. For comparison, PNM is
7 implementing a refrigerator recycling program and is proposing to pick up and
8 recycle 12,000 units in 2009, approximately one unit per 38 households served. It
9 makes sense to maximize the removal of older refrigerators from the appliance stock.
10 Also, expansion of the program will spread the marketing and administration costs
11 over a larger number of participants, thereby reducing the cost per participant and
12 increasing the benefit-cost ratio for the program. For these reasons, I urge the
13 Commission to direct SPS to attempt to pick up and recycle 2,000 refrigerators in
14 2009, four times its current target. I estimate that the annual program budget would
15 need to grow by around \$300,000 to accommodate this change. Marketing could be
16 increased if necessary for stimulating higher program participation.

17

18 **Q. Do you have comments on any details related to the proposed refrigerator**
19 **recycling program?**

20 A. Yes I do. SPS is assuming a free rider factor of just 7% and a NTG ratio of 0.93 for
21 this program (see RMS Attachment 1, page 21). This is a very optimistic assumption.
22 For comparison, Xcel Energy is assuming free rider factor of 39% for its second

1 refrigerator recycling program in Colorado.⁴ Third party evaluation of refrigerator
2 recycling programs in California suggests a free rider factor of about 59% and a NTG
3 energy savings ratio of about 0.52.⁵ I recommend that the Commission direct SPS to
4 either: 1) use the same free rider factor that Xcel Energy is using in Colorado, or 2)
5 revise its NTG assumption based on actual M&V results in New Mexico. The
6 program should still be cost effective even if a more conservative assumption is made
7 regarding free ridership. For example, changing from a NTG ratio of 0.93 to 0.61
8 would reduce net benefits by about 34.5%. This would lead to a benefit-cost ratio
9 under the TRC test of 1.53 rather than 2.33 as estimated by SPS. Furthermore, the
10 benefit-cost ratio should be even higher if the program is scaled up as I suggested
11 above due to marketing and administration costs being spread over a larger number of
12 participants.

13
14 **Q. Do you have any comments on the School Education Kit program?**

15 A. Energy efficiency education along with distribution of low-cost energy efficiency
16 measures to school children has been shown to be worthwhile and cost effective in
17 other states.⁶ SPS is using an experienced contractor to implement its program. I
18 support approval of the program that SPS has proposed.

19

⁴ 2009/2010 Demand-Side Management Biennial Plan Electric and Natural Gas. Public Service Company of Colorado. August 2008.

⁵ D.R. Dohrmann, et al. 2007. "Net Savings Estimation in Appliance Recycling Programs: A Review and Empirical Analysis with Recent California Data." *Proceedings of the 2007 International Energy Program Evaluation Conference*. Chicago, IL, Aug. 14-16.

⁶ J. Drakos, M.S. Khawaja, and A. West. 2007. "Impact of Flipping the Switch: Evaluating the Effectiveness of Low-Income Residential Energy Education Programs." *Proceedings of the 2007 International Energy Program Evaluation Conference*. Chicago, IL, Aug. 14-16.

1 Q. **Do you have comments on the proposed Savers Switch program?**

2 A. No I do not.

3

4 Q. **Do you have any comments on the proposed low income program?**

5 A. I support the changes proposed for 2009, namely the shift in emphasis to multi-family
6 housing, the addition of evaporative cooling equipment, and the modification of the
7 lighting component. According to SPS's estimates, the program is very cost effective.
8 As for modifications, I recommend that weatherization and community action
9 agencies distribute as many CFLs as possible in homes that are served through the
10 home lighting giveaway component of the program. Any incandescent lamp that is
11 used at least 30 minutes a day on average can be replaced cost effectively with a CFL.
12 Therefore, I recommend that consumers applying for energy bill assistance be offered
13 up to 8 CFLs per household rather than be limited to 4 CFLs. Even if some of these
14 CFLs are not immediately installed, the program will still be very cost effective.

15

16 Q. **Do you have any comments on the proposed business efficiency programs?**

17 A. SPS is proposing to significantly expand its energy efficiency and load management
18 programs for businesses in 2009, compared to programs in 2008. The addition of the
19 new programs as well as expansion of existing programs such as the lighting
20 efficiency program makes sense in my view. Business efficiency programs tend to be
21 more cost effective than residential programs, and program expansion will lead to
22 more participation, more energy savings, and more economic benefits. I support all of
23 the business programs proposed by SPS for implementation in 2009.

