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9 **BEFORE THE ARIZONA CORPORATION COMMISSION**

10 JEFF HATCH-MILLER, CHAIRMAN  
11 WILLIAM A. MUNDELL  
12 MIKE GLEASON  
13 KRISTIN K. MAYES  
14 GARY PIERCE

15 IN THE MATTER OF THE FILING BY  
16 TUCSON ELECTRIC POWER COMPANY TO  
17 AMEND DECISION NO. 62103.

Docket No. E-01933A-05-0650

**NOTICE OF FILING TESTIMONY**

18 Southwest Energy Efficiency Project ("SWEEP"), through its undersigned counsel,  
19 hereby provides notice that it has this day filed the written direct testimony of Jeffrey A.  
20 Schlegel in connection with the above-captioned matter.

21 DATED this 8<sup>th</sup> day of January, 2007.

22 ARIZONA CENTER FOR LAW IN  
23 THE PUBLIC INTEREST

24 By   
25 Timothy M. Hogan  
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Phoenix, Arizona 85004  
Attorneys for SWEEP

1 ORIGINAL and 13 COPIES of  
2 the foregoing filed this 8<sup>th</sup> day  
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8 this 8<sup>th</sup> day of January, 2007, to:

9 All Parties of Record

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**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

JEFF HATCH-MILLER, Chairman  
WILLIAM A. MUNDELL  
MIKE GLEASON  
KRISTIN K. MAYES  
GARY PIERCE

IN THE MATTER OF THE FILING BY  
TUCSON ELECTRIC POWER COMPANY  
TO AMEND DECISION NO. 62103.

DOCKET NO. E-01933A-05-0650

Direct Testimony of

**Jeff Schlegel**  
**Southwest Energy Efficiency Project (SWEEP)**

January 8, 2007

**Direct Testimony of Jeff Schlegel, SWEEP  
Docket No. E-01933A-05-0650**

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**Introduction**

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Q. Please state your name and business address.

A. My name is Jeff Schlegel. My business address is 1167 W. Samalayuca Drive, Tucson, Arizona 85704-3224.

Q. For whom and in what capacity are you testifying?

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

Q. Please describe the Southwest Energy Efficiency Project.

A. SWEEP is a public interest organization dedicated to advancing energy efficiency as a means of promoting both economic prosperity and environmental protection in the six states of Arizona, Colorado, New Mexico, Nevada, Utah, and Wyoming. SWEEP works on state energy legislation, analysis of energy efficiency opportunities and potential, expansion of state and utility energy efficiency programs as well as the design of these programs, building energy codes and appliance standards, and voluntary partnerships with the private sector to advance energy efficiency. SWEEP is collaborating with utilities, state agencies, environmental groups, universities, and energy specialists in the region. SWEEP is funded primarily by foundations, the U.S. Department of Energy, and the U.S. Environmental Protection Agency. I am the Arizona Representative for SWEEP.

Q. What are your professional qualifications?

A. I am an independent consultant specializing in policy analysis, evaluation and research, planning, and program design for energy efficiency and clean energy resources. I consult for public groups and government agencies, and I have been working in the field for over 20 years. In addition to my responsibilities with SWEEP, I am working or have worked extensively in many of the states that have effective energy efficiency programs, including California, Connecticut, Massachusetts, New Jersey, Vermont, and Wisconsin. In 1997, I received the Outstanding Achievement Award from the International Energy Program Evaluation Conference. I have represented SWEEP before the Commission since 2002.

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## Summary of Testimony and Recommendations

