BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

APPLICATION OF SIERRA PACIFIC POWER COMPANY FOR APPROVAL OF ITS 2008-2027 INTEGRATED RESOURCE PLAN	))))	Docket No. 07-06049

Direct Testimony of

Howard Geller

on behalf of

Nevadans for Clean Affordable Reliable Energy (NCARE)

October 17, 2007

Introduction

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

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

Q. For whom are you testifying?

A. I am testifying on behalf of Nevadans for Clean Affordable Reliable Energy (NCARE).

Q. Please describe NCARE.

A. NCARE is an association of like-minded organizations that includes the Nevada Conservation League, Citizens Alert, the Progressive Leadership Alliance of Nevada (PLAN), SWEEP, Western Resource Advocates, and the Nevada chapter of the Sierra Club.

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

A. I have 26 years of experience working on energy efficiency policy and program design, analysis, evaluation and advocacy. Prior to founding SWEEP in 2001, I served as Executive Director of the American Council for an Energy-Efficient Economy (ACEEE) in Washington, DC. I have authored or co-authored four books on energy efficiency and energy policy, and published dozens of reports and articles on these topics. I have testified before the public utility commissions of Colorado, Illinois, Maryland, Nevada, New Mexico, Utah, and the District of Columbia. Exhibit HG-1 summarizes my professional qualifications.

Q. What is the purpose of your testimony?

A. In my testimony I will comment on Sierra Pacific Power Company's (SPPC's) proposed demand-side management (DSM) programs, comment on the additional potential for cost-effective energy efficiency improvements in the SPPC service area, comment on how SPPC has treated DSM in its load forecast, and make recommendations on how I believe SPPC's DSM programs should be expanded and improved.

Q. **Please summarize your testimony.**

A. I first point out that SPPC is doing a relatively good job implementing DSM programs for its customers. I then review the funding levels for DSM proposed by SPPC during 2008-2010 and suggest that these funding levels be increased both to expand proposed programs and implement additional cost-effective programs. I recommend that SPPC be directed to achieve the maximum amount of cost-effective energy savings through its DSM programs. In light of experience in Nevada and elsewhere, I suggest that the utility should be able to save at least 1% of its electricity sales through DSM programs each year. I recommend that the company be directed to meet or exceed this savings target, and that electricity savings targets be established for a ten-year rather than three-year period. I also comment on key issues related to DSM program analysis and implementation including avoided cost estimation. And I point out that the utility has not fully accounted for the contribution of DSM resources in its load forecast.

General Comments on Ongoing and Proposed DSM programs

Q. **Please provide your overall assessment of how SPPC has been doing with respect to implementing DSM programs for its customers.**

A. I believe SPPC has been doing a relatively good job in implementing cost-effective DSM programs, programs that have been well-received by the utility's customers. Although total funding for SPPC's DSM programs implemented in 2006 was only $4.5 million, the utility reports it saved a total of 70.3 GWh per year from efficiency measures adopted through its programs that year. This is a very high ratio of energy savings to utility DSM program dollar, in comparison to the experience of other utilities in the region or nation. Also, SPPC managed to exceed its 2006 DSM savings goal by a wide margin.

Q. **Do you have general comments about DSM programs proposed for implementation in 2008-2010 in the 2007 IRP?**

A. Yes I do. I recommend that SPPC further expand some of the programs it has experience with and thereby achieve additional cost-effective energy savings and peak demand reductions. In addition, there are other programs that SPPC has studied that could be cost-effective and that I recommend be implemented during 2008-2010. I elaborate on these suggestions below.

Q. **What is time frame for DSM programs presented in the Company's DSM Plan?**

A. The DSM Plan provided in Volume V of the IRP (with Appendices) presents DSM program budgets, savings estimates, and benefit-cost ratios for the three-year period 2008-2010 only. Other parts of the IRP include some estimates of the impacts of DSM

programs beyond 2010, but these programs and impacts are not discussed in the DSM Plan itself.

