

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF)
PUBLIC SERVICE COMPANY OF NEW)
MEXICO FOR APPROVAL OF 2008)
ELECTRIC ENERGY EFFICIENCY AND)
LOAD MANAGEMENT PROGRAMS AND)
PROGRAM COST TARIFF RIDERS)
PURSUANT TO THE NEW MEXICO PUBLIC)
UTILITY AND EFFICIENT USE OF ENERGY)
ACTS)

Case No. 08-00204-UT

Direct Testimony of

Howard Geller

on behalf of

Coalition for Clean Affordable Energy (CCAЕ)

January 30, 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 (CCAЕ).

8
9 **Q. Please describe CCAЕ.**

10 A. CCAЕ is a coalition of environmental and public interest organizations working to
11 advance energy efficiency and renewable energy in New Mexico. CCAЕ 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 Public Service Company's (PNM's)
3 proposed electric energy efficiency and load management (DSM) programs in its
4 2008 DSM program plan.

5
6 **Q. Please summarize your testimony.**

7 A. I first note that PNM has proposed numerous improvements to its DSM programs in
8 its 2008 Plan compared to its original programs begun in 2007. Second, I recommend
9 some modifications and enhancements to many of the programs proposed by PNM. In
10 two cases I recommend additional funding. In particular I recommend continuing the
11 School CFL Exchange program with the Sierra Club at a budget of \$200,000 per year
12 and I recommend adding \$1 million per year to the budget for the Commercial
13 Comprehensive Energy Efficiency program. In the case of the latter, additional
14 funding would be used for technical assistance, offering higher incentives and/or a
15 direct installation approach to small businesses, and serving additional participants as
16 a result of these other enhancements.

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

20 A. In general I believe PNM has done a good job in expanding its DSM programs
21 relative to the initial set of programs begun in 2007. I am particularly pleased to see
22 the expansion of the residential lighting and refrigerator programs, and the addition of
23 the comprehensive energy efficiency program for commercial and industrial

1 customers. These new and expanded programs will increase energy savings, increase
2 program participation, and result in increased economic benefits for the customers
3 served by PNM. In addition, the proposed market transformation program is a
4 valuable initiative that should be approved in my view. I comment on most of the
5 programs proposed by PNM, along with the existing programs that PNM has
6 proposed discontinuing, in the remainder of my testimony.

7

8 **Q. Turning to specific programs, do you have comments on the proposed**
9 **refrigerator recycling program?**

10 A. Yes I do. I believe the program expansion is justified as is the inclusion of business
11 customers. This is a very cost-effective program with an estimated benefit-cost ratio
12 of 3.34 under the TRC test. It makes sense to maximize the removal of older
13 refrigerators from the appliance stock, and their recycling, independent of who owns
14 these refrigerators. Also, expansion of the program will spread the marketing and
15 administration costs over a larger number of participants, thereby reducing the cost
16 per participant and increasing the benefit-cost ratio for the program.

17

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

20 A. PNM is assuming an average measure life of 10 years and free rider factor of 7% for
21 this program (see PNM Exhibit SMB-1, Appendix B). These are relatively optimistic
22 assumptions. For comparison, Xcel Energy recently prepared a DSM program plan
23 for its Colorado service area. In it, Xcel assumed an average measure life of seven

1 years and free rider factor of 39% for its second refrigerator recycling program.¹
2 Third party evaluation of refrigerator recycling programs in California suggests a free
3 rider factor of about 59% and a net-to-gross energy savings ratio of about 0.52.² I
4 recommend that the Commission direct PNM to either: 1) revise its technical
5 assumptions for this program based on M&V results in New Mexico, or 2) review the
6 technical assumptions used by other utilities for refrigerator recycling programs and
7 use assumptions that are typical across the industry. The program should still be very
8 cost effective even if more conservative assumptions are made regarding average
9 measure lifetime and free ridership.

