

# Southwest Energy Efficiency Project

Saving Money and Reducing Pollution through Energy Conservation

# **2009 Annual Report**

2009 was another very successful year for the Southwest Energy Efficiency Project (SWEEP). Funding for electric utility energy efficiency programs in the region increased by about 44% in 2009 while funding for gas utility efficiency programs increased by 170%. A number of states and local jurisdictions adopted or were in the process of adopting the 2009 International Energy Conservation Code. In addition, SWEEP launched a transportation efficiency program in 2009 and completed its first statewide transportation efficiency blueprint.

# **Utility Program**

SWEEP continued to play a major role in the expansion of utility energy efficiency programs in the southwest region in 2009. Total funding for electric utility demand-side management (DSM) programs in the region increased from about \$170 million in 2008 to about \$245 million in 2009 (see Table 1 below). Of particular note were the increases in Colorado, New Mexico, and Utah. If utility efficiency programs continue at a funding level of \$245 million (a conservative assumption since DSM budgets will continue to grow in the future), utility energy efficiency programs will reduce the need for multiple new power plants in the region by 2015. Consumers should save at least \$5 billion over the lifetime of efficiency measures installed during 2009-2015 as a result of utility energy efficiency programs.

	DSM program budget (million \$ per year)						
State	2002	2004	2006	2007	2008	2009 (est.)	
AZ	4	4	19	32	40	50	
CO	11	21	18	32	28	57	
NV	3	11	30	27	55	60	
NM	1	1	1	4	10	16	
UT	9	16	27	28	36	60	
WY	~0	~0	~0	~0	1	2	
Region	29	54	95	123	170	245	

Table 1 - Electric Utility DSM Spending in the Southwest, 2002-09

Source: Southwest Energy Efficiency Project

SWEEP advocates for increased funding for utility energy efficiency programs as an intervener in proceedings before state public utility commissions. In addition, we influence energy efficiency policy through direct contacts with major utilities in the region and through interactions with state policy makers. SWEEP works collaboratively with utilities on the design of energy efficiency programs. In 2009, we helped Arizona Public Service, Nevada Power Company, Sierra Pacific Power Company, PacifiCorp, Public Service of New Mexico, Salt River Project and Xcel Energy with the design of their demand-side management (DSM) programs. These programs are leading to the adoption of more efficient appliances, efficient new homes, and efficiency improvements in commercial buildings and industries.

Table 2 estimates the total energy savings, net economic benefits, and avoided  $CO_2$  emissions from DSM programs implemented by utilities during 2003-2009. In total, we estimate that utility customers will realize about \$2.2 billion in net economic benefits from DSM programs implemented by utilities in the region during 2003-2009. Likewise, we estimate these programs will save about 3.1 million metric tons of  $CO_2$  emission in 2009 alone, and about 8.3 million metric tons of  $CO_2$  during 2003-2009. Thus, utility DSM programs are now providing significant economic and environmental benefits in the region.

Year	First-year Energy Savings (GWh/yr)	Energy Savings from Cumulative Programs (GWh/yr)	Net Economic Benefits from Annual Programs <sup>1</sup> (Million \$)	Avoided CO <sub>2</sub> Emissions <sup>2</sup> (1000 metric tons)
2003	175	175	113	122
2004	239	414	146	290
2005	280	694	189	486
2006	476	1,170	256	819
2007	743	1,913	332	1,339
2008	1,046	2,959	459	2,071
2009	1,510	4,469	674	3,128
Total	4,469		2,169	8,255

Table 2 - Electricity Savings, Net Economic Benefits, and Avoided CO<sub>2</sub> Emissions from Electric Utility DSM Programs in the Southwest

- Notes: 1) Assumes that the total investment in energy efficiency measures is 1.8 times the utility program cost and that programs have a benefit-cost ratio of 2.5 on average using the Total Resource Cost test. These are typical values for DSM programs in the region.
  - 2) Assumes 700 metric tons of avoided CO<sub>2</sub> emissions per GWh of electricity savings on average based on avoiding an equal share of coal-fired and natural gas-fired generation.