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Regarding details of the programs, I urge the Commission to direct SPS to offer higher incentives in some areas. In particular, SPS is proposing to pay \$200 per kW saved or up to 50% of the project cost, whichever is lower, for its custom efficiency program in 2009. But in Colorado, Xcel Energy is planning to pay an incentive of \$400 per kW saved in its 2009 custom efficiency program. Paying a higher incentive in New Mexico should increase participation in and energy savings from this cost effective program. I recommend an incentive of \$400 per kW for the custom efficiency program in New Mexico. I estimate that this change would add about \$400,000 to the program budget, both for higher rebates and to serve additional program participants due to increasing the amount of the rebate. The benefit-cost ratio for the program under the TRC test should not decline if SPS pays a larger fraction of the first cost (or incremental first cost) for energy efficiency projects because the TRC test is based on the full cost of efficiency measures and projects.

In addition, I recommend that SPS pay higher rebates for the small business lighting program compared to the rebates it is offering in its normal lighting efficiency program. Small businesses often lack financial resources to invest in energy efficiency projects even if the payback is rapid, and thus higher rebates are needed to obtain participation from many small businesses. I recommend increasing the rebate amounts by 50%, relative to those proposed in the normal lighting program. I estimate that this change would add about \$50,000 to the program budget, both for

1 higher rebates and to serve additional program participants due to increasing the
2 amount of the rebate.

3

4 **Q. Do you have any comments on Planning and Administration activities and**
5 **budget?**

6 A. SPS is proposing to increase its annual budget for DSM planning and administration
7 from \$60,000 in 2008 to \$344,000 in 2009. Some increase in this budget area is
8 appropriate given the expansion from eight to 16 energy efficiency and load
9 management programs. But an increase of 473% may be excessive. I urge the
10 Commission to probe as to whether such a large increase in the budget for planning
11 and administration is really necessary and justified.

12

13 **Q. Are you recommending that SPS implement any additional energy efficiency or**
14 **load management programs in 2009?**

15 A. Given that SPS is proposing to move from eight to 16 programs and significantly
16 increase its DSM budget in 2009, I do not recommend any additional programs.
17 However, I note that Xcel Energy is implementing a more extensive set of electric
18 efficiency and load management programs in Colorado and Minnesota, relative to
19 those it is proposing in New Mexico. I urge the Commission to direct SPS to consider
20 adding additional programs in New Mexico in 2010, including consideration of all
21 programs that Xcel Energy is offering in Minnesota and Colorado. If necessary,
22 SPS's 2009 product development budget should be increased in order to
23 accommodate such analysis.

1

2 **Q. Please summarize your main recommendations concerning the Company's 2009**
3 **energy efficiency and load management program plan.**

4 A. I support all of SPS's proposed 2009 energy efficiency and load management (DSM)
5 programs. In addition to supporting the programs, I suggest a number of program
6 enhancements and modifications. In particular, I recommend increases in program
7 goals, higher rebate levels, or other changes that would lead to more participants,
8 greater energy savings, and increased net economic benefits for SPS customers as a
9 whole, as well as higher program budgets. To accommodate the changes I suggest, I
10 estimate that the following budget increases would be needed:

11 1) Residential evaporative cooling program - \$65,000

12 2) Home lighting program - \$75,000

13 3) Refrigerator recycling program - \$300,000

14 4) Business custom efficiency program - \$400,000

15 5) Small business lighting program - \$50,000.

16 In total, I recommend increasing SPS's 2009 energy efficiency and load management
17 program budget by \$890,000 (17.8%). However, I acknowledge that this is an
18 estimate and that more or less of a budget increase may be necessary in order to
19 achieve the increased participation levels that I suggest.

20

21 **Q. Does that conclude your direct testimony?**

22 A. Yes.

Exhibit HG-1

Statement of Qualifications

Howard 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 key 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 Colorado, Illinois, Maryland, Nevada, New Mexico, and Utah.

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.

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*. In 2007-08, he served on the Panel on Energy Efficiency Technologies convened by the National Research Council.

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.