Q. **Is it appropriate to limit DSM program budget estimates and savings targets to the first three years of the 20-year planning period?**

A. No it is not. The Company is proposing to make major supply side resource investments during the next ten years. In order to ensure that these are necessary and appropriate resource choices for SPPC and its customers, it is essential that the Company fully analyze and consider the role that cost-effective demand-side resources can play in meeting the projected demand for electricity and energy services in its service territory over the same planning period.

Q. **Are there other states and utilities that have established longer term energy savings targets either as part of an Integrated Resource Plan or some other planning process?**

A. Yes there are. A report by researchers from Lawrence Berkeley National Laboratory on utility energy efficiency resource planning in western states shows that utilities in California and Washington as well as the multi-state utility PacifiCorp have established longer term energy savings targets.[1] The California PUC, for example, established energy savings goals for the investor-owned utilities in the state over a ten-year period (2004-2013), in conjunction with specific DSM plans and budgets over a three-year period. The energy savings goals represent over 50% of incremental electricity needs during 2004-

[1] N. Hopper, C. Goldman, and J. Schlegel. 2006. *Energy Efficiency in Western Utility Resource Plans: Impacts on Regional Resource Assessment and Support for WGA Policies.* LBNL-58271. Berkeley, CA: Lawrence Berkeley National Laboratory, August.

2013.[2] In Colorado, the PUC has approved eight-year energy savings and peak demand reduction targets for Xcel Energy, the main investor-owned utility in the state.

Q. **Do you have longer term energy savings goals that you suggest be adopted for Sierra Pacific Power Company?**

A. Yes I do. SPPC is proposing to achieve total savings of approximately 77 GWh per year from DSM programs implemented in 2008, 87 GWh per year from DSM programs implemented in 2009, and 93 GWh per year from DSM programs implemented in 2010 (first year savings only). This averages to about 86 GWh per year, approximately 1.0% of projected retail electric sales during this time period. I recommend that the Commission establish energy savings targets of saving 1% of retail electricity sales from DSM programs each year for at least the next ten years. This target is reasonable if not conservative based on the following factors: 1) the savings achieved in 2008-2010 would increase if the DSM programs proposed by the Company are expanded and additional programs are added, consistent with other recommendations in my testimony, 2) new efficiency measures will become commercially available and cost-effective in the future thereby presenting new energy savings opportunities, and 3) other leading states and utilities have achieved 1% energy savings from DSM programs implemented annually.

Q. **Please clarify what energy savings targets you are proposing and how you envision such targets working.**

A. I am suggesting that the Commission: a) establish 1% annual energy savings targets (i.e., an additional 1% reduction in retail sales each year) over at least a ten-year period in this

[2] Decision 04-09-060. California Public Utilities Commission. Sept. 23, 2004. www.cpuc.ca.gov/word_pdf/FINAL_DECISION/40212.pdf

docket, and b) direct the Company to strive to meet or exceed the targets through DSM programs for as long as sufficient cost-effective programs can be designed and implemented. For example, if the Company sells 9,000 GWh of electricity to its retail electricity customers in a particular year, the 1% savings target would be 90 GWh/yr of electricity savings from DSM programs implemented that year. Individual programs and budgets would still be subject to approval by the Commission. But the targets would be used in the IRP and elsewhere as a proxy for expected energy savings from DSM programs over a ten-year period.

Q. **Can you cite examples of utilities or states that have achieved at least 1% electricity savings from DSM programs implemented annually?**

A. Yes. Electric utilities in Massachusetts saved about 1.2% of sales from DSM programs implemented in 2004 while the statewide energy efficiency program in Vermont saved about 1.1% of sales.[3] In California, the three major IOUs were saving close to 1% of their retail sales through DSM programs implemented in 2004-05 and are expected to save 1% or more of sales each year during 2006-08 according to recently adopted DSM savings goals and budgets in the state.