1  
2  
3 Q. Please summarize your testimony.  
4

5 A. I will testify that:  
6

- 7 • The Commission should increase energy efficiency in the Tucson Electric Power  
8 Company (TEP) service territory to achieve significant and cost-effective benefits  
9 for TEP customers, the electric system, the economy, and the environment.  
10
- 11 • Specifically, the Commission should set TEP Demand Side Management (DSM)  
12 energy efficiency program goals in the form of an Energy Efficiency Standard  
13 (EES). The EES should require TEP DSM energy efficiency programs to: (1)  
14 achieve energy savings equal to at least 5% of total energy resources needed to  
15 meet retail load in 2010, and at least 15% in 2020; and (2) reduce summer peak  
16 demand by at least 5% of total capacity resources needed to meet retail peak  
17 demand in 2010, and at least 15% in 2020. The goals of the EES are meaningful  
18 and realistic, and they can be achieved with cost-effective energy efficiency  
19 programs.  
20
- 21 • Achieving the goals of the Energy Efficiency Standard would provide TEP  
22 consumers and businesses with over \$450 million in net economic benefits  
23 (benefits minus costs) during 2007-2020, eliminate the need for about 500 MW of  
24 new power plants by 2020 and the associated power line and pipeline  
25 infrastructure costs, provide 530 GWh of cumulative annual energy savings in  
26 2010 and over 2,200 GWh in 2020, reduce average annual load growth in retail  
27 energy and summer peak demand by 35% (from 3.4% to 2.2%), reduce electricity  
28 price spikes and the risks of price volatility, and reduce air pollution and the  
29 carbon emissions that cause global warming.  
30
- 31 • Other states and utilities have achieved energy savings equivalent to or greater  
32 than the EES goals that SWEEP proposes.  
33
- 34 • TEP will need to develop and implement additional DSM energy efficiency  
35 programs or program elements in order to achieve the EES goals. TEP's existing  
36 effective DSM energy efficiency programs should be included in the energy  
37 efficiency portfolio and should count or contribute to achieving the EES goals.  
38
- 39 • The Commission should authorize adequate funding to achieve the goals of the  
40 Energy Efficiency Standard (EES). SWEEP estimates that energy efficiency  
41 funding of \$0.002 per kWh of retail energy sales (2 mills) will be necessary to  
42 achieve the EES goals. In 2007, total DSM energy efficiency funding should be  
43 about \$18.7 million. In 2008, DSM energy efficiency funding should be \$19.1  
44 million in 2008. Funding for any DSM demand response, pricing, and/or load

1 management/load control programs should be in addition to the energy efficiency  
2 program funding.  
3

- 4 • DSM energy efficiency funding and cost recovery could be accomplished through  
5 funding in base rates, a DSM adjustment mechanism, a system benefits surcharge,  
6 amortizing or capitalizing the DSM investments over time, or a combination of  
7 funding mechanisms. SWEEP does not have a strong preference for one  
8 particular mechanism.  
9
- 10 • TEP should file an implementation plan to achieve the goals of the EES, covering  
11 the 2007-2020 program years, during 2007. The EES Implementation Plan  
12 should be developed by TEP with input from and review by a Collaborative DSM  
13 Working Group, which should include Staff and interested parties. The EES  
14 Implementation Plan would be reviewed by Staff, and then be reviewed and  
15 approved by the Commission prior to implementation for 2007 and future years.  
16
- 17 • Based on my initial review, TEP's DSM cost-effectiveness analysis does not  
18 appear to be consistent with Commission-approved practice.  
19
- 20 • SWEEP supports complementary approaches such as demand response and load  
21 management/load control programs to encourage peak load reductions, and  
22 pricing and rate designs, including inverted tier and TOU rate designs, to  
23 encourage energy efficiency and reduce peak demand. SWEEP supports these  
24 approaches as complements to effective energy efficiency policies and programs,  
25 not as replacements for cost-effective utility DSM energy efficiency programs.  
26

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1  
2                   **The Public Interest: Benefits of Increasing Energy Efficiency**  
3

4 Q. What is the public interest in increasing energy efficiency in the TEP service  
5 territory?  
6

7 A. Increasing energy efficiency will provide significant and cost-effective benefits for  
8 TEP customers (residential consumers and businesses), the electric system, the  
9 economy, and the environment. Increasing energy efficiency will save consumers  
10 and businesses money through lower electric bills, resulting in lower total costs for  
11 customers. Increasing energy efficiency will also reduce load growth, diversify  
12 energy resources, enhance the reliability of the electricity grid, reduce the amount of  
13 water used for power generation, reduce air pollution and carbon emissions, and  
14 create jobs and improve the economy. In addition, meeting a portion of load growth  
15 through increased energy efficiency can help to relieve system constraints in load  
16 pockets.  
17