#### <u>Arizona</u>

SWEEP worked closely with the utilities during the past year and appeared before the Arizona Corporation Commission (ACC) in support of expanded electric utility DSM programs. Funding for these programs increased from \$40 million in 2008 to about \$50 million in 2009, and is expected to reach \$80 million in 2010. SWEEP intervened in a rate case filed by Arizona Public Service Company (APS), which resulted in a settlement agreement approved by the ACC that calls for APS increasing its energy savings to 1.0% of retail sales through programs to be implemented in 2010, 1.25% of retail sales through programs to be implemented in 2011, and 1.5% of retail sales through programs to be implemented in 2012. APS is planning to spend \$50 million on DSM programs in 2010, twice what it spent in 2009.

SWEEP also worked on having the ACC establish long-term energy savings requirements for investor-owned utilities. In December, the ACC approved ambitious electric energy efficiency resource standards requiring investor-owned utilities to achieve 20% savings by 2020 from DSM programs implemented during 2005-2020. Rural electric cooperatives are required to achieve at least 15% savings by 2020. SWEEP played a key role in developing and supporting these strong standards.

#### <u>Colorado</u>

SWEEP helped the main electric utility in Colorado (Xcel Energy) as it greatly ramped up its DSM programs in 2009. This was a result of legislation adopted in 2007 and PUC goals and incentives established in 2008. Xcel increased the first year energy savings from its DSM programs in 2009 by nearly 50% relative to programs implemented in 2008. SWEEP also participated in an Xcel Energy rate case during the grant period in which we advocated for strong inverted block rates. The PUC adopted inverted block rates for residential customers, although the rate differential across blocks is not as great as SWEEP advocated (i.e., this was a partial victory).

SWEEP participated in a docket in 2009 regarding DSM programs for the one other investor-owned electric utility in the state, Black Hills Energy. The utility agreed to implement a robust set of DSM programs and accept the same energy savings goals in percentage terms as were adopted for Xcel Energy.

SWEEP also worked on expanding the energy efficiency programs of municipal utilities and rural electric co-ops in Colorado. We helped to develop legislation proposing energy savings requirements for these utilities, but the legislation was not adopted by the Colorado legislature. In spite of this we offered suggestions for expanded DSM programs to a number of municipal utilities and rural electric cooperatives. We also advised Tri-State Generation and Transmission, a major wholesale power provider in the region, as it prepared an in-depth DSM potential study. This study shows substantial cost-effective energy savings potential in the service areas of the co-ops served by Tri-State.

#### <u>Nevada</u>

In 2009, the Nevada utilities—Nevada Power Co. and Sierra Pacific Power Co. – spent about \$60 million on their DSM programs, more than double the amount spent in 2007 (the actual amount spent in 2007 was below that budgeted). More important, the utilities are implementing additional programs and increasing energy savings each year. The Nevada utilities are now reducing load growth by about 1.3% per year as a result of their DSM programs (i.e., 1.3% savings from measures installed in one year). This places them among the leading utilities in the nation with respect to energy savings from DSM programs.

Nevada Power developed a new plan in 2009 for DSM programs that will be implemented during 2010-2012. The plan was delayed and not submitted to the state PUC until Feb. 1, 2010. The Company faced internal pressure to reduce the proposed budget for and energy savings from DSM programs as it finalized its DSM plan. SWEEP worked during the latter part of 2009 on maintaining robust funding for, as well as maximum energy savings from, the new DSM plan.

SWEEP participated in a docket in 2009 reviewing the DSM programs proposed by Southwest Gas Company in Nevada. A settlement was reached in this docket that calls for Southwest Gas to spend about \$12 million on DSM programs during 2010-2012. SWEEP was able to significantly improve the original DSM plan during these negotiations. The settlement agreement was approved by the Nevada PUC.

SWEEP also participated in three other dockets related to energy efficiency before the Nevada PUC during 2009. These included: 1) a rulemaking that established decoupling as a ratemaking option for natural gas utilities; 2) a rulemaking reviewing resource planning and DSM program approval procedures in the state; and 3) a rulemaking on providing utilities with compensation for net lost revenues from DSM programs. This last item was triggered by legislation enacted in the 2009 legislative session.

#### New Mexico

Important legislation enacted in New Mexico in early 2008 established energy savings requirements for investor-owned electric utilities. The legislation also directed the Public Regulation Commission (PRC) to remove the financial disincentives that utilities face when implementing energy efficiency programs for their customers and to provide utilities with a performance-based incentive. SWEEP participated in a rulemaking initiated by the PRC to work out the details of how disincentives and incentives are to be addressed. In particular we helped to develop a consensus proposal that the utilities, PRC staff, and other clean energy advocates all supported. This consensus proposal was approved by the PRC in early 2010.