Q. **How does a 1% annual electricity savings target compare to energy efficiency goals recommended by the Western Governors' Association?**

A. The Western Governors' Association (WGA) has adopted a goal of increasing the efficiency of electricity use in Western states 20% by 2020. An Energy Efficiency Task Force established by the WGA concluded that reducing otherwise forecast electricity use

[3] S. Slote, G. Reed, and J. Plunkett. 2006. "Comparative Performance of Electrical Energy Efficiency Portfolios in Seven Northeast States." **Proceedings of the 2006 ACEEE Summer Study on Energy Efficiency in Buildings**, pp. 12-91 – 12-102. Washington, DC: American Council for an Energy-Efficient Economy.

20% by 2020 through energy efficiency policies and programs is cost-effective and achievable. Among the recommendations for achieving this goal, the Task Force recommended setting a goal of saving 10-15% of projected electricity sales from DSM programs by 2020.[4] Adopting a 1% annual savings goal for SPPC starting in 2008 would put the Company on target for meeting this goal recommended by the WGA Energy Efficiency Task Force.

Comments on Individual DSM Programs in the IRP

Q. **Do you have comments on the residential ENERGY STAR lighting and appliances program?**

A. Yes. Regarding CFLs, stimulating the sales of nearly 2.2 million CFLs over a three-year period (Demand Side Plan, p. 186) is an ambitious but plausible goal in my view. If achieved the energy savings and economic benefits will be very large, and Nevada will become a national leader in energy-efficient lighting. Furthermore, this program has the potential to reach the majority of households in the SPPC service area, minimizing the number of non-participants in this program as well as DSM programs as a whole. I applaud the Company for thinking boldly about stimulating large-scale CFL adoption and for adding an ENERGY STAR light fixtures and multifamily direct installation components to the program. I urge the Commission to approve this program as proposed.

[4] *Energy Efficiency Task Force Report*. Report prepared for the Western Governors' Association Clean and Diversified Energy Initiative. Denver, CO. Jan. 2006. http://www.westgov.org/wga/initiatives/cdeac/Energy%20Efficiency-full.pdf

Q. **Do you have comments on the Second Refrigerator Recycling program?**

A. Yes. This type of program is very cost-effective according to the Company's analysis, showing a benefit-cost ratio of nearly 2.53 under the TRC test. This means that if the energy savings were only half as great as the Company estimates, the program would still be cost-effective from a TRC perspective. Refrigerator recycling programs are cost effectively implemented by at least 15 utilities in other states as part of their DSM programs.[5] SPPC and its contractor appear to be doing a good job implementing and evaluating the second refrigerator recycling program. The program is both removing older unneeded refrigerators from the housing stock and accelerating the replacement of older refrigerators. Based on participation rates and experience in other states, the program expansion proposed by the Company is reasonable in my view. I recommend the Commission approve the 2008-10 budget proposed by the Company for this program.

Q. **Do you have comments on the ENERGY STAR manufacturer homes program proposed by the Company?**

A. Yes. This new program does not appear to have a very favorable benefit-cost ratio, just 1.05 under the TRC test as stated by the Company. But the program would reach a lower income segment of the population that tends not to be reached by other types of DSM programs. Also, I believe the Company is conservative in how it values the benefits of DSM programs in general, as I explain below. Therefore, I believe this program in reality could have an even greater benefit-cost ratio than what SPPC claims, and I recommend it be approved by the Commission as proposed.

[5] N. Kolwey, "Refrigerator Recycling Programs: Rounding up the Old Dogs for Easy Energy Savings." EDRP-F-5, Boulder, CO: Esource. April 2006.