10

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

12 A. Yes I do. I applaud PNM for the very large expansion it is proposing for the CFL
13 program. The target of distributing 900,000 CFLs per year is ambitious. However,
14 other utilities in the region such as Arizona Public Service Company and Nevada
15 Power have succeeded in stimulating the purchase of this number of CFLs (adjusted
16 for relative number of households served). This program is very cost effective and I
17 recommend that it be approved. I also recommend that PNM be directed to provide
18 financial incentives for a wide range of CFLs including dimmable and three-way
19 lamps. These are newer products that still have a relatively high first cost. Providing
20 incentives will increase the attractiveness of these products to consumers and help to
21 maximize the participation and energy savings resulting from the program.

¹ 2009/2010 Demand-Side Management Biennial Plan Electric and Natural Gas. Public Service Company of Colorado. August 2008.

1

2 **Q. Do you have comments on the proposed changes to the residential and**
3 **commercial indirect cooling program?**

4 A. PNM has proposed discontinuing this program as a separate program but including
5 promotion of this technology as part of the new Market Transformation program. I
6 believe this is a sound strategy for the reasons given by PNM. I recommend that the
7 Commission approve this change.

8

9 **Q. Do you have any comments on the proposed changes to the Energy Saver Kit**
10 **program?**

11 A. PNM has proposed discontinuing the kit program due to the limited installation of
12 measures in the kit by low-income households that received it in 2007-2008. PNM is
13 proposing to replace the program with a Refrigerator Replacement and CFL program
14 for low-income households, along with a new low-income program called the Energy
15 Wise program. It is projected by PNM that these new programs will result in more
16 energy savings and be much more cost-effective than the current Energy Kit program.
17 I support these changes including discontinuing the Energy Kit program as it is
18 currently designed.

19

20 **Q. Do you have any comments on the proposed changes to the School CFL**
21 **Exchange program?**

² 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.

1 A. PNM has proposed discontinuing this program claiming that its partner (the Sierra
2 Club) is no longer able to continue it. However, the Sierra Club has informed me that
3 it is prepared to continue the program and would like to do so, although with some
4 modifications relative to the past year's program.³ In particular the Sierra Club wants
5 to continue a third year of the program with a goal of distributing 65,000 CFLs
6 through a combination of school events, CFL distribution through places of religious
7 worship, and CFL distribution to apartment dwellers through a partnership with the
8 Apartment Association of New Mexico. The Sierra Club estimates its budget would
9 be \$200,000 for distribution of 65,000 CFLs starting in 2009. This is consistent with
10 past year budgets (i.e., it is about the same cost per CFL as in the previous two years
11 of its program with PNM). The program is very cost effective in part because the
12 Sierra Club to a large degree uses volunteers to implement it. The program also
13 provides valuable educational information to school students and participating PNM
14 customers. I recommend that the Commission direct PNM to continue the CFL
15 Exchange program as a partnership with the Sierra Club, and provide an annual
16 budget of \$200,000 to do so.

17
18 **Q. Do you have comments on the proposed changes to the ENERGY STAR homes**
19 **program?**

20 A. PNM is proposing adding a second performance tier to the program as well as hiring a
21 third party contractor to increase marketing, training and certification. Other utilities
22 including Rocky Mountain Power in Utah use these approaches—a third party

³ Email communication from Shrayas Jatkar of the Sierra Club to Howard Geller and Tammy Fiebelkorn of SWEEP, Jan. 15, 2009.

1 contractor and multiple performance tiers—to implement successful ENERGY STAR
2 new homes programs. I strongly support the changes proposed by PNM and
3 recommend the Commission approve the revised program. In addition, I recommend
4 that the Commission direct PNM to add a third performance tier at a HERS score of
5 50 to the program. This is the level of energy performance that must be achieved in
6 order for a new home to qualify for an income tax credit under the federal energy
7 efficiency tax incentives now in place. An increasing number of new homes are being
8 built at this high level of energy efficiency. It should not be difficult to add this third
9 tier to the program and doing so will align the program with other efforts that are
10 focused on encouraging very high efficiency in new construction including the
11 federal tax credits and the Architecture 2030 effort.