In addition, the main electric utilities in New Mexico (PNM and SPS) both filed plans for expanded DSM programs in 2009. SWEEP helped the utilities develop new and

enhanced programs, and also participated in the DSM dockets serving as an expert witness on behalf of the Coalition for Clean and Affordable Energy (CCAE) in the state. In doing so we convinced the utilities and other parties to further expand the programs, with settlement agreements that were approved by the PRC in both dockets. Based on the agreements, the utilities roughly doubled their annual DSM budget starting in mid-2009.

SWEEP also advocated that a portion of the New Mexico's Stimulus funds be dedicated to energy efficiency programs by rural co-ops and municipal utilities. In advocating for this we strengthened our relationship with the key co-ops and municipal utilities in the state. In addition, we are assisting a few of these utilities with DSM program design.

## <u>Utah</u>

SWEEP and its partner/contractor Utah Clean Energy (UCE) were successful in developing, negotiating, and advocating for an Energy Efficiency Resolution adopted by the Utah legislature in March 2009. The resolution directs the Utah Public Service Commission (PSC) to set energy savings targets for utility energy efficiency programs and includes minimum savings levels that are relatively stringent. The resolution also directs the PSC to remove disincentives and provide reasonable performance-based incentives for the utility programs. The resolution was negotiated with the utilities and other key stakeholders in the state including the consumer advocate. We view the resolution as an important victory and something that should help to expand and sustain strong utility energy efficiency programs in Utah in the future. A copy of the resolution is available at <a href="http://www.swenergy.org/legislative/2009/utah/HJR9-substituted.pdf">http://www.swenergy.org/legislative/2009/utah/HJR9-substituted.pdf</a>.

In addition to work on the energy efficiency resolution, SWEEP and UCE continued to advise the main utilities in the state and advocated for higher levels of DSM funding and energy savings. Rocky Mountain Power, the main electric utility, significantly increased its DSM budget and energy savings during 2009. DSM spending increased from about \$36 million in 2008 to \$58 million in 2009. Energy savings from DSM programs grew by about 28% in 2009 relative to savings in 2008, and peak demand reduction more than tripled.

Cost recovery for this level of DSM spending was a contentious issue during 2009. Industrial consumers initially expressed strong objections to this level of DSM funding increase. SWEEP worked with representatives of industrial consumers, the utility, PSC staff and others to develop a consensus proposal for increasing the DSM tariff rider to 4.6% while at the same time opening a docket to review DSM policies in general. This settlement was approved by the Utah Commission.

Questar Gas Company, the natural gas utility in Utah, also greatly expanded its energy efficiency programs in 2009. Questar's DSM expenditures increased from about \$18 million in 2008 to \$47 million in 2009. Furthermore, first year energy savings more than doubled and 2009 DSM programs saved the equivalent of about 1.1% of Questar's gas sales to its full service residential and commercial customers. With support from SWEEP, Questar has become a leading gas utility in terms of energy efficiency efforts. In particular, the utility has been very successful in stimulating homeowners to insulate their homes and adopt other home retrofit measures.

#### **Buildings Program**

In the building efficiency area, SWEEP continued to promote adoption of stateof-the art building codes and also advocated and supported programs to encourage beyond code new construction in 2009. We disseminated a major report titled *Going Beyond Code: A Guide to Creating Energy Efficient and Sustainable Buildings in the Southwest* that was completed at the end of 2008 (available on our web site at www.swenergy.org/pubs). The Guide has been very well received by state and local officials as well as other building efficiency specialists.

SWEEP also published a report on innovative financing strategies for energy efficiency improvements and distributed renewable energy projects in 2009. We contracted with a clean energy financing expert, Matthew Brown, who authored *Recent Innovations in Financing for Clean Energy* for us. The report has been very well received and is being used by a number of organizations including the U.S. Department of Energy.