Q. **Do you have comments on the proposed Home Energy Display program?**

A. This is another innovative program that does not appear to have a very favorable benefit-cost ratio, just 1.09 using the TRC test. But again I believe the Company is conservative in how it values the benefits of DSM programs in general, as I explain below, and consequently I believe this program in reality could have an even greater benefit-cost ratio than what SPPC claims. Furthermore, the program would provide real-time information on energy consumption and engage households in better managing their own energy consumption, a strategy that has proven to be effective in a number of other locations in North America.[6]

SPPC is proposing to engage in considerable field testing and market research in order to confirm the benefits of the technology and program before engaging in larger scale implementation. I think this is a sound approach and I recommend that the program be approved by the Commission, with scale up during 2008-2010 dependent on proving that the technology provides adequate energy savings during the pilot stage and can be deployed in a cost-effective manner. As part of this evaluation, the Company should pay particular attention to the issue of persistence of energy savings.

Regarding program design, one suggestion I have is to direct the program and technology to households with above-average electricity use, at least initially. These households tend to have more appliances and higher energy bills, and thus greater opportunities for and more motivation to reduce electricity use through behavioral changes. Also, I recommend that the program include substantial customer education to help participants understand

[6] D. Parker, D. Hoak, A. Meier, and R. Brown, "How Much Energy Are We Using? Potential of Residential Energy Demand Feedback Devices." **Proceedings of the 2006 ACEEE Summer Study on Energy Efficiency in Buildings**, Washington, DC: American Council for an Energy-Efficient Economy.

what they can do to reduce electricity (and natural gas) use at little or no cost and with minimal inconvenience.

Q. **Do you have comments on the 80 Plus and ENERGY STAR plug load program?**

A. Yes. 80 Plus is a coordinated market transformation initiative that dozens of utilities throughout the country are participating in. It is targeting an important and growing source of electricity use, namely information technologies such as PCs, servers, and printers. The project is implemented through a contractor that SPPC will pay based on the number of qualifying products sold and thus energy savings realized in the SPPC service area. SPPC is also proposing to provide incentives for ENERGY STAR PCs and servers that meet new specifications recently issued by the U.S. EPA. I believe the benefit-cost ratio presented by SPPC for this program is conservative and reality will be higher because of reasons given by the utility such as not including in their analysis any reduction in cooling energy use in commercial buildings with more efficient PCs and servers, and because the economic analysis of all programs is conservative for reasons I explain below. Overall, this is an innovative, performance-based, and cost-effective DSM program, and I recommend that it be approved.

Q. **Do you have comments on the Sure Bet commercial incentives program?**

A. This program appears to be very cost-effective and working well. The requested increase in funding is warranted given that the program at the current funding level is running out of incentive dollars early in the calendar year. However, I recommend addition of a direct installation component for small customers, as was proposed by Nevada Power Company for implementation in southern Nevada, and approved by the PUC in NPC's 2006 IRP docket. Small customers are a "hard to reach" market segment and often do not have the

resources or know-how to implement energy efficiency projects on their own. I recommend adding $300,000 to the budget in 2008, $400,000 to the budget in 2009, and $500,000 to the budget in 2010 for this direct installation component, meaning that the Commission should approve a total budget of $2.6 million in 2008, $2.7 million in 2009, and $2.8 million in 2010.

Q. Do you have comments on the Sure Bet schools program?

A. This program is relatively limited in budget and is targeting efficiency upgrades in 30 schools per year. The estimated benefit-cost ratio during 2007-09 under the TRC test is only 1.06. But the program provides significant non-energy benefits by improving the learning environment and saving school districts money to use for important other things. Also, the avoided costs used by SPPC are underestimated by not including avoided T&D costs in the economic evaluation and by assuming that avoided costs do not rise faster than inflation (see comments below). If more complete and reasonable avoided costs were being used, the benefit-cost ratio for this program (and other DSM programs) would be higher. I recommend approval of the program as proposed.