12
13 **Q. Do you have comments on the proposed changes to the Residential and**
14 **Commercial Load Management programs?**

15 A. No I do not.

16
17 **Q. Do you have any comments on the low income refrigerator and CFL**
18 **replacement program?**

19 A. Yes I do. First, providing a new refrigerator free of charge to a low income household
20 is a relatively costly efficiency measure. Care should be taken to ensure that high
21 energy savings is achieved when a refrigerator is replaced. In order to do so, I
22 recommend that all existing refrigerators be tested regarding their electricity use and
23 that a minimum threshold for energy performance be adopted; e.g., weatherization

1 agencies should only replace models consuming 1,500 kWh per year or more.
2 Second, I recommend that weatherization agencies install as many CFLs as possible
3 in homes that are served through this program. Any incandescent lamp that is used at
4 least 30 minutes a day on average can be replaced cost effectively with a CFL.
5 Maximizing the number of CFLs installed once the weatherization agency is in a
6 home will increase energy savings and improve the cost effectiveness of the program.
7

8 **Q. Do you have any comments on the proposed Energy Wise program?**

9 A. This type of DSM program is being implemented successfully by other states and
10 utilities. For example, the Colorado low-income weatherization program has tested
11 three different approaches to distribution of energy efficiency kits to low-income
12 households. The organization sponsoring this work (the Governor’s Energy Office)
13 found that all approaches worked reasonably well and were cost effective, with net
14 economic benefits ranging from \$140 to \$251 per home served depending on the
15 delivery approach.⁴ Independent evaluation of this type of efficiency program has
16 shown that it has been cost effective in other states as well.⁵ In New Mexico, SPS and
17 El Paso Electric are currently implementing energy efficiency kit giveaway programs
18 in conjunction with energy efficiency education of school children. PNM is proposing
19 to use an experienced and well-respected contractor to implement its program on a
20 turnkey basis. The projected benefit-cost ratio, 4.51, is very attractive and not

⁴ J. Berger, J. Ackermann, and M. Blasnik. 2008. “Energy Efficiency Mass Distribution Program Innovations.” *Proceedings of the 2008 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy-Efficient Economy. August.

⁵ 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 unreasonable in my view. For these reasons, I recommend that the Commission
2 approve the program. In addition, I urge the Commission to direct PNM to consider
3 adding a school-focused energy education and kit giveaway program, in addition to
4 the low-income focused program, as it develops its 2009 DSM plan. The two types of
5 programs are not redundant, and both can result in very cost-effective energy
6 savings.⁶

7
8 **Q. Do you have any comments on the Commercial Comprehensive Energy**
9 **Efficiency program?**

10 A. I recommended that PNM implement this type of DSM program when the Company
11 submitted its original DSM program plan in 2007, and I am pleased that PNM now
12 “sees the light.” Many utilities implement this type of comprehensive program
13 featuring both prescriptive and custom rebates on a wide range of efficiency measures
14 available to businesses. The contractor PNM is proposing to use, KEMA, Inc., is
15 experienced in implementing this type of DSM program, and the projected benefit-
16 cost ratio (2.32) is consistent with experience of other utilities. I recommend that the
17 Commission approve the program.

18
19 **Q. Do you have any recommendations for modifying the proposed Commercial**
20 **Comprehensive Energy Efficiency program?**

21 A. Yes I do. First, I recommend providing some technical assistance to businesses, such
22 as discounted audits for existing facilities and free or subsidized design assistance to
23 architects and builders planning new buildings, along with rebates for efficiency

⁶ Ibid.

1 measures themselves. Many businesses need help in identifying viable efficiency
2 measures and projects, not just financial incentives, in order to take advantage of
3 energy efficiency opportunities in their buildings and facilities. Other utilities with
4 exemplary commercial/industrial energy efficiency programs, such as Xcel Energy,
5 Rocky Mountain Power, and utilities in the Northeast, offer this type of technical
6 assistance as part of their business retrofit and new constructions programs.⁷ The
7 same contractor can provide this technical assistance, market the program, and
8 provide rebates.

9
10 Second, I recommend either offering higher incentive levels to small businesses (say
11 those with a floor area of under 10,000 square feet) and/or adding a direct installation
12 component for these businesses. Small businesses are a “hard-to-reach” market that
13 often lacks the know-how, time, and money necessary for implementing even
14 relatively modest energy efficiency projects. Experience shows that small businesses
15 need higher incentives and in some cases the full service offered by a direct
16 installation approach in order to take advantage of utility DSM programs.