18 By reducing electricity demand, energy efficiency mitigates electricity and fuel price  
19 increases and reduces customer vulnerability and exposure to price volatility. Energy  
20 efficiency does not rely on any fuel and is not subject to shortages of supply or  
21 increased prices for fuels.  
22

23 Energy efficiency is a reliable energy resource that costs less than other resources for  
24 meeting the energy needs of customers in the TEP service territory. The total cost  
25 (sum of program and customer costs) for energy efficiency savings is two to three  
26 cents per lifetime kWh saved, delivered to the customer. This is significantly less  
27 than the cost of conventional generation, transmission, and distribution. The utility  
28 program cost to TEP ratepayers is even lower, about one to two cents per lifetime  
29 kWh saved.  
30  
31

32                   **The Energy Efficiency Standard (EES):**  
33                   **Goals for Energy Savings and Peak Demand Reduction**  
34

35 Q. Specifically, what actions should the Commission take to increase energy efficiency  
36 goals in the TEP service territory?  
37

38 A. The Commission should set TEP Demand Side Management (DSM) energy  
39 efficiency program goals in the form of an Energy Efficiency Standard (EES). The  
40 EES should require TEP DSM energy efficiency programs to: (1) achieve energy  
41 savings equal to at least 5% of total energy resources needed to meet retail load in  
42 2010, and at least 15% in 2020; and (2) reduce summer peak demand by at least 5%  
43 of total capacity resources needed to meet retail peak demand in 2010, and at least  
44 15% in 2020.  
45

1 Meeting the EES goals would provide cost-effective benefits to consumers, the  
2 electric system, the economy, and the environment. And meeting the EES goals  
3 would contribute substantially to the achievement of the adopted goal of the Western  
4 Governors Association (WGA) to increase energy efficiency 20% by 2020. The  
5 adoption of the WGA energy efficiency goal was based on a technical review by  
6 stakeholders and WGA staff, documented in the energy efficiency report for the  
7 WGA Clean and Diversified Energy (CDEAC) process.  
8

9 Also, in Arizona in August 2006, a diverse group of 35 Arizona stakeholders<sup>1</sup>  
10 provided a consensus recommendation to set electric energy savings goals of 5%  
11 savings by 2010 and 15% savings by 2020 through demand-side programs, together  
12 with the implementation of policies and funding mechanisms needed to achieve those  
13 goals. These goals are equivalent to the EES goals proposed by SWEEP.  
14  
15

16 Q. What benefits would result from achieving the EES goals?  
17

18 A. Achieving the goals of the Energy Efficiency Standard would save consumers and  
19 businesses over \$450 million in net economic benefits (benefits minus costs) during  
20 2007-2020, eliminate the need for about 500 MW of new power plants by 2020 and  
21 the associated power line and pipeline infrastructure costs, provide 530 GWh of  
22 cumulative annual energy savings in 2010 and over 2,200 GWh in 2020, reduce  
23 average annual load growth in retail energy and summer peak demand by 35% (from  
24 3.4% to 2.2%), reduce electricity price spikes and the risks of fuel price volatility, and  
25 reduce air pollution and the carbon emissions that cause global warming.  
26

27 Essentially, the EES would result in a 500 MW “energy efficiency power plant” that  
28 would provide over \$450 million of net economic benefits to consumers, instead of  
29 building conventional power plants that would cost more and expose consumers to  
30 higher electricity prices, use precious water, and harm the environment.  
31  
32

33 Q. Are the goals of the EES reasonable and achievable?  
34

35 A. Yes, the proposed EES goals are both reasonable and achievable. The goals are  
36 reasonable and achievable considering the low level of energy efficiency activities in  
37 Arizona in the past, the need to ramp up energy efficiency efforts in the early years,  
38 the high rate of load growth in the TEP service territory, the significant energy  
39 efficiency potential in new construction, and the historical energy efficiency  
40 performance in leading states.  
41  
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<sup>1</sup> Arizona Climate Change Advisory Group, *Climate Change Action Plan*, August 2006;  
[www.azclimatechange.us](http://www.azclimatechange.us); p. 50.