SWEEP had an impact on new homes programs offered by utilities in Arizona, Colorado and New Mexico in 2009. In particular we were successful in convincing utilities to promote and offer incentives for very efficient new homes (i.e., for achieving higher tiers of energy performance within ongoing new homes programs). Other activities related to building efficiency are listed below by state. We also note that we hired a new Buildings Program Director, Jim Meyers, in 2009.

#### <u>Arizona</u>

SWEEP helped to develop and support various policies that would increase energy efficiency in buildings including adopting statewide targets for energy savings in new construction, additional appliance efficiency standards, and facilitation of performance contracting for retrofitting public buildings and schools. The latter two policies were included in an omnibus energy bill that passed in the Arizona legislature in its final marathon night of the 2009 session. We devoted substantial resources during the grant period to educating policy makers and other interested parties about the merits of these proposals.

SWEEP helped to insert language into the Arizona Corporation Commission's (ACC) Energy Efficiency Resource Standard recognizing the energy savings of newer energy codes. Utilities can count up to one third of the energy savings as a result of new energy building codes when the codes are quantified and reported through a measurement and evaluation protocol. SWEEP also provided training on the 2009 International Energy Conservation Code (IECC) to a group of code enforcement officials and city representatives. One community that participated in the training, the City of Mesa, is

moving forward with adopting the 2009 IECC.

#### **Colorado**

SWEEP worked to advance above code, high performance, and green building programs in Colorado in 2009. SWEEP and its contractor, Pacific Northwest National Laboratory (PNL) is developing a regional voluntary green building program for the Denver metropolitan area. SWEEP has also been active with the Colorado International Codes Council (ICC) Chapter to support the adoption of the 2009 IECC across the state. Three Denver metro area communities have adopted the 2009 IECC and more communities are reviewing the code. Also, one community has adopted the National Green Building Standard and two other communities are actively reviewing this standard for adoption in their communities. SWEEP provided input to Colorado cities and counties as they considered these state-of-the-art building codes.

### <u>Nevada</u>

SWEEP prepared and supported a number of policy proposals for increasing energy efficiency in Nevada's buildings. These were presented to key members of the legislature which convened in February 2009 (the Nevada legislature meets once every two years). The proposals we developed include minimum efficiency standards on pool pumps, TVs and other products; directing the utility commission to consider adopting more sophisticated electricity rates that provide better price signals for energy conservation, expansion of performance contracting for retrofit of public sector buildings; and requiring valuation of  $CO_2$  emissions costs in utility resource planning. The latter two policies were adopted by the legislature, as were a few other energy efficiency provisions that SWEEP supported.

SWEEP also supported the adoption of the 2009 IECC in Nevada. We hired a contractor who provided technical support to the Southern Nevada Energy Codes committee. With our help, key jurisdictions in southern Nevada including the city of Las Vegas and Clark County went forward in adopting the 2009 IECC. In addition, SWEEP played a lead role in identifying training needs related to increasing energy efficiency in the residential sector and organizing a statewide energy efficiency training initiative.

#### New Mexico

SWEEP devoted considerable resources to advocating the adoption of an enhanced version of the 2009 IECC energy code in New Mexico. SWEEP's New Mexico representative, Tammy Fiebelkorn, is a member of the key committee that is developing the revisions to the state's mandatory building code. SWEEP provided specific code recommendations as well as cost-benefit analysis for these recommendations. At the urging of SWEEP, the committee chose to add additional energy efficiency requirements in order to increase energy savings above the level that would result from adopting the 2009 IECC for both new homes and commercial buildings. Final approval of the new statewide building code will take place in 2010. SWEEP also helped both Albuquerque and Santa Fe develop and adopt Green Building codes in 2009. In addition, SWEEP worked on expanding funding for energy efficiency home retrofit programs for low-income households in New Mexico.

## Utah

SWEEP was actively engaged with the adoption of the 2009 IECC and its associated issues. SWEEP's partner and contractor Utah Clean Energy (UCE) worked with the Energy Ad-Hoc Stakeholder Group and the Uniform Buildings Code Commission (UBCC) to promote the adoption of the entire 2009 IECC statewide. Technical comments including a detailed cost analysis were submitted in support of the residential provisions of the energy code. Unfortunately the Utah home builders association opposed the 2009 IECC and was able to persuade the UBCC to not adopt the residential provisions of the energy code. However, the provisions in the code for commercial buildings were adopted.