Q. **Do you have comments on the Sure Bet new construction program?**

A. The Company is proposing to significantly expand this program relative to funding and activity levels in 2006-07. It is desirable to help make new construction as energy-efficient as possible since new buildings will operate for many decades and it is generally more cost effective to “build them right” than to go back and install energy efficiency measures via retrofit. But the program is only expecting to reach 10% of new commercial floor space constructed in the SPPC service area over this three-year period. I recommend that SPPC carry out even greater marketing and technical assistance, and increase the

budget to achieve more participation, greater energy savings, and a better economy of scale. More participation should lead to a more cost-effective program since overhead costs will be spread over more participants. Also, I suggest that the program include a focus on proper building commissioning once a new building is occupied. Experience elsewhere has shown that building commissioning is an important element of operating newly constructed commercial buildings at optimal efficiency, and it is a cost-effective energy efficiency strategy.[7] Overall, I recommend a budget for this program of $1.0 million in 2008, $1.2 million in 2009, and $1.4 million in 2010. It is logical for the budget to increase over time in part because of the significant lead time in designing and constructing new commercial buildings.

Q. **Do you have comments on the Sure Bet program for small and medium size hotels and motels?**

A. This new project appears to be well-conceived and cost-effective. If successful, I recommend that it be continued for a third year (2010) rather than just run for two years as proposed. This will enable the Company to achieve additional cost-effective energy savings and reach more than the projected two-year target of 52 hotels and motels.

Comments on DSM Programs Studied but Not Included in the IRP

Q. **Do you have comments on the high efficiency air conditioner program that SPPC considered?**

[7] E. Mills et. al. "The Cost-Effectiveness of Commercial Buildings Commissioning." LBNL-56637 (Rev.). Berkeley, CA: Lawrence Berkeley National Laboratory, Dec. 15, 2004. http://resources.cacx.org/library/holdings/Mills_LBNL.pdf

A. Yes. SPPC implemented an air conditioning rebate program in 2006 that was not as successful as the Company had hoped. A revamped air conditioning program was considered as part of the IRP process, but was not included in the set of DSM programs proposed for 2008-2010 because the Company concluded the program would not be cost effective under the TRC test. However, the program considered had two components: 1) rebates for high efficiency air conditioners and 2) a quality installation assurance (QIA) program. According to SPPC's analysis, the QAI component would account for about 37% of rebate dollars but provide over 80% of the total energy savings provided by the program. This means that the QIA component appears to provide a much greater "bang per buck" compared to the incentives for high efficiency AC equipment. Increasing the efficiency of residential air conditioning in the SPPC service area is important in part because air conditioners have such a low load factor and contribute disproportionately to summer peak demand. Based on this situation, I believe that a stand-alone quality installation program has a very good chance of being cost effective and should be considered by SPPC for implementation in the near future. I recommend that Commission direct SPPC to examine the feasibility of a stand-alone quality installation program and propose such a program in its first amendment to the DSM plan if the program appears to be cost effective.

Q. **Do you have comments on a potential residential new homes program?**

A. The Company considered an ENERGY STAR Plus new homes program in its 2007 IRP but concluded that the program would not be cost effective, with an benefit-cost ratio of 0.83 under the TRC test considering electric benefits only, and 0.90 considering combined gas and electric benefits (IRP Vo. V, pp. 328-330). However, SWEEP believes such a program could indeed be cost effective. First, if less conservative economic

assumptions were used (see below), the value of energy savings would be greater and the measures and program considered by SPPC could in fact be cost effective.

Second, SWEEP has conducted its own analysis of the potential energy savings and cost effectiveness of constructing a highly efficient new home in Reno using the Building Energy Optimization Model (BEopt) developed by the National Renewable Energy Laboratory. This software selects energy efficiency measures and considers them in combination in a prototypical new home. We considered a 2,400 square foot, gas-heated, two-story home. The analysis shows that is possible to achieve approximately 30% energy savings in both gas and electricity, relative to a home built to meet the 2006 IECC energy code, at a extra first cost of about $5,650. The main items that improve energy efficiency include extra insulation, a tighter building envelope, energy-efficient lights and appliances, high efficiency heating and cooling equipment, and air duct sealing. Based on current electricity and gas prices in the Reno area, the energy bill savings would be $671 per year, providing a simple payback of 8.4 years. On a lifecycle net present value basis, the efficiency measures would have a benefit-cost ratio of 1.48 assuming a 20 year lifetime. The benefit-cost ratio would be even higher if a longer lifetime is used for some or all of the measures, and if energy prices increase over time rather than remaining constant.