- 1 Q. Have other states or utilities achieved energy savings equivalent to the EES goals that  
2 SWEEP proposes?  
3
- 4 A. Yes. According to a 2005 study by the American Council for an Energy Efficient  
5 Economy (ACEEE), based on 2003 data the utilities report to EIA, seven states  
6 achieved cumulative annual energy savings greater than 5% of retail energy sales.<sup>2</sup> In  
7 terms of 2003 cumulative annual energy savings as a percent of 2003 retail sales, the  
8 seven states saved energy equivalent to between 5.8% and 7.8% of retail sales. All  
9 seven of the states (Connecticut, California, Washington, Minnesota, Rhode Island,  
10 Oregon, and Massachusetts) have continued their energy efficiency programs since  
11 2003, therefore their cumulative energy savings in 2007 should be even higher.  
12  
13
- 14 Q. Will TEP need additional DSM energy efficiency programs to achieve the EES goals?  
15
- 16 A. Yes. TEP will need to develop and implement additional DSM energy efficiency  
17 programs or program elements in order to achieve the EES goals. TEP's existing  
18 effective DSM energy efficiency programs should be included in the energy  
19 efficiency portfolio and should count or contribute to achieving the EES goals.  
20  
21
- 22 Q. Are the existing TEP DSM energy efficiency programs performing adequately?  
23
- 24 A. Yes. The performance to date of the approved TEP DSM energy efficiency programs  
25 has been good, and the programs are providing meaningful net benefits. However, as  
26 noted above, additional energy efficiency programs will be needed to achieve the  
27 EES goals and the associated increase in benefits, including programs for residential,  
28 commercial, industrial, municipal, and institutional customers.  
29  
30

### 31 **Funding to Achieve the Energy Efficiency Standard (EES) Goals**

32

- 33 Q. What funding level will be needed to achieve the goals of the Energy Efficiency  
34 Standard proposed by SWEEP?  
35
- 36 A. The Commission should authorize adequate funding to achieve the goals of the  
37 Energy Efficiency Standard (EES). SWEEP estimates that energy efficiency funding  
38 of \$0.002 per kWh of retail energy sales (2 mills) will be necessary to achieve the  
39 EES goals. In 2007, total DSM energy efficiency funding should be about \$18.7  
40 million. In 2008, DSM energy efficiency funding should be \$19.1 million in 2008.  
41

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<sup>2</sup> "ACEEE's Third National Scorecard on Utility and Public Benefits Energy Efficiency Programs: A National Review and Update of State-Level Activity" by D. York and M. Kushler; American Council for an Energy Efficient Economy, October 2005, Report Number U054; [www.aceee.org](http://www.aceee.org).

1 Funding for any DSM demand response, pricing, and/or load management/load  
2 control programs should be in addition to the energy efficiency program funding.  
3

4  
5 Q. What would be the impact of the total funding level on residential customers?  
6

7 A. The total energy efficiency funding level of \$0.002 per kWh of retail energy sales (2  
8 mills), if expensed annually, would amount to slightly more than \$2.00 per month for  
9 the average TEP residential customer.  
10

11 While rates would likely increase slightly, the total costs to customers (customer  
12 bills) would decrease due to investment in cost-effective energy efficiency.  
13

14  
15 **DSM Funding and Cost-Recovery Mechanisms**  
16

17 Q. Which DSM funding and cost-recovery mechanisms should be used to provide the  
18 additional DSM funding that will be needed to achieve the goals of the EES?  
19

20 A. In general, energy efficiency funding and cost recovery could be accomplished  
21 through funding in base rates, a DSM adjustment mechanism, a system benefits  
22 surcharge, amortizing or capitalizing the DSM investments over time, or a  
23 combination of funding mechanisms.  
24

25  
26 Q. Are there DSM funding and cost-recovery mechanisms that would reduce the rate  
27 impacts of the DSM program funding increase in the early years of the EES?  
28

29 A. Yes. The Commission could choose to amortize or capitalize a portion of the DSM  
30 expenditures, similar to how investments in power plants are recovered through  
31 customer rates over time, thereby reducing the customer rate impacts of DSM  
32 programs in the early years of the EES. For example, the Commission could spread  
33 the additional DSM costs to ratepayers across several years (e.g., 5 years) in a manner  
34 that acknowledges that the energy efficiency benefits are achieved over several years.  
35