SWEEP and UCE also were active at the legislature in 2009. We supported a bill that would require licensing of HVAC contractors in the state. Also, we were successful in stopping the restructuring of the UBCC, a proposal that would have been detrimental to energy efficiency interests.

We collaborated with the Governor's Office and State Energy Program to secure funding for the Utah Building Energy Efficiency Strategy (UBEES), a three-year project aimed at improving energy efficiency in both public and private buildings in the state. SWEEP and UCE also provided recommendations to Salt Lake City and County as well as other jurisdictions as they developed their applications for Energy Efficiency and Conservation Block Grants under the federal Stimulus bill (ARRA).

## **Wyoming**

In Wyoming, SWEEP participated in a training session on the IECC presented to building code officials, builders and other interested parties. SWEEP has also opened communication with the state energy office to discuss energy code needs and ARRA requirements.

# **Transportation Program**

2009 was the first full year of operation for our new transportation sector energy efficiency program. In its initial year, the program focused primarily on developing a *The Colorado Transportation Blueprint*. The *Blueprint* identifies all the transportation strategies adopted as part of the 23 climate plans adopted by states, and infrastructure investment and land use strategies developed by metropolitan planning organizations, to reduce  $CO_2$  emissions. The *Blueprint* assesses the emission reductions available from implementing each strategy in Colorado, the actions needed by the legislature, state agency, regional or local government to adopt and implement each strategy, and the

expected costs and fuel saving benefits of each strategy.

The *Blueprint* demonstrates that the most significant strategies available at the State level are the coordination of expanded transit services with land use policies that channel future development into the communities within walking and biking distance of regional transit, and user fees that send price signals commensurate with the  $CO_2$  impacts of the chosen travel mode. Our conclusions regarding the emission reduction potential of these strategies was confirmed by the results of *Moving Cooler*, a major report released in mid-2009 by a consortium of federal agencies, NGOs and other co-sponsors.

After the *Blueprint* was published, SWEEP briefed the Governor's climate team, key agency officials, the Transportation Legislative Review Committee and other key state legislators, other environmental and urban planning groups, and members of the Board of the Denver metropolitan area planning agency (known as DRCOG). Most notably, the DRCOG Board directed its staff to develop and analyze scenarios for reduced growth in vehicle-miles travelled (VMT) based on the recommendations made by SWEEP. We regard this as a major accomplishment as it is a critical step towards adopting key initiatives proposed in the *Blueprint*.

The *Colorado Transportation Blueprint* will be used as the model for development of other policy recommendations, and analysis of these recommendations in other states in the SWEEP region. We expect that the policy development and analyses for other states will be completed during the next year or two, and will reflect lessons learned as we seek implementation of the strategies in Colorado.

In the 2009 legislative session in Colorado, SWEEP contributed to the enactment of provisions that were included in Governor Ritter's transportation funding bill. Known as FASTER, the Governor's bill was primarily designed to expand state funding for the repair and replacement of 128 bridges at risk in the state, and maintenance of the highway system. SWEEP, in cooperation with other statewide environmental organizations, succeeded in expanding the scope of the bill to include dedicated funding for pedestrian and bicycle safety programs to be integrated into highway and transit planning activities, and authorization for tolls to be added to existing highways with the proceeds dedicated to projects and services designed to reduce GHG emissions. The bill also contains authority requiring the Transportation Commission to address greenhouse gas emissions in the development of the Statewide Transportation Plan. Since the release of the *Blueprint*, SWEEP has worked with the Colorado Department of Transportation (CDOT) regarding the implementation of these provisions.

In separate legislation, SWEEP also helped win passage of an amendment creating a new Transit Division within the CDOT, and a requirement to develop a statewide transit plan as part of the statewide transportation plan. SWEEP also helped develop legislation with the Governor's Energy Office that reforms the tax credit and rebate program for alternative fueled vehicles in Colorado. Prior law would have sunset at the end of 2011. The new legislation extends the tax credit and rebate for alternative fueled vehicles until 2016, removes low efficiency (< 30 mpg) alternative fueled vehicles

from the program, and categorizes alternative technologies to focus the highest tax credit (75% of the incremental cost) on plug-in hybrid vehicles.