In summary, I believe it should be possible to develop a cost-effective ENERGY STAR plus new homes program in the SSPC service area, in spite of the limited cooling load in this region. Given that nearly 125,000 new residential customers (i.e., new homes) are projected during 2007-2027 in the SPPC service area, it is important to build new homes that are energy-efficient and not just at the minimum code level. I recommend that the

Commission direct SPPC to keep evaluating a potential ENERGY STAR plus new homes program, working with interested members of the DSM collaborative, and propose implementing such a program in the next amendment to the DSM programs if a way is found to make it technically and economically viable.

Issues Related to DSM Program Planning, Implementation and Evaluation

Q. **Do you have comments on the DSM Collaborative process?**

A. Yes. I believe that SPPC did a very good job in consulting with and responding to input from DSM collaborative members as it prepared the DSM component of its 2007 IRP. I want to commend them for this and share this comment with the PUC.

Q. **Do you have concerns regarding how the Company is measuring avoided costs for the purpose of analyzing DSM program cost effectiveness?**

A. Yes I do. The Company states on page 53 of the Demand Side Plan that "It is not reasonable to assume that there is no savings in transmission and distribution costs achieved when the demand side plan is executed." But the Company is not assuming any avoided transmission and distribution (T&D) system costs in its primary DSM program cost effectiveness evaluation. (The Company did run a sensitivity analysis including estimated values for avoided T&D costs.) This undervalues the benefits of DSM measures and programs. Other utilities routinely include avoided T&D costs in the analysis of the cost effectiveness of DSM programs. Even if there is uncertainty in the appropriate value to use, zero is certainly the wrong value. Accounting for avoided T&D costs is appropriate especially considering that the energy savings and peak demand reductions from DSM programs are rapidly growing and are no longer "lost in the noise."

I recommend that the Commission direct the Company to include avoided T&D costs in the primary economic analysis of DSM programs in all future reports and filings.

Second, from the information provided on inputs to the DSM cost effectiveness analysis (DSM plan, p. 56), it appears that the Company is assuming that avoided costs increase at the assumed rate of inflation (2.5% per year). But avoided costs and energy rates are increasing faster than inflation due to factors such as the recent surge in the cost of materials, cost of construction, and cost of fuels.[8] Construction costs for new power plants, whether coal-fired, gas-fired, or renewable energy facilities, are increasing rapidly and much faster than inflation. Given that SPPC is proposing to build additional generating capacity in the next 20 years, it is not reasonable to assume that energy rates and avoided costs do not increase faster than general inflation. By understating future energy prices and avoided costs, SPPC is undervaluing the benefits of DSM programs. I recommend that the Commission direct SPPC to review the avoided cost assumptions it is assuming in its DSM program analyses and use more up-to-date avoided costs considering recent trends such as those mentioned above.

Q. **What is your view regarding allowing flexibility in the overall DSM budget as well as the budget for particular programs?**

A. This issue was addressed recently by the PUCN in Docket No. 06-03038. The Commission approved up to a 20% deviation in the budget for three programs—ACLM, Sure Bet commercial incentives, and the Low Income Air Conditioner Program. In this docket, SPPC has requested that ability for up to a 20% deviation in the approved budget

[8] See, for example, M. Wald , "Costs Surge for Building Power Plants." New York Times, July 10, 2007. http://select.nytimes.com/gst/abstract.html?res=F50E15F63B5A0C738DDDAE0894DF404482

for the ENERGY STAR Lighting and Appliance program, Sure Bet commercial incentives, and Second Refrigerator Recycling program. SWEEP strongly supports the Company's request and recommends allowing this flexibility. This will enable the utility to respond to increased demand for program incentives or increased need for marketing expenditures in order to meet energy savings targets, without requesting a budget amendment. In addition, I recommend that the Commission allow the same flexibility be provided for other incentive programs such as the Sure Bet schools, hotel/motel, and new construction programs. Furthermore, I recommend providing flexibility in the total budget amount so that the utility does not need to cut back on one cost-effective program in order to meet unexpected demand for services or incentives in another program. However, in all cases the Company should still be responsible for operating cost-effective programs and for spending DSM dollars prudently.