17
18 These two modifications should increase program participation, energy savings, and
19 net economic benefits. In order to implement these changes, including serving the
20 additional businesses that would participate in the program if technical assistance is
21 offered as well as higher incentives and/or direct installation for small businesses, I
22 recommend increasing the annual budget for the program from about \$2.9 million per

⁷ D. York, M. Kushler, and P. Witte. 2008. *Compendium of Champions: Chronicling Exemplary Energy Efficiency Programs from Across the U.S.* Washington, DC: American Council for an Energy-Efficient

1 year to \$3.9 million per year. I estimate that about half the additional budget would be
2 spent on technical assistance and half on the incentives necessary to serve additional
3 program participants.

4

5 **Q. Do you have any comments on the proposed Market Transformation program?**

6 A. There is a need for broad-based education about energy efficiency, community
7 outreach, and demonstration and testing of emerging energy efficiency measures.
8 These activities support other DSM programs and will help PNM meet the energy
9 savings requirements in the amended Efficient Use of Energy Act. Market
10 transformation efforts have been effective in other states such as in California and in
11 the Pacific Northwest region.⁸ Other utilities implementing a comprehensive set of
12 DSM programs, such as investor-owned utilities in California, Xcel Energy in
13 Colorado, and Questar Gas Company in Utah, include these activities as part of their
14 DSM offerings. The market transformation program proposed by PNM accounts for
15 less than five percent of the total budget in the company's 2008 DSM plan. For these
16 reasons, I recommend that the Commission approve this program.

17

18 **Q. Do you have any suggestions for modifying the proposed Market**
19 **Transformation program?**

20 A. Yes. I suggest that the Commission direct PNM to spend a portion of the program
21 budget on building energy code training. Such training is useful for educating

Economy. Feb.

⁸ See, for example, *Independent Evaluation of NEEA's Accomplishments – Retrospective Assessment 2008*. 2008. Portland, OR: Northwest Energy Efficiency Alliance. Oct. 2. K.H. Tiedemann. 2007. "Impact of

1 architects, builders, contractors, and local code officials on ways to meet energy code
2 requirements. This in turn can lead to energy savings through higher levels of code
3 compliance, and cost savings as well. Other utilities, such as utilities in California and
4 in Utah, have funded energy code training and compliance enhancement as part of
5 their market transformation activities. In California, it is estimated that such efforts
6 are a very cost effective use of utility DSM dollars.⁹

7 **Q. Please summarize your main recommendations concerning the Company's DSM**
8 **programs.**

9 A. I support all of PNM's proposed 2008 energy efficiency and load management
10 (DSM) programs. The new and expanded programs proposed by PNM will increase
11 energy savings, increase program participation, and result in increased economic
12 benefits for the customers served by PNM, relative to programs implemented in
13 2007-08. In addition to supporting the programs, I suggest a number of program
14 improvements or modifications to key program assumptions. In some cases, I urge the
15 PRC to direct PNM to modify program design in 2009; in other cases I suggest that
16 program enhancements be considered as PNM develops its next DSM plan.

17
18 In the case of the School CFL Exchange program, I recommend continuing this
19 program with the Sierra Club at a budget of \$200,000 per year. Also, I recommend
20 adding \$1 million per year to the budget for the Commercial Comprehensive Energy
21 Efficiency program. This additional funding would be used for technical assistance,

Energy Prices and Energy Efficiency Activities on Sales of ENERGY STAR Appliances in California.”
Proceedings of the 2007 International Energy Program Evaluation Conference. Chicago, IL, Aug. 14-16.

1 offering higher incentives and/or a direct installation approach to small businesses,
2 and in serving additional participants due to these other program enhancements.

3

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

5 A. Yes.

⁹ P. Eilert, et al. 2008. "Standards Education and Training as a Resource Program." *Proceedings of the 2008 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy-Efficient Economy. Aug.

Exhibit HG-1

Statement of Qualifications

Howard Geller

Dr. Howard S. Geller is the Executive Director of the Southwest Energy Efficiency Project (SWEET), a public interest venture he founded in 2001. Based in Boulder, Colorado, SWEET 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.