## **Industrial and Combined Heat and Power Program**

SWEEP engaged in planning an industrial sector energy efficiency program in 2009. The program will involve promoting more efficient use of all forms of energy by industries in the region, working state-by-state. In 2009 we developed a proposal for a Colorado industrial energy efficiency program together with the Governor's Energy Office (GEO), the ETC Group, and engineers from Colorado State University. The program was launched in early 2010 after funding was received from GEO and the U.S. DOE. In addition, we helped plan an industrial energy efficiency program in UT in 2009.

SWEEP, through its co-leading the U.S. DOE Intermountain Clean Energy Application Center, made progress in promoting the use of recycled energy (including combined heat and power, waste energy recovery, and district energy) in the region. SWEEP and partner ETC Group received renewed funding from DOE to run the Center for another three years, with the option of a fourth year if matching funds can be found. The Center continues to encourage efficient and well-designed recycled energy systems through education and outreach, policy and regulatory work, and technical assistance.

One success on the policy front was the inclusion of CHP in Arizona's Energy Efficiency Resource Standard. While the details remain to be worked out, this should help remove electric utility disincentives towards recycled energy projects in Arizona. Another policy success was contributing to the net metering standards adopted in Utah.

The Center continues to provide technical assistance to companies considering the installation of a recycled energy project, and in one case helped save an existing renewable CHP project that was otherwise due to be shut down. Other progress in 2009 included a training on CHP for USDA architects, engineers, and program managers; a webcast and toolkit CD for air regulators on output-based emissions standards; expertise provided to The Climate Registry's Electric Power Sector Technical Expert Panel on carbon accounting for CHP; expertise provided to the Utah Public Service Commission and Utah Division of Public Utilities on interconnection standards; case studies on projects in the region; an article published in *Powerline* magazine; and participation in an advisory group on CHP convened by the U.S. Department of Agriculture.

For further details, see the Center's web site: www.IntermountainCHP.org.

## **Regional Activities**

SWEEP organized its **Sixth Annual Southwest Regional Energy Efficiency Workshop** in Phoenix in 2009. The workshop provided a forum for discussion of the latest developments regarding utility DSM programs in the region, state policy efforts, and emerging energy efficiency technologies. Presentations from the 2009 workshop are available at <u>http://www.swenergy.org/events/annual/2009/index.html</u> In addition, SWEEP made numerous presentations at local and state forums as well as national conferences on energy efficiency efforts and opportunities in the Southwest. These presentations and papers are helping to educate policy makers, energy professionals, and other stakeholders about energy efficiency opportunities and potential.

SWEEP completed a redesign of its website in 2009. The new website, <u>www.swenergy.org</u>, includes state fact sheets, updated information on state and utility programs, legislative reports, publications, case studies, news items, consumer information, and more.

# **Publications**

The following reports along with legislative reports and selected presentations are available on the SWEEP web site, <u>http://www.swenergy.org/publications/index.html</u>

H. Geller and M. Goldberg. **Energy Efficiency and Job Creation in Colorado.** April 2009.

R.E. Yuhnke and M.C. Salisbury. **Colorado Transportation Blueprint for the New Energy Economy.** July 2009.

M.H. Brown and B. Conover. **Recent Innovations in Financing for Clean Energy.** Oct. 2009.

# Supporters

SWEEP appreciates the financial support it received from the following organizations in 2009:

Arizona Public Service Company
Argosy Foundation
Colorado Governor's Energy Office
Edwards Mother Earth Foundation
Energy Foundation
Hewlett Foundation
Salt River Project
Sea Change Foundation
Southwest Gas Company
UniSource Energy Corporation
U.S. Department of Energy Building Technologies Program (through the National Renewable Energy Laboratory)
U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability
U.S. Environmental Protection Agency
Xcel Energy

# Staff and State Representatives (May 2010)

Howard Geller, Executive Director Jim Meyers, Senior Associate and Director of Buildings Program Bob Yuhnke, Director of Transportation Program Neil Kolwey, Senior Associate and Director of Industrial Program Monica Brett, Program Associate Christine Brinker, Program Associate Gene Dilworth, Program Associate J.C. Martel, Program Associate Mike Salisbury, Program Associate Curtis Framel, Project Manager Jeff Schlegel, Arizona Representative Tammy Fiebelkorn, New Mexico Representative Steve Wiel, Nevada Representative Kevin Emerson and Sarah Wright, Utah Representatives