36  
37 Q. Could a combination of DSM funding and cost-recovery mechanisms be used?  
38

39 A. Yes. For example, the TEP DSM energy efficiency funding of \$18 million in 2007  
40 could consist of a portion in an adjustment mechanism, with the other portion  
41 amortized over five years.  
42

43  
44 Q. Does SWEEP have a preference for a particular funding and cost-recovery  
45 mechanism in this case?

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- A. SWEEP is open to considering any of the above funding and cost-recovery mechanisms and combinations. SWEEP does not have a strong preference for one particular mechanism. However, any funding mechanism or combination of mechanisms should have, at a minimum, the same advantages of a DSM adjustment mechanism, including but not limited to the flexibility to adjust funding outside of a rate case to meet customer demand for cost-effective, Commission-approved DSM services, and the ability to increase DSM funding above a base amount in the event that additional DSM programs are approved by the Commission between rate cases.

**Development of an EES Implementation Plan for the TEP Service Territory**

- Q. Should an EES implementation plan for the TEP service territory be developed?

- A. Yes. TEP should file an implementation plan to achieve the goals of the EES, covering the 2007-2020 program years, during 2007. The EES Implementation Plan should be developed by TEP with input from and review by a Collaborative DSM Working Group, which should include Staff and interested parties.

The EES Implementation Plan should include the historical DSM results for 2005-2006, a program-detail forecast for existing and new Commission-approved DSM energy efficiency programs in 2007-2010, and a less-detailed portfolio cost and savings forecast for 2011-2020.

- Q. What about Staff review and Commission approval of the EES Implementation Plan?

- A. The EES Implementation Plan should be reviewed by Staff, and then be reviewed and approved by the Commission prior to implementation.

Since Staff will participate directly in the development of the EES Implementation Plan as part of the DSM Collaborative Working Group, SWEEP recommends that the Commission provide 60 days for Staff review of the EES Plan after it is filed by TEP.

**DSM Program Cost-Effectiveness Analysis by TEP**

- Q. Have you reviewed the DSM cost-effectiveness analysis performed by TEP?

- A. To date I have reviewed only the summary provided in Mr. Pignatelli's direct testimony. However, SWEEP recently received a TEP response to its data request with some additional data on the TEP cost-effectiveness analysis, which I will review.

1 Q. Do you have any concerns about the TEP cost-effectiveness analysis based on your  
2 review to date?

3  
4 A. Yes. It appears that TEP did not use the Societal Test, which is the cost-effectiveness  
5 test approved by the Commission for analyzing DSM programs. Also, TEP  
6 emphasized the RIM test in Mr. Pignatelli's direct testimony, which is a test that is  
7 not approved by the Commission. Finally, the TEP analysis focuses largely or solely  
8 on reducing rates rather than on reducing total customer costs and customer bills.  
9

10  
11 **Other DSM and Pricing Approaches**

12  
13 Q. Are there other approaches to achieving energy savings and peak demand reductions  
14 that SWEEP recommends?

15  
16 A. Yes. SWEEP supports complementary approaches such as demand response and load  
17 management/load control programs to encourage peak load reductions, and pricing  
18 and rate designs, including inverted tier and TOU rate designs, to encourage energy  
19 efficiency and reduce peak demand. SWEEP supports these approaches as  
20 complements to effective energy efficiency policies and programs, not as  
21 replacements for cost-effective utility DSM energy efficiency programs.  
22

23 Any proposed demand response and load management/load control programs should  
24 be described and documented in the DSM EES plan or in a separate application for  
25 program pre-approval. Funding for demand response and load management/load  
26 control programs should be in addition to the increased DSM energy efficiency  
27 funding set forth herein. Costs for the demand response and load management/load  
28 control programs could be recovered through a demand response tariff or through an  
29 increase in the DSM adjustment mechanism.  
30

31  
32  
33 Q. Does that conclude your direct testimony?

34  
35 A. Yes.