Issues Related to Treatment of DSM in the Load Forecast

Q. **Do you have comments on how SPPC treats DSM Resources in its load forecast?**

A. In response to NCARE information request 2-01, SPPC provided the energy savings and peak demand reduction it is assuming each year from DSM programs during 2008-2028 in the Company's most recent load forecast. This load forecast was used in order to prepare the 2007 Integrated Resource Plan. The values for energy savings and demand reduction provided by SPPC are show in Exhibit HG-2.

Q. **Do you have concerns about the energy savings values provided by SPPC that are shown in Exhibit HG-2?**

A. Yes. First, there appears to be a discrepancy between the energy savings projected in the company's DSM Plan and the energy savings used in creating the load forecast. In Table 15 of the DSM plan, SPPC shows projected energy savings of 76.6 GWh/year from DSM programs proposed for implementation in 2008, 86.7 GWh/year for programs proposed for 2009, and 93.0 GWh/yr for DSM programs proposed for 2010. But as shown in Exhibit HG-2, the Company is only assuming savings of 49.9 GWh/year from DSM programs during 2008-2010 as input to the load forecast.

Q. **What is the implication of this discrepancy?**

A. Based on this discrepancy, it appears that SPPC has undervalued the contribution of DSM programs in its load forecast. This means that SPPC has overstated the need for supply-side resources in its 2008-2027 resource plan.

Q. **Do you have other concerns about the energy savings values provided by SPPC that are shown in Exhibit HG-2?**

A. Yes. In addition to assuming less energy savings than proposed in the DSM Plan, SPPC assumes that savings from DSM programs implemented each year decline significantly first in 2013 and then again in 2020. But there is no explanation for these declines. While some energy efficiency measures available today may saturate the marketplace or be made moot by future codes or standards, other new efficiency measures will become available for utility promotion. The reality is that energy savings from DSM programs are increasing each year in Nevada and many other states, not declining. Nevada utilities will continue to have an incentive to maintain high energy savings from DSM programs due

to the clean energy standards adopted in the state. In my view it is not reasonable to assume that the energy savings from DSM programs will decline in the future.

Q. **What do you recommend be done about these issues?**

A. First, I recommend that the Commission direct SPPC to correct the seeming discrepancy between assumed energy savings from DSM programs in the DSM Plan and in the Company's load forecast. Second, I recommend that the Commission direct SPPC to maintain the average level of energy savings provided by proposed DSM programs during 2008-2010 for the full 20-year forecast period in the Company's 2007 Integrated Resource Plan. This is a conservative recommendation given that savings from DSM programs have been increasing over time in recent years.

Summary

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

A. I first recommend establishing an energy savings target of 1% of retail electricity sales for a 10-year time period. I then recommend approval of all of the DSM programs proposed by SPPC for implementation during 2008-10. Having said this, I recommend increasing the budget for two programs, the Sure Bet commercial incentives program and the Sure Bet new construction program. I recommend that the Commission direct SPPC to re-examine the feasibility of a stand-alone air conditioning quality installation program as well as an ENERGY STAR plus new construction program and propose such programs in its first amendment to the DSM plan if they appear to be cost effective. Also, I recommend that the Company correct some flaws in the way it analyzes the cost

effectiveness of DSM programs, and that the PUC allow flexibility in the overall DSM budget as well as budget for individual DSM programs. Finally, I recommend that the Commission direct SPPC to correct flaws in the way energy savings from DSM programs are incorporated into the Company's load forecast and hence the supply plan resulting from the load forecast.

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

A. Yes.

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 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, 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.

Exhibit HG-2

Electricity Savings and Peak Demand Reduction Assumptions from DSM Programs Used in SPPC's Load Forecast
(Data provided by SPPC in Response to NCARE Data Request 2-01)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Incremental										
Commercial										
Annual MWh Incremental Savings	28,979	28,979	28,979	28,979	28,979	28,979	28,979	28,979	28,979	28,979
Annual Demand Savings (MW)	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Residential										
Annual MWh Incremental Savings	20,899	20,899	20,899	20,899	20,154	15,692	15,648	15,070	15,092	15,053
Annual Demand Savings (MW)	3.7	3.7	3.7	3.7	3.5	2.8	2.8	2.7	2.7	2.7
Total										
Annual MWh Incremental Savings	49,878	49,878	49,878	49,878	49,133	44,671	44,627	44,049	44,071	44,032
Annual Demand Savings (MW)	8.79	8.79	8.79	8.79	8.65	7.87	7.86	7.76	7.76	7.76
Cumulative										
Commercial										
Annual MWh Incremental Savings	94,123	123,102	152,081	181,060	210,039	239,018	267,997	296,976	325,955	354,934
Annual Demand Savings (MW)	16.6	21.7	26.8	31.9	37.0	42.1	47.2	52.3	57.4	62.5
Residential										
Annual MWh Incremental Savings	51,837	72,736	93,635	114,534	133,867	143,730	141,095	136,768	132,451	128,008
Annual Demand Savings (MW)	9.1	12.8	16.5	20.2	23.6	25.3	24.9	24.1	23.3	22.5
Total										
Annual MWh Incremental Savings	145,960	195,838	245,716	295,594	343,906	382,748	409,092	433,744	458,406	482,942
Annual Demand Savings (MW)	25.71	34.49	43.28	52.06	60.57	67.41	72.05	76.40	80.74	85.06

2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
28,979	28,701	20,521	17,995	20,285	20,285	20,285	20,285	20,285	20,285	20,285
5.1	5.1	3.6	3.2	3.6	3.6	3.6	3.6	3.6	3.6	3.6
15,031	14,973	14,906	14,872	14,851	14,851	14,851	14,851	14,697	14,629	14,629
2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
44,010	43,674	35,428	32,868	35,136	35,136	35,136	35,136	34,982	34,915	34,915
7.75	7.69	6.24	5.79	6.19	6.19	6.19	6.19	6.16	6.15	6.15
383,774	398,481	400,200	383,309	374,616	365,922	357,228	348,535	339,841	331,147	322,453
67.6	70.2	70.5	67.5	66.0	64.5	62.9	61.4	59.9	58.3	56.8
123,460	123,817	123,936	123,896	123,838	124,370	124,901	124,917	124,555	124,211	123,867
21.7	21.8	21.8	21.8	21.8	21.9	22.0	22.0	21.9	21.9	21.8
507,234	522,298	524,136	507,206	498,454	490,291	482,129	473,452	464,396	455,358	446,320
89.34	91.99	92.32	89.34	87.79	86.36	84.92	83.39	81.80	80.20	78.61

AFFIRMATION

I, HOWARD GELLER, do hereby swear under penalty of perjury the following: That I am the person identified in the attached testimony in Docket 07-06049 and that such testimony was prepared by me or under my direct supervision; that the answers and information set forth therein are true to the best of my knowledge and belief; and that if asked the questions set forth therein, my answers thereto would, under oath, be the same.

Howard Geller

HOWARD GELLER

STATE OF COLORADO)
) ss.
COUNTY OF BOULDER)

SUBSCRIBED AND SWORN to before me this 15th day of October 2007.

Penelope C. Anderson

Notary Public

PENELOPE C. ANDERSON NOTARY PUBLIC STATE OF COLORADO

My Commission Expires 12/21/2007